FLORIDA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bruce -

(FYI)

I had also located this permit which I intended to evaluate in light of Stone Container PSD application.

Mike Halpin

PERMIT TO OPERATE

NCU 037-12

LOUISIANA-PACIFIC SAMOA
SAMOA, CA

JUNE 19, 2000

NORTH COAST UNIFIED
AIR QUALITY
MANAGEMENT DISTRICT

2300 MYRTLE AVENUE
EUREKA, CALIFORNIA 95501

PHONE (707) 443-3093
FAX (707) 443-3099

NORTH COAST UNIFIED AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE

NCU 037-12

LOUISIANA-PACIFIC SAMOA, INC.

LEGAL OWNER OR OPERATOR: Louisiana-Pacific Samoa, Inc.
PO Box 218
Samoa, CA 95564
Responsible Official: Pulp Mill Manager
Plant Contact: Environmental Manager
707/443-7511

BUSINESS ACTIVITY: Kraft pulp mill

EQUIPMENT LOCATED AT: The plant is located in the northwestern portion of California within the County of Humboldt and on the Samoa Peninsula near the town of Samoa which is across Humboldt Bay from the City of Eureka the County seat.

Whereas a timely application for a Permit to Operate has been made by Louisiana-Pacific Samoa, Inc.(hereinafter called the Permittee) pursuant to Regulation 5 (implementation of federal Title V operating permits) of the Rules and Regulations of the North Coast Unified Air Quality Management District (hereinafter called the District), and said application has been reviewed and found complete by the Air Pollution Control Officer of said District (hereinafter referred to as the Control Officer or NCUAQMD).

Unless otherwise noted, all requirements in this PERMIT are federally enforceable.

This is your Permit to Operate (hereinafter called PERMIT) subject to the following terms and conditions.

Page Number

TABLE OF CONTENTS 2

LIST OF ABBREVIATIONS

adtpd	air dried tons pulp per day
adtp	air dried tons pulp
Administrator	Administrator of the Environmental Protection Agency
Act	Clean Air Act
tbls	ton black liquor solids
CARB	California Air Resources Board
CEMS	continuous emissions monitoring system
CMS	continuous monitoring system
CFR	Code of federal regulations
CO	carbon monoxide
COMS	continuous opacity monitoring system
CO_2	carbon dioxide
dscf	dry standard cubic foot
deg. F	degrees Fahrenheit
District	North Coast Unified Air Quality Management District
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
g/dscm	grams per dry standard cubic meter
gr/acf	grains per actual cubic foot
gr/dscf	grains per dry standard cubic foot
HVLC	high volume low concentration
LVHC	low volume high concentration
lbs/hr	pounds per hour
MMBtu	million British thermal units
NCASI	National Council of the Pulp and Paper Industry for Air and Stream Improvement
NCGs	noncondensible gases
NOx	nitrogen oxides
NSPS	New Source Performance Standards
O_2	oxygen
pH	hydrogen ion concentration in a solution
ppmv	parts per million by volume
PSD	Prevention of Significant Deterioration
SOG	stripper off gas
TCF	totally chlorine free
tpy	tons per year
TRS	total reduced sulfur
UBK	Unbleached kraft pulp
unit	single emissions unit
VEE	visible emission evaluation

PERMIT UNITS

(1) Permit Number - NP-072(Pulp Mill)
Name - Recovery Boiler

I. BASIC EQUIPMENT - The permittee operates an A. Ahlstrom Corporation 3 million pounds per day of black liquor solids recovery furnace for recovery of pulp mill process chemicals and generation of steam for mill processes. The furnace burns black liquor at approximately 70% solids content. The furnace also has startup and load carrying burners that combust natural gas. The startup burners are rated at 144 million Btu/hr heat input while the two load carrying low-NOx burners are rated at 288 million Btu/hr heat input.

II. CONTROL EQUIPMENT - Particulate matter is controlled with an electrostatic precipitator manufactured by Environmental Elements. The unit has two parallel chambers with three fields in each chamber and a total plate area of 153,648 sq.ft. Plates are cleaned by mechanical rapping and gravity feed to discharge hoppers. The material in the hoppers is mechanically conveyed to the salt cake mix tank. The control of sulfur dioxide is accomplished by high black liquor solids firing at normal liquor flows which sustain normal smelt bed height and temperatures. Nitrogen oxides are controlled while firing natural gas with the use of the Low-NOx burners while combustion controls are utilized while firing black liquor.

III EMISSIONS LIMITATIONS

A. Particulate Matter

1. Particulate loading - The permittee shall not discharge into the atmosphere particulate matter in excess of 0.025 grains per standard cubic foot of exhaust gas corrected to 8 percent oxygen[This is a streamlined permit condition which accounts for District SIP Rule 420(c) approved 10/31/80, NSPS 40 CFR 60.282 and District Authority to construct dated 1/22/91].

2. Visible emissions - The permittee shall not discharge into the atmosphere particulate matter which exhibits an opacity of 20 percent or greater on a six minute average basis[This is a streamlined permit condition which accounts for District SIP Rule 410(a) approved 10/31/80, NSPS 40 CFR 60.282 and District Authority to construct dated 1/22/91].

a. This limitation does not apply during periods of startup or shutdown, or during a breakdown condition. Startup and shutdown shall be defined for this emission limitation as those periods of time when black liquor is not being fired in the furnace[Regulation 1, Rule 410(d)].

B. Total Reduced Sulfur - The permittee shall not discharge into the atmosphere total reduced sulfur(calculated as H_2S) in excess of 3 ppmv corrected to 8% oxygen and reported as two 12-hr averages per 24 hour period[This is a streamlined permit condition which accounts for District SIP Rule 57 approved 9/22/72, NSPS 40 CFR 60.283 and District Authority to construct dated 1/22/91].

a. This limitation does not apply during periods of startup or shutdown, or during a breakdown condition. Startup and shutdown shall be defined for this emission limitation as the 12-hour period following the introduction of black liquor into the boiler[Regulation 1, Rule 240(d)].

C. Sulfur Dioxide -

1. The permittee shall not discharge into the atmosphere sulfur dioxide in excess of 50 ppmv corrected to 8% oxygen and reported as two 12-hr averages per 24 hour period[District Authority to construct dated 1/22/91].

a. This limitation does not apply during periods of low liquor flow or smelt bed height due to a planned shutdown or startup, or during a furnace or mill breakdown condition which would create low liquor flow or smelt bed height conditions. Liquor flows of less than 180 gpm shall be considered low flows for the purpose of this section[Regulation 1, Rule 240(d)].

2. General Provisions section L.4[SIP rule adopted 8/2/78].

D. Carbon Monoxide - The permittee shall not discharge into the atmosphere carbon monoxide in excess of 250 ppmv corrected to 8% oxygen and reported as two 12-hr averages per 24 hour period[Authority to construct, dated 1/22/91].

a. This limitation does not apply during periods of startup or shutdown, or during a breakdown condition. Startup and shutdown shall be defined for this emission limitation as the 12-hour period following the introduction of black liquor into the boiler[Regulation 1, Rule 240(d)].

E. Nitrogen Oxides - The permittee shall not discharge into the atmosphere nitrogen oxides (calculated as nitrogen dioxide) in excess of[EPA PSD permit issued April 12, 1999]

1. Under normal operating conditions.

a. When firing black liquor solids exclusively or in combination with natural gas, 78 ppmv corrected to 8% oxygen and reported as two 12-hr averages per 24 hour period.

b. When firing natural gas exclusively, 62 ppmv corrected to 8% oxygen and reported as two 12-hr averages per 24 hour period.

2. Transient mode(natural gas only), 40 lbs/hr on a 3 hr average.

For the purposes section E, Nitrogen Oxides, transient mode is defined as the period of time immediately following a boiler startup or shutdown that is required to perform safety and operational tests necessary to ensure proper performance of the furnace. This timeframe shall not exceed 24 hours and does not include periods of time when black liquor solids are being fired in the furnace[EPA PSD permit dated April 12, 1999].

IV. COMPLIANCE MONITORING

A. The following methods shall be used for determining compliance with the above emissions limitations:

1. Particulate Matter - CARB Method 5. The permittee shall be required to have particulate matter from the furnace tested once per calendar year. If the compliance test result is less than one-half the permitted limit, then the next year compliance test may be waived by the District[Regulation 1, Rule 240(h)].

2. Visible Emissions - The permittee shall operate and maintain a continuous opacity monitoring system(COMS)[40 CFR 60.48b(a)].

a. 40 CFR 60, Appendix B, Performance Specification 1 shall be the basis for the operation of the COMS[40 CFR 60.49b(b)].

b. A hot stack zero and alignment of the COMS shall be conducted during startups which occur after planned shutdowns while the furnace is being fired on natural gas prior to the introduction of black liquor into the furnace[Regulation 1, Rule 240(d)].

3. Total Reduced Sulfur, Sulfur Dioxide, Carbon Monoxide, Nitrogen Oxides - The permittee shall operate, maintain and calibrate daily a continuous emissions monitoring system(CEMS) for the determination of total reduced sulfur, sulfur dioxide, carbon monoxide, and nitrogen oxides from the furnace. The CEMS shall be operated in conformance with 40 CFR, Part 60, Appendix B, Performance Specifications, and RATA requirements of Appendix F, Quality Assurance Procedures[[Authority to construct, dated 1/22/91 and for NOx specifically, EPA PSD permit dated April 12, 1999].

B. All CEMS and COMS shall be in full operation while either natural gas and/or black liquor is being fired in the furnace[Regulation 1, Rule 240(d)].

C. The permittee shall maintain and operate instrumentation to measure black liquor and natural gas flows into the furnace[EPA PSD permit dated April 12, 1999].

D. For all gaseous emissions, if any 12 hr period contains missing CEMS data, the 12-hr block average shall be calculated using all available CEMS data points, averaged over the time period represented by those data[Regulation 1, Rule 240(d); EPA PSD permit dated April 12, 1999].

V. REPORTING AND RECORDKEEPING - see General Provisions, section F.

A. The permittee shall maintain data on the operation of the furnace which shall include the black liquor solids firing rate, steam flow, steam temperature, natural gas firing rate, and hours in transient mode[Regulation 1, Rule 240(d)].

B. The permittee shall report all occurrences of excess emissions from the furnace to the District in accordance with the timing requirements of Regulation 1, Rule 540, Equipment Breakdown[Regulation 1, Rule 240(d)].

C. For NOx emissions only, the permittee shall notify the EPA, Region IX, Director of the Air Division within 48 hours following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emissions limit stated in section III.E for this permit unit. A follow-up report shall be made to the Director within 15 days of any such failure. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial failure, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed, and the methods utilized to restore normal operations[EPA PSD permit dated April 12, 1999].

D. A quarterly report related to NOx emissions only shall be submitted to the EPA, Region IX for every calendar quarter. This report shall include the following[EPA PSD permit dated April 12, 1999]:

1. The magnitude of excess emissions computed in accordance with 40 CFR 60.13(h), and conversion factors used, and the date and time of commencement and completion of each time period of excess emissions.
2. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the furnace systems. The nature and cause of any malfunction (if known) and the corrective action taken or preventive measures adopted shall also be reported.
3. The date and time identifying each period during which the continuous monitoring system was inoperative, repaired, or adjusted. Such information shall be stated in the report.
4. When no excess emissions have occurred or the continuous monitoring system has not been inoperative, repaired, or adjusted, such information shall be stated in the report.
5. Excess emissions shall be defined as any 12 hour period during which the average emissions of NOx, as measured by the CEMS, exceeds the emission limits set forth in section III.E for this permit unit.
6. The report shall include a summary report form in accordance with 40 CFR 60.7(d).

The monthly report submitted to the District will be deemed equivalent for the purpose of a quarterly report submittal to the District.

E. The permittee shall demonstrate compliance with Section III.E.1.b. for this permit unit by submitting to the EPA, Region IX within 60 days after an annual startup, CEMS data which demonstrates compliance with the emission limit[EPA PSD permit dated April 12, 1999].

VI. OPERATING CONDITIONS - see General Provisions, section C.

A. The furnace shall not be operated at a firing rate which exceeds a calendar monthly average of 3,000,000 pounds per day of black liquor solids[Authority to construct dated 1/22/91].

B. While the furnace is firing liquor, the permittee shall continuously operate and maintain the control equipment described in section II of this permit unit in a condition which can be assured to control particulate matter emissions to within permitted limits[Authority to construct dated 1/22/91].

C. At all times, including periods of startup, shutdown, and malfunction, the permittee shall maintain and operate the furnace (including associated air pollution control equipment: electrostatic precipitator, overfire air systems, low NOx burners systems) in a manner consistent with good air pollution control practices for minimizing emissions[EPA PSD permit dated April 12, 1999; Regulation 1, Rule 240(d)]

(2) Permit Number - NP-073(Pulp Mill)
Name - Lime Kiln

I. BASIC EQUIPMENT - The permittee operates a rotary lime kiln manufactured by Traylor Engineering and Manufacturing Company. The kiln measures 10 feet in diameter by 270 feet in length. The following lime mud impurity reduction systems are a part of the lime production process (1) A green liquor filtration system consisting of a Green Liquor Filter(X-filter) and a dregs precoat filter, (2) Mud washing for removal of sulfide impurities from the mud: and (3) Mud precoat filtration for reduction of mud moisture content and impurities prior to introduction of the mud (calcium carbonate) into the kiln.

II. CONTROL EQUIPMENT - Particulate matter is controlled with a venturi scrubber manufactured by Chemical Construction Corporation.

III EMISSIONS LIMITATIONS

A. Particulate Matter

1. Particulate loading - The permittee shall not discharge into the atmosphere particulate matter in excess of 0.20 grains per standard cubic foot of exhaust gas corrected to 10 percent oxygen or 1.0 pounds per ton of kraft pulp mill production, whichever is the more restrictive condition[This is a streamlined permit condition which accounts for District SIP Rule 420(d) approved 10/31/80, and District Regulation 1, Rule 420(d)(2) adopted on 1/19/89].

2. Visible emissions - see General Provisions, section L.

B. Total Reduced Sulfur - The permittee shall not discharge into the atmosphere TRS(calculated as H2S) in excess of 20 ppmv or 0.10 pounds of TRS per ton of kraft pulp production as a daily arithmetic average, whichever is the more restrictive condition. The 0.10 pounds of TRS per ton of pulp portion of this limitation is only applicable when the following applies Pulp production, TCF > 550 adtpd, UBK >600 adtpd and mud flow to precoats > 210 gpm[This is a streamlined permit condition which accounts for District SIP Rule 57 approved 9/22/72, and District Regulation 1, Rule 450(b)].

C. Sulfur Dioxide - The permittee shall not discharge into the atmosphere sulfur dioxide in excess of 12.3 pounds per hour, average of three one-hour averages from both the lime kiln and incinerator[Authority to Construct issued 10/18/93 and subsequent revisions].

IV. COMPLIANCE MONITORING

A. The following methods shall be used for determining compliance with the above emissions limitations:

1. Particulate Matter - CARB Method 5 or other EPA approved method.
The permittee shall be required to have particulate matter from the kiln tested once per calendar year. If the compliance test result is less than one-half the permitted limit, then the next year compliance test may be waived by the District. Testing is to be done during normal operating conditions where normal means: pulp production, TCF > 550 adtpd, UBK >600 adtpd and mud flow to precoats > 210 gpm[Regulation 1, Rule 240(d)].

2. Visible Emissions - No periodic monitoring is required of this source[Regulation 1, Rule 240(d)].

3. Total Reduced Sulfur - Federal Method 16B. While the kiln is processing mud, the permittee shall operate and maintain a continuous emissions monitoring system(CEMS) for the determination of total reduced sulfur from the kiln. The CEMS shall be operated in conformance with 40 CFR, Part 60, Appendix B, Performance Specifications, and RATA requirements of Appendix F, Quality Assurance Procedures. A modification to Method 16B is allowed using an ultraviolet fluorescence sulfur analyzer[Regulation 1, Rule 240(d)].

4. Sulfur Dioxide - No compliance testing is required of this source[Regulation 1, Rule 240(d)]

V. REPORTING AND RECORDKEEPING - see General Provisions, section F.

A. The permittee shall continuously record and maintain data on the operation of the kiln which shall include the firing temperature, mud flow, scrubbing liquid flow and natural gas flow[Regulation 1, Rule 240(d)].

B. The permittee shall maintain records of the hourly, daily and monthly averages for total reduced sulfur from the kiln[Regulation 1, Rule 240(d)].

C. The permittee shall report all occurrences of excess emissions from the kiln to the District in accordance with the timing requirements of Regulation 1, Rule 540, Equipment Breakdown[Regulation 1, Rule 240(d)].

VI. OPERATING CONDITIONS - see General Provisions, section C.

A. The permittee shall continuously operate and maintain a venturi scrubber on the exhaust of the kiln while the kiln is in operation[Regulation 1, Rule 240(d)].

B. The venturi scrubber flow shall be maintained at a minimum flow of 120 gpm, three hour average[Regulation 1, Rule 240(d)].

(3) Permit Number - NP-074(Pulp Mill)
Name - Smelt Dissolver

I. BASIC EQUIPMENT - A 50,000 gallon tank manufactured by A. Ahlstrom used to dissolve recovery furnace smelt in water to form green liquor.

II. CONTROL EQUIPMENT - Wet scrubber containing a five foot section of structured packing and followd by a six inch chevron demister section. Spray nozzles are located downstream of the packing which provides a continuous spray of weak wash down upon the packing. An additional set of nozzles located upstream sprays water into the demister section for cleaning periodically. The alkaline weak wash solution is used to aid in the control of total reduced sulfur.

III EMISSIONS LIMITATIONS

A. Particulate Matter

1. Particulate loading - The permittee shall not discharge into the atmosphere particulate matter in excess 0.20 pounds per ton of black liquor solids[This is a streamlined permit condition which accounts for District SIP Rule 420(d) approved 10/31/80, NSPS 40 CFR 60.282 and District Authority to construct dated 1/22/91].

2. Visible emissions - See General Provisions section L.

B. Total Reduced Sulfur - The permittee shall not discharge into the atmosphere total reduced sulfur(calculated as H_2S) in excess of 0.0168 pounds per ton of black liquor solids calculated on a dry basis[This is a streamlined permit condition which accounts for District SIP Rule 57 approved 9/22/72, NSPS 40 CFR 60.283 and District Authority to construct dated 1/22/91].

IV. COMPLIANCE MONITORING

A. The following methods shall be used for determining compliance with the above emissions limitations:

1. Particulate Matter - CARB Method 5. The permittee shall be required to have particulate matter from the dissolver tested once per calendar year. If the compliance test result is less than one-half the permitted limit, then the next year compliance test may be waived by the District[Regulation 1, Rule 240(h)].

2. Visible Emissions - No periodic monitoring is required of this source[Regulation 1, Rule 240(d)].

3. Total Reduced Sulfur - Federal Method 16B. A modification to this method is allowed for the use of a ITT Barton Titrator or an ultraviolet fluorescence sulfur analyzer in accordance with NCASI Technical Bulletin # 89[District Regulation 1, Appendix B adopted on 12/5/84]. The permittee shall be required to have TRS from the dissolver tested once per calendar year. If the compliance test result is less than one-half the permitted limit, then the next year compliance test may be waived by the District [Regulation 1, Rule 240(d)].

V. REPORTING AND RECORDKEEPING - see General Provisions, section F.

A. Flow rates from the spray nozzles for the structured packing shall be recorded continuously[Regulation 1, Rule 240(d)].

VI. OPERATING CONDITIONS - see General Provisions, section C.

A. The permittee shall maintain the following scrubber operating parameters as specified[Regulation 1, Rule 240(d)]:

1. Weak wash liquid to the spray nozzles located in the scrubber for the structured packing section - 560 gpm minimum three hour basis;

2. Demister section sprays shall be set to operate at least every eight hours.

B. All smelt dissolving tank emissions shall be directed through the scrubber at or above minimum scrubber flow rates except when necessary for the maintenance of scrubber spray nozzles, scrubbing liquid pumps or other scrubber related equipment items provided such maintenance does not exceed 3 hours in length. Any maintenance requiring a longer length of time shall be reported to the District in accordance with Rule 540[Regulation 1, Rule 240(d)].

(4) Permit Number - NP-075(Pulp Mill)
Name - Noncondensible Gas System

I. BASIC EQUIPMENT - The permittee operates a Kraft pulp mill with the following mill processes:
Noncondensible Gas (NCG) System Consisting of:

A. High Volume Low Concentration(HVLC) System which handles noncondensible gases from the following sources:
   1. Brown stock washer spill tank.
   2. Brown stock washer filtrate tanks.
   3. LTV evaporator process sewer manhole #7.

B. Low Volume High Concentration(LVHC) System which handles noncondensible gases from the following sources:
   1. Digester and digester flash tanks.
   2. Digester blow tank.
   3. Multiple effect evaporator and evaporator seal tank.
   4. Turpentine decanter.
   5. Black liquor concentrator and concentrator seal tank.
   6. Foul condensate storage tank.
   7. Foul Condenstate Steam Stripper System consisting of:
      a. Steam Stripper Column.
      b. Foul Condensate Storage Tank.
      c. Stripped Condensate Heat Exchanger.
      d. Steam Generator.
      e. Trim Condenser.
      f. Foul Condensate Preheater.
      g. Turpentine Decanter.

II. CONTROL EQUIPMENT
Noncondensible Incineration System - The NCG system consists of two separate closed-vent piping networks which capture, transport, and condition the NCGs for incineration. The incineration systems consist of the following:

A. Noncondensible gas incinerator.
   1. Wet scrubber which utilizes an alkaline solution of sodium hydroxide as a scrubbing liquid for the control of sulfur dioxide.
   2. The incinerator is operated at high temperatures for the oxidation of organic compounds including but not limited to total reduced sulfur and methanol.

B. Lime kiln - The high temperature environment of the lime kiln is sufficient to oxidize organic compounds including but not limited to total reduced sulfur and methanol. The lime developed in the kiln also provides an environment for the chemical scrubbing of any sulfur dioxide resulting from the TRS oxidation.

C. Backup flare - The flare burns natural gas and is used in case both the NCG incinerator and lime kiln are down due to malfunction conditions.

III. EMISSIONS LIMITATIONS

A. Emissions limitations as a result of this permit are as follows:
   1. Sulfur dioxide - 12.3 pounds per hour, average of three one-hour averages total from both the lime kiln and incinerator[Authority to Construct issued 10/18/93 and subsequent revisions].
   2. Total reduced sulfur(as H_2S)
      a. Incinerator - 5 ppmv, average of three one-hour averages[Regulation 1, Rule 450(d)].
      b. Lime kiln - 20 ppmv, daily 24-hr. average[Regulation 1, Rule 450(b)].

B. All HVLC and LVHC processes as indicated in section I, Basic Equipment, shall be enclosed and vented at all times to the control system as described in section II, Control Equipment[40CFR 63.443(c)]. Venting may only be allowed during startup, shutdown or as a malfunction condition when details are furnished to the District as explained in Section V.A. and Rule 540 of Regulation 1, and the condition qualifies as a malfunction in accordance with District breakdown/malfunction policy.

C. Condensates from the equipment items in section I, Basic Equipment, shall be treated according to one of the following options [40 CFR 63.446(c)]

1. Treat the entire volume of condensates or,

2. Treat condensates from the digester, turpentine recovery and weak liquor evaporators that in total contain at least 65% of the total HAP mass, plus the condensates from the HVLC and LVHC collection systems or,

3. Treat condensates from all equipment items in section I that in total contain a HAP mass of 11.1 pounds per ton of oven dried bleached pulp and 7.2 pounds per ton of oven dried unbleached pulp.

The condensates shall be treated by either recycling to a controlled piece(s) of process equipment in section I, or by steam stripping.

D. Steam stripping shall meet one of the following requirements [40 CFR 63.446(e)

1. Reduce the total HAPS by at least 92 percent or more or,

2. Remove 6.6 pounds of HAPS per ton of oven dried pulp during unbleached pulping operations and 10.2 pounds of HAPS per ton of oven dried pulp during bleached pulping operations.

Periods of treatment that do not meet either of these requirements shall not be a violation provided that the time of noncompliance (including periods of startup, shutdown, or malfunction) divided by the total stripper operating time in a semi-annual reporting period does not exceed 10 percent[40 CFR 63.446(g).

E. The foul condensate storage tank used in the closed collection system shall be: (1) designed and operated with no detectable leaks as indicated by an instrument reading of less than 500 parts per million above background and (2) vented to the control equipment[40 CFR 63.446(d)(2)].

IV. COMPLIANCE MONITORING

The following methods shall be used for determining compliance with the emissions limitations contained in section III:

A. The permittee shall be required to have sulfur dioxide from the incinerator tested once per permit term using CARB Method 100 utilizing a UV florescence analyzer or an equivalent EPA Method [Regulation 1, Rule 240(d)].

B. The permittee shall be required to have total reduced sulfur from the incinerator tested once per permit term using CARB Method 100 modified for SO_2 analysis utilizing a scrubber for sulfur dioxide removal, an oxidation oven operated at 800 °C or higher and a UV fluorescence analyzer or an equivalent EPA Method[Regulation 1, Rule 240(d)].

C. The closed-vent system specified in section II, Control Equipment shall meet the following requirements:

1. For each closed-vent system which vents a process equipment emission point that is being collected for incineration, the permittee shall operate and maintain a computer controlled system which will record the pressure and temperature in the closed-vent system[Regulation 1, Rule 240(d)].

2. For each duct which allows the bypass of exhaust gases to the atmosphere, the permittee shall operate and maintain a computer controlled system which will monitor and record exhaust gas flow in the bypass duct in accordance with section V.B.4 and VI.G[40 CFR 63.450(d)(1)].

3. Each enclosure and closed-vent system and each condensate closed collection system shall be visually inspected by the permittee every 30 days and at other times as requested by the District or Administrator. The visual inspection shall include inspection of ductwork, piping, enclosures, and connections to covers for visible evidence of defects[40 CFR 63.453(k)(2) and 40 CFR 63.453(l)].

a. For condensate drain systems, the permittee shall inspect the individual drain system in accordance with the requirements of 40 CFR 63.964(a)(1) of subpart RR[40 CFR 63.453(l)].

D. The permittee shall calibrate, certify and continuously operate a monitoring and recording system which measures the steam stripper foul condensate feed rate, steam feed rate and foul condensate column feed temperature[40 CFR 63.453(g)].

E. The permittee shall monitor every 30 days the foul condensate storage tank and stripper system for leaks in accordance with 40 CFR 63.457(d)[40 CFR 63.446(d)(2)(i)].

V. REPORTING AND RECORDKEEPING

A. Reporting Requirements

1. Startup, Shutdown, and Malfunction Reporting - The Permittee shall notify the District regarding malfunction conditions such as follows in accordance with District Regulation 1, Rule 540

a. Venting of noncondensible gases to the atmosphere from any noncondensible gas handling system not specifically identified elsewhere in this section.

b. Failure of both primary incineration systems(incinerator and lime kiln) which requires the venting of noncondensible gases to the backup flare in excess of the allowances provided in section VI.N. of this permit.

c Failure of all incineration systems(incinerator, lime kiln, and backup flare) which requires the venting of uncontrolled noncondensible gases to the atmosphere.

d. Failure of the sulfur dioxide wet scrubber on the incinerator which includes inadequate scrubbing liquid flow, low pH values not within the limits of this permit, or pH controller problems.

e. Incineration of all HVLC and LVHC gases in the lime kiln, or incineration of these gases under an operating scenario differing from "normal" as defined by this permit, shall require approval by the District prior to incineration. Incineration under conditions other than "normal" operation that is due to an equipment malfunction does not require prior approval[Regulation 1, Rule 240(d)].

f. If an inspection required under section IV.C (1) identifies visible defects in ductwork, piping, enclosures or connections to covers; or (2) if enclosure openings are not maintained at negative pressure; or (3) if monitoring as required by section IV.E detects a level of gas greater than allowed by section III.E or VI.D, then (I) an effort to repair or correct the problem shall be made as soon as practicable but no later than 5 calendar days after the problem is identified, (ii) the repair or corrective action shall be completed no later than 15 calendar days after the problem is identified. Delays in corrective action or repairs beyond 15 calendar days are allowed as authorized by the District where the corrective actions or repairs are technically infeasible without a process unit shutdown or where the emissions resulting from immediate repair would be greater than the emissions likely to result from delaying the repair[40 CFR 63.453(k)&(l)].

g. Operation of the steam stripper outside of the parameters contained in section VI.C except as allowed by section III.D shall be reported to the District[Regulation 1, Rule 240(d)].

h. The permittee shall report all occurrences of excess emissions to the District in accordance with the timing requirements of Regulation 1, Rule 540, Equipment Breakdown[Regulation 1, Rule 240(d)].

i. Venting from P/V vents that meet the following conditions shall be reported in accordance with Regulation 1, Rule 540[Regulation 1, Rule 240(d)]

a. LVHC system venting more than 2 minutes total per day determined from the 24 hour period of midnight to midnight.

b. HVLC system venting more than 15 minutes total per day determined from the 24 hour period of midnight to midnight.

Venting for periods less than the above shall be recorded and maintained but are not required to be reported to the District in accordance with Regulation 1, Rule 540.

2. Startup, Shutdown, and Malfunction Plan - The permittee shall maintain current, and implement a written plan that describes in detail the procedures for operating and maintaining the basic and control equipment in this permit unit during periods of startup, shutdown, and malfunction. The plan will also provide for corrective action for malfunctioning basic and control equipment in this permit unit. The plan must be re-approved by the District upon any changes[40 CFR 63.6(e)(3)].

3. Any actions taken by the permittee during a startup, shutdown or malfunction (including actions taken to correct a malfunction) that are not consistent with the procedures specified in the "Plan", shall be reported to the District by telephone within 2 working days after such actions followed by written confirmation within 7 working days of such actions. The written confirmation shall explain the circumstances of the event and reasons for not following the procedures in the "Plan"[40 CFR63.10(d)(5)].

B. Recordkeeping Requirements

1. The combustion temperature in the incinerator shall be continuously recorded in a format which will allow for identification of date, time and temperature[Regulation 1, Rule 240(d)].

2. The pH, flow and level of the scrubbing liquid in the scrubber controlling the sulfur dioxide from the incinerator shall be monitored and recorded continuously[Regulation 1, Rule 240(d)].

3. Alarms associated with the venting to the atmosphere of noncondensible gases from the Noncondensible Gas System shall be recorded and all data maintained on site for inspection[Regulation 1, Rule 240(d)].

4. For each enclosure opening associated with the basic equipment, closed-vent system, and condensate closed collection system, the permittee shall prepare and maintain an inspection plan including a drawing or schematic of the components of the systems and shall record the following information for each inspection[40 CFR 63.454(b)]:

a. Date of inspection,
b. The equipment type and identification;
c. The nature of the defect or leak and the method of detection;
d. The date of each attempt to repair the defect or leak,
e. Repair methods applied in each attempt to repair the defect or leak;
f. The reason for the delay if the defect or leak is not repaired within 15 days after discovery.
g. The expected date of successful repair of the defect or leak if the repair is not completed within 15 days;
h. The date of successful repair of the defect or leak; and
i. The duration of opening of bypass line valves.

VI. OPERATING CONDITIONS

A. The closed-vent system portion which is operated under pressure prior to the incineration device shall be operated with no detectable leaks[40 CFR 63.450(c)].

B. Any condensates from the basic equipment listed in this permit shall be conveyed in a "condensate closed collection system"[63.446(d)].

1. The closed collection system shall meet the individual drain system requirements specified in 40 CFR 63.960, 40 CFR 63.961, and 40 CFR 63.962 of subpart RR[40 CFR 63.446(d)(1)].

2. Each opening in the foul condensate storage tank shall be maintained in a closed, sealed position at all times that the tank contains pulping process condensates except when it is necessary to use the opening for sampling, removal, or for equipment inspection, maintenance, or repair[40 CFR 63.446(d)(2)]

C. Operation of the steam stripper within the following operating parameters shall be deemed to provide compliance with section III.D of this permit unit[40 CFR 63.453(o)]

1. A steam flow to condensate flow ratio (lbs/lbs) of 18% or greater as a daily average shall be required during unbleached pulping operations.
2. A steam flow to condensate flow ratio (lbs/lbs) of 22% or greater as a daily average shall be required during bleached pulping operations. This ratio will be revised to 21% provided the permittee supplies additional methanol input rates test data during bleached pulping operations which shows that input rates are at least 1600 mg/l.

The condensate feed temperature will be continuously monitored and the permittee will operate a heat exchanger to maintain normal condensate feed temperatures. All rates are to be determined on a daily average basis.

D. No spillage, storage, transport or handling of foul condensate shall be permitted which would allow the vapors from the condensate to vent to the ambient air. Any overflow from the foul condensate storage tank shall be directed to a sealed sewer or weak liquor tank[Regulation 1, Rule 240(d)].

E. Should both the lime kiln and incinerator become incapable of combusting the gases from the stripper according to design then the stripper shall be automatically shutdown by eliminating steam and foul condensate to the stripper[Regulation 1, Rule 240(d)]

F. The following condition shall define "normal" combustion of the HVLC and LVHC gases[Regulation 1, Rule 240(d)]:

a. Following collection and moisture removal, the HVLC and LVHC gases shall be combusted in the lime kiln or in the incinerator at an hourly average temperature greater than 1675 °F, and

b. The majority of the stripper exhaust gases are being combusted in the incinerator

G. Bypass vents shall be monitored by a controller and if any vent opens, an alarm will note which vent is open so that appropriate corrective action can take place to close the pressure/ vacuum vent[Regulation 1, Rule 240(d)].

H. Gases from the HVLC, and LVHC will be combusted in either the incinerator, lime kiln or both[Regulation 1, Rule 240(d)].

I. Hourly average combustion temperatures in the lime kiln and incinerator shall be at least 1675°F while combusting noncondensible gases[Regulation 1, Rule 240(d)].

J. The incinerator wet scrubber used for the control of sulfur dioxide emissions shall be in operation at all times during the combustion of noncondensible gases. The scrubbing liquid shall consist of a solution of sodium hydroxide with the pH of the recirculated scrubbing liquid from the outlet of the scrubber maintained no lower than 6.75 as a 3-hour average[Regulation 1, Rule 240(d)].

K. The lime kiln shall be fully operational and processing calcium carbonate at normal rates and temperatures prior to the combustion of any noncondensible gases[Regulation 1, Rule 240(d)].

L. Turpentine from mill processes may be combusted in the lime kiln[Regulation 1, Rule 240(d)].

M. Should either the lime kiln or the incinerator become incapable of combusting the HVLC or LVHC gases then the backup flare shall be placed in a standby mode with burners on low fire preheat. The backup flare shall be maintained in this mode until both the lime kiln and incinerator systems are in operation and combusting noncondensible gases[Regulation 1, Rule 240(d)].

N. Should both the lime kiln and incinerator become incapable of combusting the HVLC or LVHC gases then the LVHC gases will be vented through the fully operating backup flare for combustion prior to release to the main stack, the HVLC gases will be exhausted to the atmosphere, and the Foul Condensate Steam Stripper system shall be shutdown. The use of the backup flare is allowed for a total time of no more than 12 hours in any one day while both the lime kiln and incinerator are out of service for repair. Once the backup flare operation combusting NCGs has reached 12 cumulative hours time in a day, immediate shutdown of mill processes which produce noncondensible gases shall be required. HVLC gases are allowed to be vented to the atmosphere in excess of the allowances provided in Section III.B. only while the backup flare is in use and the lime kiln and incinerator are non-operational[Regulation 1, Rule 240(d)].

(5) Permit Number - NP-076(Pulp Mill)
Name - HVLC Other Sources

I. BASIC EQUIPMENT
- A. Pulping Processes
  1. Two brown stock washers,
  2. Two secondary knotters,
  3. One decker system including the decker hood and decker filtrate tank;
  4. One unscreened stock chest,
  5. One oxygen delignification blow tank.
- B. Liquor Storage Processes
  1. Three weak black liquor storage tanks;
  2. One intermediate black liquor storage tank,
  3. Two strong black liquor storage tanks;
  4. One black liquor spill collection tank,
  5. One 70% black liquor storage tank.
- C. Recovery Processes
  1. One salt cake mix tank.

II. CONTROL EQUIPMENT

All exhaust vents from the above processes are collected and transported in a closed-vent system to the tertiary combustion air inlet of the recovery furnace for incineration. Ductwork is stainless steel and a water cooled condenser provides for moisture removal prior to incineration[40 CFR 63.443(d)(4). The recovery furnace control system may be bypassed to the main stack for periods of time as allowed by this permit in section III.

III EMISSIONS LIMITATIONS

A. All Pulping Processes, Liquor Storage Processes, and Recovery Processes as indicated in section I, Basic Equipment, shall be enclosed and vented at all times to the control system as described in section II, Control Equipment with the following exceptions[40 CFR 63.443(a)(1)] & [40 CFR63.443(d)(4)].

1. The bypass vent to the main stack from the recovery furnace may be utilized(excluding periods of startup, shutdown, or malfunction) for a period of time expressed as a percentage of the total recovery furnace operating time in a semi-annual reporting period of not more than one percent. Venting in excess of the one percent requirement shall not be considered as a violation provided the permittee prepares a Quality Improvement Plan(QIP) for approval by the District which specifies the measures to be taken to bring the venting back to within the allowable one percent maximum[Regulation 1, Rule 230(d)].

2. The bypass vent to the main stack from the recovery furnace may be utilized(excluding periods of startup, shutdown, or malfunction) for a period of time expressed as a percentage of the total recovery furnace operating time in a semi-annual reporting period of not more than four percent. Venting in excess of the four percent requirement as well as, if the approved QIP is not actively pursued or implemented, shall be a violation[40 CFR 63.443(e)(2)].

3. Venting from safety relief vents on the liquor storage tanks described in Section I.B., Liquor Storage Processes, shall be allowed as follows:[Regulation 1, Rule 240(d)].

a. Venting shall be limited to no more than 1% of the total recovery furnace operating time in a semi-annual reporting period. Venting in excess of the one percent requirement shall not be considered as a violation provided the permittee prepares a Quality Improvement Plan(QIP) for approval by the District which specifies the measures to be taken to bring the venting back to within the allowable one percent maximum[Regulation 1, Rule 230(d)].

b. Venting shall be limited to no more than 4% of the total recovery furnace operating time in a semi-annual reporting period. Venting in excess of the four percent requirement as well as, if the approved QIP is not actively pursued or implemented, shall be a violation.

Venting in excess of these allowances may only be allowed during a startup, shutdown or as a malfunction condition, and the condition qualifies as a malfunction in accordance with District breakdown/malfunction policy and is reported as required by section V.F.

B. Condensates from the HVLC collection & handling system for equipment items in section I, Basic Equipment, shall be treated by either recycling to a controlled piece(s) of process equipment in section I, or by steam stripping[40 CFR 63.446(c)].

IV. COMPLIANCE MONITORING

A. The closed-vent system specified in section II, Control Equipment shall meet the following requirements.

1. The permittee shall demonstrate that negative pressure is present at each enclosure or hood which vents a process equipment emission point that is being collected for incineration[40 CFR 63.450(b)]. This test shall be performed at least every 30 days.

2. The closed-vent system shall have a continuous monitoring system (CMS) installed which will detect and determine the amount of time any bypass occurs of the control equipment to the main stack[40 CFR 63 450].

3. The pressure/vacuum vents on the liquor tanks shall have indicating devices and time accumulators which indicate when gases are venting to the atmosphere. Any venting to the atmosphere shall be logged by tank and by venting duration[Regulation 1, Rule 240(d)].

4. Each enclosure and closed-vent system and each condensate closed collection system shall be visually inspected by the permittee every 30 days and at other times as requested by the District or Administrator. The visual inspection shall include inspection of ductwork, piping, enclosures, and connections to covers for visible evidence of defects[40 CFR 63.453(k) and 40 CFR 63.453(l)].

a. For condensate drain systems, the permittee shall inspect the individual drain system in accordance with the requirements of 40 CFR 63.964(a)(1) of subpart RR[40 CFR 63.453(l)].

V. REPORTING AND RECORDKEEPING - see General Provisions, section F.

A. If an inspection required under section IV.A 4 identifies visible defects in ductwork, piping, enclosures or connections to covers, or if negative pressures are not maintained, then (I) an effort to repair or correct the problem shall be made as soon as practicable but no later than 5 calendar days after the problem is identified. (ii) the repair or corrective action shall be completed no later than 15 calendar days after the problem is identified. Delays in corrective action or repairs beyond 15 calendar days are allowed as authorized by the District where the corrective actions or repairs are technically infeasible without a process unit shutdown or where the emissions resulting from immediate repair would be greater than the emissions likely to result from delaying the repair[40 CFR 63.453(k)&(l)].

B. For each enclosure opening associated with the basic equipment, closed-vent system, and condensate closed collection system, the permittee shall maintain an inspection plan including a drawing or schematic of the components of the systems and shall record the following information for each inspection[40 CFR 63.454(b)]

1. Date of inspection;
2. The equipment type and identification,
3. A log shall be kept and maintained for the purpose of recording the information required by Section IV.A.1. The log shall indicate the date, time, initials of person performing the test, results of the negative pressure test, and method used to determine the pressure;
4. The nature of the defect or leak and the method of detection,
5. The date of each attempt to repair the defect or leak,
6. Repair methods applied in each attempt to repair the defect or leak;
7. The reason for the delay if the defect or leak is not repaired within 15 days after discovery,
8. The expected date of successful repair of the defect or leak if the repair is not completed within 15 days;
9. The date of successful repair of the defect or leak, and
10. The duration of opening of bypass line valves.

C. The permittee shall report to the District in accordance with Rule 540, Equipment Breakdown, any period of time when the recovery furnace control system is bypassed and vent gases are directed to the main stack in excess of allowances in section III.A[Regulation 1, Rule 240(d)].

D. Startup, Shutdown, and Malfunction Plan - The permittee shall maintain current, and implement a written plan that describes in detail the procedures for operating and maintaining the basic and control equipment in this permit unit during periods of startup, shutdown, and malfunction. The plan will also provide for corrective action for malfunctioning basic and control equipment in this permit unit. The plan must be re-approved by the District upon any changes[40 CFR 63.6(e)(3)].

E. Any actions taken by the permittee during a startup, shutdown or malfunction (including actions taken to correct a malfunction) that are not consistent with the procedures specified in the "Plan", shall be reported to the District by telephone within 2 working days after such actions followed by written confirmation within 7 working days of such actions. The written confirmation shall explain the circumstances of the event and reasons for not following the procedures in the "Plan"[40 CFR 63.10(d)(5)].

F. The permittee shall provide in the monthly monitoring report as described in General Provisions section F.4. the number of minutes per day of venting from each of the liquor storage tanks identified in the Basic Equipment as well as any details concerning plant operations which may have contributed to such venting[Regulation 1, Rule 240(d)].

G. The permittee shall provide in the monthly monitoring report as described in General Provisions section F.4 the total minutes per month that the Recovery Boiler control equipment is bypassed to the main stack[Regulation 1, Rule 240(d)]

VI. OPERATING CONDITIONS - see General Provisions, section C.

A. The closed-vent system specified in section II, Control Equipment shall meet the following requirements:

1. Each enclosure or hood which vents a process equipment emission point that is being collected for incineration shall be maintained at negative pressure during operation of the equipment except as provided in Section III. [40 CFR 63.450(b)].

B. Any condensates from the basic equipment listed in this permit shall be conveyed in a "condensate closed collection system"[40 CFR 63.446(d)].

1. The closed collection system shall meet the individual drain system requirements specified in 40 CFR parts 63.960, 63.961, and 63.962 of subpart RR[40 CFR 63.446(d)(1)].

E. Exempt Equipment

Equipment and operations not specifically identified in this permit are not subject to specific federally-enforceable operating conditions or emission limitations. Such equipment and operations are subject to applicable General Provisions of this permit.

GENERAL PROVISIONS

These general provisions apply to all facilities or sources owned or operated by the permittee as detailed in this permit.

A. Fee Payment - The Permittee shall pay an annual permit fee and other fees as required in accordance with Regulation 1, Rule 300 of the District. Failure to pay these fees will result in forfeiture of this Permit to Operate. Operation without a permit subjects the source to potential enforcement action by the District and the US EPA pursuant to section 502(a) of the Clean Air Act as amended in 1990[40 CFR 70.6(a)(7); Regulation 5, Rule 670].

B. Inspection and Entry - Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the District, CARB, EPA or an authorized representative to perform the following:

1. Enter upon the permittee's premises where a regulated facility or emissions-related activity is located or conducted, or where records must be kept under the conditions of this permit.

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit.

3. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

4. Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the conditions of this permit.
[40 CFR 70.6(c)(2), Regulation 5, Rule 610(e)]

C. Facilities Operation

1. Operation under this permit must be conducted in compliance with all data and specifications included in the application which attest to the operator's ability to comply with District Rules and Regulations[Regulation 1, Rule 240(d)].

2. All nonexempt equipment of this permit shall at all times be maintained in good working order and be operated as efficiently as possible to assure compliance with all applicable emission limits[Regulation 1, Rule 240(d)].

3. Operational Limit - This permit is valid for a maximum of 365 days per year at 24 hours per day[Regulation 1, Rule 240(d)].

D. Compliance

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Federal Clean Air Act and is grounds for enforcement action(including monetary civil penalties); for permit termination, revocation and reissuance, or modification; or for denial of an application for reissuance of the permit[40 CFR 70.6(a)(6), Regulation 5, Rule 610(g)].

2. The need to halt or reduce activity is not a defense. It shall not be a defense for a permittee in an enforcement action that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit[40 CFR 70.6(a)(6); Regulation 5, Rule 610(g)].

3. A pending permit action or notification of anticipated noncompliance does not stay any permit condition[Regulation 5, Rule 610(g)(5)].

4. The permittee shall furnish to the District, within a reasonable time, any information that the District may request in writing to determine whether cause exists for modifying, revoking and

reissuing, or terminating this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the District copies of records required to be kept by this permit[40 CFR 70.6(a)(6)].

5. The permittee shall provide to the District on an annual basis a completed "Compliance Certification" form which certifies the compliance status of the facility, and on a semi-annual basis a monitoring certification form which provides certification of the monthly monitoring reports. The compliance certification and monitoring certification forms must be signed by a responsible company official and contain a statement that the information contained in the report is true, accurate, and complete. A semi-annual compliance certification report shall be submitted to document the compliance schedule of any source out of compliance[40 CFR 70.6(c); Regulation 5, Rules 460 and 610(g)]

6. Emergency events which occur at the permittee's plant which affect compliance with the terms of this permit must be reported to the District in accordance with Regulation 1, Rule 540. Emergency events are normally outside influences over which the permittee has no control[Regulation 5, Rule 460].

E. Severability - If any term or condition of this permit shall for any reason be adjudged by a court of competent jurisdiction to be invalid, such judgment shall not affect or invalidate the remainder of this permit[40 CFR 70.6(a)(5), Regulation 5, Rule 610(h)].

F. Recordkeeping and Reporting

1. The permittee shall maintain files and retain records of all required measurements including continuous and non-continuous monitoring data and support information including the date, place, time and results of any sampling or analysis, the operating conditions at the time of sampling for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Support information includes all CEM or monitoring device calibration checks; monitor adjustments and maintenance performed; total annual hours of operation, performance and all other information required by 40 CFR 60, Appendix B, and the applicable Performance Specification; and records and copies of all reports required by this permit[40 CFR 70.6(a)(3)(ii)(B); Regulation 5, Rule 455, EPA PSD permit dated April 12, 1999; Regulation 1, Rule 240(d)].].

2. The permittee shall report to the District any deviations from these permit requirements, including those attributable to malfunction conditions, the probable cause of the deviations, and any corrective actions or preventive measures taken. Procedures of Regulation 1, Rule 540 shall be followed in the reporting of such deviations. A malfunction log shall be maintained for recordkeeping purposes[40 CFR 70.6(a)(3)(iii)(B), Regulation 5, Rule 460; Regulation 1, Rule 540].

3. The permittee shall maintain records for a period of five years of any startup or shutdown, any basis equipment or control equipment malfunctions, any emergency events, and any periods during which a CEMS, COMS, or CMS is inoperative. Two years of records must be readily accessible [40 CFR 60.7(b)].

4. A monthly monitoring report shall be submitted to the District which provides the following:
   (a) a summary of breakdowns that occurred during the month with date, time and period of excess emissions;
   (b) a summary of the number of minutes per day of venting from the P/V vents of the black liquor storage tanks represented in the Basic Equipment of permit unit NP-076;
   (c) a summary of the number of minutes and percent of recovery boiler operating time per month that the Control Equipment for permit unit NP-076 was bypassed to the main stack;
   (d) The minutes of venting per day for safety relief valves contained in the NCG LVHC system and NCG HVLC system for permit unit NP-075.
   (e) a summary of recovery furnace startups, shutdowns and transient mode operating day & hours including NOx lbs/hr 3-hr averages.
   (f) a summary of emergency events;
   (g) a summary of CEMS or COMS malfunctions.
   (h) a summary of emissions exceedances.
   (i) a summary of reporting or recordkeeping deviations required by this permit.

(j) lime kiln daily and monthly TRS averages.
(k) recovery furnace daily 12-hr and monthly averages for TRS, SO2, CO, NOx, and O2; and
(l) black liquor solids fired per month.
The report shall be due no later than the fifteenth day of the following month[District Authority to construct dated 1/22/91, Regulation 1, Rule 240(d)].

5. The Permittee shall submit certification reports as follows:
   (a) Compliance Certification - January 31st
   (b) Monitoring Certification - January 31st and July 15th
   These reports are for complying with General Provisions section D.5.

G. Transfer of Ownership - In the event of any changes in control or ownership of these facilities, this permit together with its terms and conditions shall be binding on all subsequent owners and operators. The permittee shall notify the succeeding owner and operator of the existence of this permit and its conditions by letter, a copy of which shall be forwarded to the District[Regulation 1, Rule 240(j)].

H. Reopening for Cause

1. This permit may be modified, revoked, reopened, reissued, or terminated for the following reasons:

a. Additional requirements under the federal Clean Air Act become applicable to the facility for which three or more years remain on the original term of the permit. Such a reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is to expire.
b. The District or EPA determines that the permit contains a material mistake made in establishing the emissions standards or limitations, or other requirements of the permit.
c. The District or EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements. [40 CFR 70.7(f); Regulation 5, Rule570]

2 The reopening of this permit for a change to be implemented for a specific permit unit will be allowed without the need to reopen the entire permit and all permit units. Should a general condition be changed, all the associated permit units affected would be reopened[Regulation 1, Rule 240(d)].

3. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition[40 CFR 70.6(a)(6)].

I. Property Rights - This permit does not convey any property rights of any sort, or any exclusive privilege[40 CFR 70.6(a)(6)].

J. Permit Renewal and Expiration - This permit is effective on the date of issuance and will expire in five years and must be renewed every five years thereafter. Permit expiration terminates the permittee's right to operate unless a timely and complete renewal application is submitted. For renewal of a permit, the designated representative shall submit a complete District application no earlier than 18 months and no later than 6 months before the expiration date of the current permit[40 CFR 70.5(a), Regulation 5, Rule 405(b)].

K. Permit Modification - The permittee shall submit an application for a minor or significant permit modification in accordance with District Regulation 5[40 CFR 70.5(a), Regulation 5, Rule 405].

L. Prohibitions - These limitations apply to all emissions sources at the permittee's facility unless more specific and limiting requirements are listed for a individual permitted emissions unit in this permit.

1. Public Nuisance - The permittee shall not discharge such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have an natural tendency to cause injury or damage to business or property[H&S 41700].

2. **Visible Emissions** - The permittee shall not discharge into the atmosphere from any source whatsoever any air contaminant for a period or periods aggregating more than three (3) minutes in any one hour which is as dark or darker in shade as that designated as No. 2 on the Ringlemann Chart, as published by the United States Bureau of Mines; or of such opacity as to obscure an observer's view to a degree equal to or greater than Ringlemann 2 or forty (40) percent opacity[Regulation 1, Rule 410(a)].

3. **Fugitive Dust Emissions** - The handling, transporting, or open storage of material in such a manner which allow unnecessary amounts of particulate matter to become airborne, shall not be permitted. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne[Regulation 1, Rule 430].

4. **Sulfur Oxide Emissions** - The permittee shall not discharge into the atmosphere from any single source of emissions whatsoever sulfur oxides, calculated as sulfur dioxide (SO_2) in excess of 1,000 ppm[Regulation 1, Rule 440].

5. **Circumvention** - The permittee shall not construct, erect, modify, operate, or use any equipment which conceals an air contaminant emission, which would otherwise constitute a violation of the limitations of this permit, unless the operation or use of said equipment results in a significant reduction in the total emission of air contaminants[Regulation 1, Rule 400(b)].

6. **Regulation 2, Open Burning Procedures** - The permittee shall not ignite or cause to be ignited or suffer, allow or maintain any open outdoor fire for the disposal of rubber, petroleum or plastic wastes, demolition debris, tires, tar paper, wood waste, asphalt shingles, linoleum, cloth, household garbage or other combustible refuse; or for metal salvage or burning of motor vehicle bodies except as provided in Rule 2-102, Exemptions[Regulation 2].

7. **Title VI, Stratospheric Ozone Protection** - The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, and 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.

8. **National Emission Standard for Asbestos** - The permittee shall comply with the standards of 40 CFR Part 61 Subpart M which regulates demolition and renovation activities as pertaining to asbestos materials.

This permit does not authorize the emission of air contaminants in excess of those allowed by the Health and Safety Code of the State of California or the Rules and Regulations of the North Coast Unified Air Quality Management District as stated in this permit. Any regulation or rule not cited in this permit which may be applicable to a particular emission unit will not be enforceable. This permit cannot be considered as permission to violate existing laws, ordinances, regulation or statutes of other governmental agencies. The violation of any of these terms and conditions shall be grounds for revocation of this permit, and shall be a violation of District Rules and Regulations.

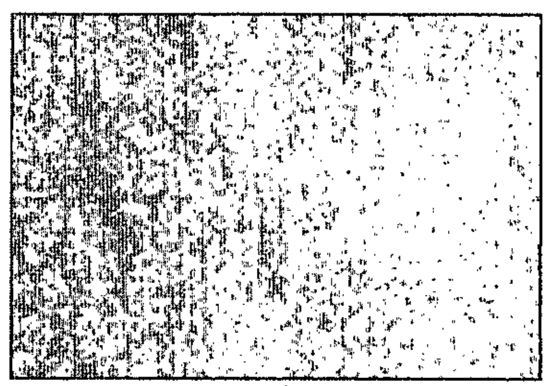
NORTH COAST UNIFIED AIR QUALITY MANAGEMENT DISTRICT

2300 MYRTLE AVENUE
EUREKA, CALIFORNIA 95501

PHONE (707) 443-3093
FAX (707) 443-3099

DATE:____________________ BY:____________________________

WAYNE MORGAN,
AIR POLLUTION CONTROL OFFICER



Permit Seal

permits/ LPPULP5PTO

FAX Cover Sheet

USEPA - Region 4
61 Forsyth St., SW
Atlanta, Georgia 30303

TO: Mike Halpin
FDEP

FAX #: 850-922-6979

RE: NC's Weyerhaeuser

FROM: Katy Forney
Air Permits Section, Region 4 USEPA

Phone #: 404-562-9130

Date: 11-14

# of Pages (including cover): 28

COMMENTS:

First: Pages from the PSD Application
Second: Pages from the Tech. Eval. by NC.
Third: EPA comment letter

If this FAX is poorly received, please call
Katy Forney: 404-562-913

FAX Cover Sheet

USEPA · Region 4
61 Forsyth St., SW
Atlanta, Georgia 30303

TO: Mike Halpin
FDEP

FAX #: 850-922-6979

RE: NC's Weyerhaeuser

FROM: Katy Forney
Air Permits Section, Region 4 USEPA

Phone #: 404-562-9130

Date: 11-14

# of Pages (including cover): 28

COMMENTS:
First: Pages from the PSD Application
Second: Pages from the Tech. Eval. by NC.
Third: EPA comment letter

If this FAX is poorly received, please call
Katy Forney: 404-562-913

1.1 BACKGROUND

The Weyerhaeuser Plymouth Pulp Mill facility is an integrated kraft pulp and paper manufacturer with an existing production capacity of 2,050 tons per day of bone dry virgin pulp. The facility is planning a maintenance project for the existing No. 5 black liquor Recovery Boiler (originally installed 1975) to improve the safety and reliability of the boiler's lower furnace and superheats. This project is scheduled to commence in 2001 and will include replacement of the lower furnace and superheats. The increased reliability will result in lower maintenance downtime and the ability to potentially increase the burning of black liquor solids on a short-term basis to 130 tons per hour (1,138,800 tons of BLS per year).

This report constitutes a major New Source Review (NSR) application and a request for authority to commence the recovery boiler maintenance project in accordance with the North Carolina regulations governing the Prevention of Significant Deterioration (PSD) of Air Quality, and other applicable State and Federal regulations. A major NSR review is required because the project will result in emission increases of sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), and sulfuric acid mist (H_2SO_4 mist) that exceed the PSD Significant Emission Rates as defined in 40 CFR 52.21.

The proposed maintenance project is reviewed with regard to the applicability and demonstrations required under the PSD regulations. The following four requirements have been addressed with respect to the proposed maintenance project.

1. A demonstration that Best Available Control Technology (BACT) will be applied to the recovery boiler for each compound subject to PSD review. A BACT analysis was performed for the project based on the "top down" approach recommended by EPA and based on the February 19, 1999 pre-application meeting with the North Carolina Division of Air Quality (NCDAQ). The selected BACTs represent the most stringent technically feasible control technologies considering costs, energy, and environmental impacts.
2. A demonstration that neither the National Ambient Air Quality Standards (NAAQS) nor the PSD increments for each subject compound will be exceeded as a result of this project. Since the modeled SO_2, NO_x, CO and H_2SO_4 mist concentration increases are below the respective PSD Ambient Significance Levels (ASLs), no NAAQS or increment modeling was performed.
3. A demonstration that the proposed project will not adversely affect the Air Quality Related Values (AQRVs) in Class I areas. A Class I area analysis was performed based on previous discussions with the NCDAQ and their discussions with the United States Fish and Wildlife Service. Based on the results of those analyses, there will be no adverse impact at the nearest Class I area (Swanquarter National Wildlife Refuge).
4. An analysis that the proposed project will not adversely impact soils, vegetation, or visibility. As part of the PSD review, an additional impact analysis was conducted to determine the impact on economic growth and the impact on soils, vegetation and visibility in the area.

This page does not contain any enforceable permit conditions.

1.2 PERMIT REQUEST

Weyerhaeuser is committed to demonstrating compliance with all Federal and North Carolina air quality protection requirements. Based on previous discussions and the February 19, 1999 pre-application meeting with the NCDAQ regarding the PSD permitting methodology and requirements, this PSD permit application demonstrates compliance with both Federal and North Carolina PSD permitting requirements, as well as North Carolina Air Toxics regulations. Therefore, Weyerhaeuser requests that authority to perform the maintenance project be granted under the PSD provisions and that a Permit to Construct and Operate under the North Carolina Air Quality Regulations be issued.

With this application, Weyerhaeuser specifically requests permission to conduct a maintenance project in May of 2001 which will enable the No. 5 Recovery Boiler to potentially process up to 130 tons of black liquor solids per hour. This application also includes the request to construct and operate a new No. 2 low sulfur fuel oil tank. The elements of this maintenance project primarily include replacing the bottom fifty feet of the boiler furnace and replacing the superheaters. However, the project also involves:

1. Replacing the screens;
2. Replacing the steam drum internals;
3. Installing additional sootblowers;
4. Replacing the existing liquor guns/barrels and installing additional new ones;
5. Replacing the entire No. 6 oil delivery and firing system with a new No. 2 low sulfur oil system;
6. Replacing the air system and windbox;
7. Replacing the smelt spouts;
8. Replacing or installing additional auxiliary pumps, valves, control systems, wiring, motors, piping, dampers, port rodders, and duct work; and
9. Possibly upgrading the existing electrostatic precipitator's T-R and rapper controls and gas flow baffles.

The following information is included in this application as required under NCAC 2Q.0305 for the permit review:

1. Completed Title V permit application forms for No. 5 Recovery Boiler maintenance project, including forms for the new No. 2 fuel oil tank (Appendix A);
2. A consistency determination as required under 2Q.0304(b)(1) (Appendix B);
3. An application fee of $12,~~374~~ 599 as required under 2Q.0200;
4. A modeling protocol, protocol checklist and NCDAQ approval letter (Appendix C);
5. Revised permit application forms and text for June 1999 Title V permit application for the Weyerhaeuser Plymouth facility (Appendix K). These pages are to be directly inserted as replacement pages into appropriate volumes of the June 1999 application.

Should the NCDAQ have any questions or comments regarding this application, please contact Ms. Diane Hardison of Weyerhaeuser at (252) 793-8611 or Mr. Randy Taylor of URS Greiner Woodward Clyde at (919) 850-9511.

This page does not contain any enforceable permit conditions.

2.1 INTRODUCTION

Weyerhaeuser Company operates a pulp and paper manufacturing facility in Martin County near Plymouth, North Carolina. The primary products of the mill are fine paper, linerboard, corrugated medium and bleached fluff pulp. Production operations at the site include wood pulping, pulp bleaching and papermaking. In addition, other on-site processes that directly support the manufacture of pulp and paper include black liquor recovery, lime production, wastewater treatment and power/steam generation. The facility falls under the Standard Industrial Classification (SIC) codes of 2611 for pulp mills and 2621 for paper mills.

Weyerhaeuser Plymouth proposes to perform a major maintenance project on the No. 5 Recovery Boiler. The remainder of this air quality permit application is divided into the following five sections:

Section 3.0: Applicable Federal and State Regulations.

Section 4.0: Best Available Control Technology (BACT).

Section 5.0: Air Quality Impact Analysis.

Section 6.0: Additional Impacts Analysis (including the impact on economic growth and the impact on soils, vegetation, and visibility in the area).

Section 7.0: References.

Various tables, figures, and appendices are also included. For a detailed listing of each refer to the table of contents.

2.2 SITE LOCATION

The Weyerhaeuser Plymouth facility is located near Plymouth, North Carolina in Martin County, which is located in eastern North Carolina. The facility is located on approximately 2,400 acres just west of Plymouth, North Carolina along the Roanoke River. The approximate Universal Transverse Mercator (UTM) coordinates are Zone 18, 340.5 km east and 3,968.55 km north at an elevation of approximately 10 feet above mean sea level.

The nearest large city is Greenville, North Carolina. Plymouth is approximately 64 km northeast of Greenville and 165 km east of Raleigh, North Carolina. Figure 5-1 displays the plant site location and Figure 5-2 displays the plant site and surrounding terrain with respect to UTM coordinates.

2.2.1 Class I Areas

The only Class I area within 200 km of the Weyerhaeuser Plymouth site is the Swanquarter National Wildlife Refuge. Swanquarter is located approximately 56 km southeast of the site.

2.2.2 Topography

Plymouth is located in the coastal area of North Carolina. The terrain surrounding the site is predominantly flat, coastal plain swampland with terrain elevations changing only a few feet within a few kilometers of the plant site.

2.2.3 Climatology and Meteorology

The site lies within a general climatic region known as Humid Subtropical. Temperatures are moderate with long summers and brief winters. An extended summer drought may result from dominance of the Bermuda high pressure off the east coast. Warm, moist air from the tropics dominates summer conditions while cooler, drier continental polar air controls winter weather.

Daily mean air temperatures over most of eastern North Carolina range between 5°C and 10°C in January, the coldest month, and between 24°C and 27°C in July, the warmest month. Annual precipitation averages about 127 cm/year throughout the basin.

2.3 OVERVIEW OF THE NO. 5 RECOVERY BOILER PROCESS

The No. 5 Recovery Boiler was originally constructed in 1975 with a maximum design throughput rate for concentrated black liquor solids of 121 tons per hour (121 TBLS/hr). The planned maintenance project, scheduled for May 2001, will allow the boiler to potentially increase capacity to 130 tons of black liquor solids per hour (130 TBLS/hr). Fuel oil is used primarily for start-up and shut-down of the boiler and malfunction of the black liquor-generating process.

In the recovery boiler, combustion air is staged to promote the reduction of sodium sulfate in the liquor to sodium sulfide, which then forms a smelt with sodium carbonate at the bottom of the furnace. The smelt goes to a separate smelt dissolving tank where it is dissolved in water. The boiler is equipped with oxygen meters, a CO meter and an opacity monitor. Additionally, Weyerhaeuser is in the process of installing a TRS/O_2 continuous monitoring system on the Recovery Boiler exhaust. Particulate emissions are controlled by two electrostatic precipitators used in parallel. The exhaust from the Recovery Boiler is combined with the exhaust from the No.1 Hog Fuel Boiler and vented through a common stack. Figure 2-1 presents the process flow diagram for the Recovery Boiler.

This page does not contain any enforceable permit conditions.

This section summarizes all federally-enforceable and state-enforceable regulations that will be applicable to the No. 5 Recovery Boiler and the new No. 2 fuel oil tank following implementation of the proposed maintenance project. Proposed compliance demonstration procedures are also discussed. Discussions pertaining to applicable regulatory requirements are separated into two categories: 1) Federal Air Quality Regulations and 2) North Carolina Air Quality Regulations. PSD applicability calculations can be found in Appendix E.

3.1 FEDERAL AIR QUALITY REGULATIONS

The federal regulations applicable to the proposed project are the Prevention of Significant Deterioration (PSD) regulation in 40 CFR 52.21; Title V Operating Permit regulations in 40 CFR 70; the National Emission Standard for Hazardous Air Pollutants (NESHAP) for the pulp and paper industry in 40 CFR 63; and the New Source Performance Standard (NSPS) regulations for Kraft Pulp Mills and Volatile Organic Liquid Storage Vessels in 40 CFR 60. These requirements are codified in the North Carolina regulations under 15A NCAC 2D .0530, 2Q.0500, 2D .1111 and 2D .0524, respectively. A discussion of the applicable regulations, as well as key non-applicable NSPSs, is provided in this section.

3.1.1 Prevention of Significant Deterioration Applicability

The PSD regulations apply to major modifications at major stationary sources, which are considered those sources belonging to any one of the 28 source categories listed in the regulations that has the potential to emit more than 100 tons per year of any PSD-regulated compound, or any other source which has the potential to emit more than 250 tons per year of any PSD compound. A major modification is defined as "any change to a major stationary source that would result in a significant emissions increase of any pollutant subject to regulation under the Act." Major modifications are subject to review under the PSD regulations and must meet certain pre-construction review and permitting requirements.

The Weyerhaeuser Plymouth facility belongs to one of the 28 listed categories and emits greater than 100 tons per year of a PSD-regulated air compound. Thus, the Plymouth facility is a major source. A PSD applicability analysis was performed for the proposed maintenance project to determine which regulated compounds would be subject to PSD review. The emission increases for the project were determined for each compound based on the difference between the proposed potential emissions associated with the maintenance project and the average actual emissions for the previous two-year period (1997-1998). Furthermore, debottlenecking emission increases were quantified for the following areas: woodyard, fiberlines, bleach plant, chemical recovery and recausticizing, papermaking and LVHC and HVLC incineration. For selected compounds, creditable, contemporaneous emission increases and decreases within seven years (1994-2001) were also included in the applicability analysis. Tables 1 through 19 of Appendix E present the project emission increase calculations and the contemporaneous emission increases and decreases for the pulp mill and wood products facility. Facility-wide optimization projects and continuing efforts to improve process reliability and reduce equipment downtime as included in the facility's future 5-year plan could potentially enable the mill to utilize the emission increases indicated by this debottlenecking evaluation. Specifically, paper machine production could increase proportionally and has been accounted for in this analysis.

Based on the applicability analysis, the proposed project is classified as a major modification because it will result in potential emission increases of SO_2, NO_x, CO and H_2SO_4 mist that exceed the respective PSD Significant Emission Rates for these compounds. A summary of all PSD compound emission increases (recovery boiler project and associated debottlenecking increases) and comparison of these increases against the respective PSD Significant Emission Rates is presented in Table 3-1.

PSD applications typically must include an ambient air quality analysis (See Section 5 of this report); an additional impact analysis of economic growth, soil, vegetation, and visibility (Section 6); and a Class I Area Impact Analysis (Section 6). Permitting authorities must also provide the opportunity for public participation (i.e., comment) on proposed PSD projects.

In addition to stringent environmental impact analyses required prior to permitting, the PSD regulations require major stationary sources to apply Best Available Control Technology (BACT) to new and modified emission sources emitting compounds subject to PSD review. For this project, the operating permit for the Recovery Boiler will include BACT emission limits for SO_2, NO_x, CO and H_2SO_4 mist for firing black liquor solids and for firing No. 2 fuel oil during start-up, shut-down and malfunctions of the Recovery Boiler. Proposed BACT limits and proposed compliance demonstration procedures are described in Section 3.3. The detailed BACT evaluation for each compound subject to PSD review is presented in Section 4.

3.1.2 Title V Operating Permits

Weyerhaeuser Plymouth submits this application as a supplement to the Title V operating permit application (Volumes I – VIII) for the facility currently on file with the DAQ, which was originally submitted in August, 1996 and revised in June, 1999. Updates to the previous volumes of the application are provided in Appendix K and include revisions to the text, tables and application forms.

3.1.3 New Source Performance Standards Applicability

<u>Fossil-Fuel-Fired Steam Generators (40 CFR 60, Subpart D)</u>

The standards of performance for fossil-fuel-fired steam generators apply to fossil-fuel-fired units with a heat input rate of greater than 250 MM Btu/hr, which commenced construction or modification after August 17, 1971. According to EPA guidance provided in a memorandum dated June 15, 1990 (see Appendix D), this standard is not applicable to kraft recovery boilers which only combust fuel oil for proper black liquor combustion (e.g., start-up and shut-down) and which maintain an annual fossil fuel capacity factor of less than 10 percent. Since fuel oil is primarily fired in the No. 5 Recovery Boiler for start-ups, shut-downs and malfunctions and usage during normal operations will not exceed the 10 percent fuel capacity factor, this standard is not applicable to the Recovery Boiler.

4.1 INTRODUCTION

PSD regulations [(40 CFR 51.166 and North Carolina State regulations (NCAC 2D .0530)] require that Best Available Control Technology (BACT) be used to minimize the emissions of compounds from a new major source or a major modification of an existing major source. This section presents the BACT evaluation for the Recovery Boiler No. 5. This source is subject to BACT review for each of the compounds exceeding the PSD significant emission rates as a result of the proposed maintenance project. Emissions increases of sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO) and sulfuric acid mist (H_2SO_4) exceed their respective thresholds. Therefore, BACT is addressed for these compounds. Section 4.2 presents an overview of the top-down BACT approach used in this application, and the BACT determinations for SO_2, NO_x, CO and H_2SO_4 mist are discussed in Sections 4.3 through 4.6. A summary of the resulting BACT emission limits is provided in Table 4-1.

4.2 TOP-DOWN BACT APPROACH

BACT is defined in the Clean Air Act as "an emissions limit based on the maximum degree of emissions reduction for each pollutant...which the permitting authority determines, on a case by case basis, taking into account energy, environmental, and economic impacts and other costs, is achievable for such facility through the application of production processes and available methods, systems, and techniques...". Four key aspects of the definition are worthy of notice:

- BACT is an "emission limitation" based on a control technology - not the control technology itself; or, if technological or economic limitations on the application of measurement methodology to an emissions unit would not be feasible, a design, equipment, work practice, operation standard, or combination thereof may be prescribed.

- BACT is based on the "maximum degree of emissions limitation achievable"- costs, economics, environmental, and energy impacts are taken in to account, but equal emphasis is also placed on the words "maximum" and "achievable."

- BACT includes and, in fact, focuses on "production processes" along with add-on controls.

- BACT was intended to be a case-by-case evaluation, implying individual case evaluations and decisions, not rigid, pre-set guidelines.

The top-down BACT approach starts with the most stringent (or top) technology that has been applied to the same unit at other similar emission source types and provides a basis for rejecting the technology in favor of the next most stringent technology or proposing it as BACT.

The first step is to define the spectrum of process and/or add-on control alternatives potentially applicable to the subject emissions unit. The following categories of technologies are addressed in identifying candidate control alternatives:

- Demonstrated add-on control technologies applied to the same emissions unit at other similar source types;
- Add-on controls not demonstrated for the source category in question but transferred from other source categories with similar emission stream characteristics;
- Process controls such as combustion or alternate production processes;
- Add-on control devices serving multiple emissions units in parallel; and
- Equipment or work practices, especially for fugitive or area emission sources where add-on controls are not feasible.

A review of the BACT/LAER Clearinghouse is usually the first step in this process.

The second step in the top-down approach is to evaluate the technical feasibility of the alternatives identified in the first step and to reject those that can be demonstrated as infeasible based on an engineering evaluation or on chemical or physical principles. The following criteria are considered in determining technical feasibility: previous commercial-scale demonstrations, precedents based on permits, requirements for similar sources, and technology transfer.

The third step is an assessment and documentation of the emissions limit achievable with each technically feasible alternative considering the specific operating constraints of the emission units undergoing review. After determining what control efficiency is achievable with each alternative, the alternatives are rank-ordered into a control hierarchy from most to least stringent.

The fourth step is to evaluate the cost/economic, environmental, and energy impacts of the top or most stringent alternative. To reject the top alternative, it must be demonstrated that this control alternative is infeasible based on the impacts analysis results. If a control technology is determined to be technically infeasible or infeasible based on high cost effectiveness, or to cause adverse energy or environmental impacts, the control technology is rejected as BACT and the impact analysis is performed on the next most stringent control alternative. The following presents the top-down BACT analyses for SO_2, NO_x, CO and H_2SO_4 mist.

This page does not contain any enforceable permit conditions.

4.3 NO. 5 RECOVERY BOILER

4.3.1 Sulfur Dioxide (SO_2)

Kraft black liquor contains relatively large quantities of sulfur and alkali metal salts when compared to conventional fuels. SO_2 emissions from firing black liquor solids in a recovery boiler are typically low due to an extremely large recovery of sulfur as sodium sulfide in the smelt and capture of alkali sulfates in the particulate control device. When black liquor is burned in a recovery boiler, sulfur gases in the form of both SO_2 and reduced sulfur compounds (TRS) are released. As air is added to the secondary and tertiary air ports of the recovery boiler, TRS gases are oxidized to SO_2. Sulfur dioxide emission from recovery boilers are variable from boiler to boiler and depend on several key parameters, including properties of the black liquor solids (i.e. sulfur to sodium ratio, chloride content, black liquor solids concentration), properties of the combustion air (i.e. air distribution, percent excess oxygen, air moisture content), furnace loading and liquor spray pattern.

Additional SO_2 emissions result from the use of fuel oil during recovery boiler start-up, shut-down and malfunctions. During oil combustion the sulfur contained in the fuel is oxidized, predominately to SO_2.

4.3.1.1 Control Technologies Evaluated

Table 4-2 summarizes previous RACT/BACT/LAER Clearinghouse (RBLC) determinations for SO_2 control for recovery boilers. State agencies and vendors of SO_2 control equipment provided additional information. This table does not include the BACT determination for Kirby Forest Industries in Bon Wier, Texas, which is referenced in the Texas Natural Resources Conservation Commission (TNRCC) BACT determination. According to state officials, this facility never constructed the permitted pulp mill. Additionally, the scrubber permitted for James River Corporation in the state of Washington is primarily for heat recovery versus SO_2 control. The EPA□s BACT/LAER Clearinghouse search indicated the following control technologies for control of SO_2 emissions from a recovery boiler: a heat recovery scrubber, fuel specification, proper boiler design and good combustion practices.

Potential technologies currently available for SO_2 control are as follows:

- Wet Scrubber – black liquor solids combustion
- Use of Low Sulfur Fuel – fuel oil combustion
- Proper Design and Good Combustion Control – black liquor solids combustion

The use of low sulfur fuel, installation of a wet scrubber and proper design and good combustion control are all technically feasible control technologies for SO_2 control. The Plymouth facility is committed to the conversion to low sulfur fuel for SO_2 control from fuel oil combustion and implementation of proper design and good combustion practices for black liquor solids.

combustion as BACT. Both of these are discussed in more detail below. Additionally, an impacts evaluation for the installation of a wet scrubber is presented.

4.3.1.2 Evaluation of Technically Feasible Control Alternatives

Fuel Oil Combustion

The Weyerhaeuser Plymouth facility currently uses No. 6 fuel for recovery boiler start-ups, shut-downs and malfunctions, but as part of this maintenance project is proposing as BACT use of No. 2 low sulfur (0.05% weight) fuel oil, which will reduce SO_2 emissions from the combustion of fuel oil in the recovery boiler by approximately 98%. The facility will maintain fuel analyses and vendor certifications verifying the use of 0.05% sulfur fuel.

Black Liquor Solids Combustion

Wet Scrubber

Technical Evaluation

A wet scrubber removes gaseous contaminants from a gas stream through intimate contact with suitable absorbing or wetting liquor, such as caustic. The Dynawave® Engineered Scrubbing System, available from Monsanto Enviro-Chem Systems, was considered in of this evaluation. In this system, the gas stream enters a gas-to-liquid contactor, called a Reverse Jet, where it collides with limestone reagent scrubbing slurry. A wave of highly turbulent flow, called the "froth zone" is created at the point where the liquid is reversed by the gas. In this zone, SO_2 removal is accomplished as the gas is cooled to its adiabatic saturation temperature. The cleaned gas then passes through a two-stage demister for final gas/liquid separation.

Economic Impacts

Table 4-7 presents the capital and annual cost evaluation for installation of the Dynawave® scrubbing system. Capital costs are based on a complete scrubbing system consisting of two parallel scrubbing trains, a common limestone reagent slurry system for delivery and storage of reagent to the scrubbers and a common effluent rotary drum vacuum filter for dewatering the calcium sulfate by-product. Other associated costs were obtained from EPA's Control Cost Manual.[1] The proposed scrubbing system is designed to treat 177 tpy of SO_2 at a 74.5% destruction efficiency. The capital cost of this system is $10,200,000, annual cost is $2,796,250/yr and the cost effectiveness is $15,764/ton of SO_2 removed.

Energy Impacts

No negative energy impacts are associated with the wet scrubber option.

Environmental Impacts

Slight environmental impacts are associated with the wet scrubber option due to the disposal of gypsum (calcium sulfate) generated from the SO_2 reaction with the limestone. However, this waste does not have any special disposal requirements and could be disposed of in a RCRA Subtitle D landfill.

Conclusion

The wet scrubber option is rejected as BACT due to a prohibitively high cost effectiveness.

Proper Design and Good Combustion Control

The RBLC search indicates that proper boiler design and good combustion practices are the most widely utilized control technologies for control of SO_2 emissions from recovery boilers during black liquor solids combustion. The proposed BACT limit when firing black liquor solids (alone or with No. 2 fuel oil) of 54.55 lb SO_2/hr is well within the range of previous determinations provided in the RBLC. This limit was derived from the maximum SO_2 emissions stack test data for the Weyerhaeuser Plymouth Recovery Boiler, scaled to a production rate of 130 TBLS/hr, and then increased by two standard deviations of the test data to account for the variability of the sulfur content of black liquor solids. A summary of the stack test data is provided in Table 4-6. Compliance will be demonstrated through conducting one performance test during the permit term using EPA Reference Methods 6, 6A, 6B or 6C in 40 CFR 60 Appendix A or other approved method described per 40 CFR 60.8(b).

4.3.2 Nitrogen Oxides (NO_x)

Nitrogen oxide (NO_x) emissions are generated from the combustion process due to both thermal and fuel-bound NO_x. Thermal NO_x is produced by the dissociation of nitrogen in combustion air and its subsequent reaction with available oxygen. Emissions of thermal generated NO_x from black liquor solids firing are low due to characteristically low furnace temperatures and air staging in the furnace. Fuel-bound NO_x is generated from the oxidation of nitrogen-containing compounds in fuel oil and black liquor solids.

4.3.2.1 Control Technologies Evaluated

Information from EPA's RACT/BACT/LAER Clearinghouse (RBLC) is summarized in Table 4-3. Previous BACT determinations for NO_x control from recovery boilers included only two control technologies: (1) the use of proper boiler design and good combustion practices, and (2) the use of low NO_x burners for natural gas firing. Table 4-3 does not include the BACT determination for Kirby Forest Industries in Bon Wier, Texas, referenced in the Texas Natural Resources Conservation Commission (TNRCC) BACT determination. According to state officials, Kirby Forest Industries never constructed the referenced pulp mill. In developing the potential alternatives for BACT for black liquor solids firing and fuel oil firing, control technologies used by other industries to control similar emissions were identified. The following technologies were considered as potential BACT:

- Selective Catalytic Reduction (SCR)
- Selective Non-Catalytic Reduction (SNCR)

This page does not contain any enforceable permit conditions.

- Use of Low Sulfur Fuel – fuel oil combustion
- Low NO_x Burners – fuel oil combustion
- Proper Design and Good Combustion Control – black liquor solids combustion

Each of these technologies is discussed below.

4.3.2.2 Technically Infeasible/Undemonstrated Control Alternatives

Though SCR and SNCR are effective NO_x reduction technologies in various industries, they are not applicable to recovery boilers and are rejected as BACT based on technical infeasibility. Reasons why these technologies are not considered feasible are provided below.

Selective Catalytic Reduction

Selective Catalytic Reduction (SCR) is a post-combustion gas treatment applied for the reduction of nitrogen oxides (NO_x) to molecular nitrogen (N_2), water and oxygen. The SCR technology employs aqueous or anhydrous ammonia as a reducing agent that is injected into the gas stream near the economizer and upstream of the catalyst bed. The catalyst lowers the activation energy of the NO_x decomposition reaction. An ammonium salt intermediate is formed at the catalyst surface and subsequently decomposes to elemental nitrogen and water. Depending on the overall ammonia-to-NO_x ratio, control efficiencies for NO_x greater than 90% can be achieved.

Catalyst poisoning from the sulfur in the black liquor solids is a significant impediment to use of this technology in recovery boilers. According to Englehard Corporation and Monsanto Enviro-Chem Systems, two vendors of catalyst technologies, to successfully employ SCR technology in a recovery boiler would require cost-prohibitive pretreatment of the flue gas stream via wet scrubbing for sulfur control, followed by mist eliminators and an additional preheater to reach the minimum SCR operating temperature of 450 °F. Furthermore, SCR technology has not been demonstrated on recovery boiler and, therefore, Englehard Corporation and Monsanto Enviro-Chem are unable to guarantee SCR system performance for such an application.

Another concern with the use of SCR technology in recovery boilers is that the boiler exhaust temperature is below the optimum range for effectiveness. SCR can be applied at flue gas temperatures from 450 – 1150 °F, but is most frequently applied at flue gas temperatures from 450 – 800 °F. Recovery Boiler No. 5 exhaust is approximately 350 °F and, therefore would require reheating prior to a SCR system, even if additional scrubbing were not required.

Additional environmental and safety considerations arise from the disposal of the spent catalyst, the transportation, storage and handling of large quantities of ammonia and potential "ammonia" slip through the SCR catalyst bed.

Based on the technical obstacles and potential negative environmental impacts associated with the application of SCR technology to recovery boilers, this technology is rejected from further consideration.

- Use of Low Sulfur Fuel – fuel oil combustion
- Low NO_x Burners – fuel oil combustion
- Proper Design and Good Combustion Control – black liquor solids combustion

Each of these technologies is discussed below.

4.3.2.2 Technically Infeasible/Undemonstrated Control Alternatives

Though SCR and SNCR are effective NO_x reduction technologies in various industries, they are not applicable to recovery boilers and are rejected as BACT based on technical infeasibility. Reasons why these technologies are not considered feasible are provided below.

Selective Catalytic Reduction

Selective Catalytic Reduction (SCR) is a post-combustion gas treatment applied for the reduction of nitrogen oxides (NO_x) to molecular nitrogen (N_2), water and oxygen. The SCR technology employs aqueous or anhydrous ammonia as a reducing agent that is injected into the gas stream near the economizer and upstream of the catalyst bed. The catalyst lowers the activation energy of the NO_x decomposition reaction. An ammonium salt intermediate is formed at the catalyst surface and subsequently decomposes to elemental nitrogen and water. Depending on the overall ammonia-to-NO_x ratio, control efficiencies for NO_x greater than 90% can be achieved.

Catalyst poisoning from the sulfur in the black liquor solids is a significant impediment to use of this technology in recovery boilers. According to Englehard Corporation and Monsanto Enviro-Chem Systems, two vendors of catalyst technologies, to successfully employ SCR technology in a recovery boiler would require cost-prohibitive pretreatment of the flue gas stream via wet scrubbing for sulfur control, followed by mist eliminators and an additional preheater to reach the minimum SCR operating temperature of 450 °F. Furthermore, SCR technology has not been demonstrated on recovery boiler and, therefore, Englehard Corporation and Monsanto Enviro-Chem are unable to guarantee SCR system performance for such an application.

Another concern with the use of SCR technology in recovery boilers is that the boiler exhaust temperature is below the optimum range for effectiveness. SCR can be applied at flue gas temperatures from 450 – 1150 °F, but is most frequently applied at flue gas temperatures from 450 – 800 °F. Recovery Boiler No. 5 exhaust is approximately 350 °F and, therefore would require reheating prior to a SCR system, even if additional scrubbing were not required.

Additional environmental and safety considerations arise from the disposal of the spent catalyst, the transportation, storage and handling of large quantities of ammonia and potential "ammonia" slip through the SCR catalyst bed.

Based on the technical obstacles and potential negative environmental impacts associated with the application of SCR technology to recovery boilers, this technology is rejected from further consideration.

This page does not contain any enforceable permit conditions.

Selective Non-Catalytic Reduction

Selective Non-Catalytic Reduction (SNCR) involves the non-catalytic decomposition of NO_x in the flue gas to nitrogen and water using ammonia or urea as reducing agents. These agents are injected into the flue gas at a location near the furnace exit to provide the optimum reaction temperature and residence time. Although SNCR is an effective NO_x reduction technology, it is critically temperature dependent, requiring flue gas temperatures between 1600 and 2200 °F. Below the optimum temperature range, ammonia is formed. Recovery Boiler No. 5 exhaust is well below the optimum temperature range. Additionally, there are significant safety concerns associated with the injection of liquids into a recovery boiler.

There are no known applications of SNCR for recovery boilers in the United States and there are technical feasibility issues that prevent this technology from being readily applied. Consequently, the use of SNCR technology is not considered technically feasible and is eliminated from further BACT consideration.

4.3.2.3 Evaluation of Technically Feasible Control Alternatives

Weyerhaeuser Plymouth has chosen to implement several technologies to control NO_x emissions from No. 2 fuel oil and black liquor solids firing. For fuel oil combustion, the conversion to low sulfur fuel and use of low NO_x burners for the load burners will serve as the most effective techniques for NO_x control. For black liquor solids combustion, proper boiler design and good combustion control will provide effective control of NO_x emissions. Details of each proposed BACT are discussed below.

Fuel Oil Combustion

The Weyerhaeuser Plymouth facility currently uses No. 6 fuel for recovery boiler start-ups, shut-downs and malfunctions, but as part of this maintenance project is converting the recovery boiler to use No. 2 low sulfur (0.05%) fuel for SO_2 control. It is estimated that this conversion will also reduce NO_x emissions from the combustion of fuel oil in the recovery boiler by 50%.

Low NOx Burners

Low NO_x burners reduce NO_x formation by controlling the mixing of fuel and combustion air both to create lower combustion temperatures, thereby reducing thermal NO_x formation, and to create chemical reduction zones within the flame. Low NO_x burner technology for fuel oil combustion typically reduces NO_x emissions by 30-50%.

Weyerhaeuser Plymouth proposes as BACT to install low NO_x burners for the load burners for fuel oil combustion. Low NO_x burner technology does not exist for start-up burners, therefore, only the load burners will be equipped with low NO_x burners. Corresponding BACT emission limits are not proposed due to the impracticability of conducting performance testing during fuel oil combustion alone as a compliance demonstration.

Black Liquor Solids Combustion

Proper Design and Good Combustion Control

The RBLC search indicates that proper boiler design and good combustion practices are the most widely applied control technologies for control of NO_x emissions from recovery boilers. In Recovery Boiler No. 5, as in most modern recovery boilers, combustion air is staged to create reducing conditions at the bottom of the boiler in order to promote the reduction of sodium sulfate to sodium sulfide. Utilization of staged combustion minimizes thermal NO_x formation.

The proposed BACT limit when firing black liquor solids (alone or with No. 2 fuel oil) is 375.94 lb NO_x/hr. This limit is derived from the maximum stack test data for Recovery Boiler No. 5 plus two standard deviations of the test data, and scaled to the proposed production rate of 130 TBLS/hr. A summary of this data is provided in Table 4-6. Compliance with this limit will be demonstrated through conducting one performance test during the permit term using Method 7, 7A or 7E in 40 CFR 60 Appendix A or other EPA-approved method as provided in 40 CFR 60.8(b).

4.3.3 CARBON MONOXIDE (CO)

The combustion process occurring in the recovery boiler produces CO. Poor gas mixing and insufficient excess air are the contributing factors to CO formation.

4.3.3.1 Control Technologies Evaluated

Table 4-4 summarizes previous RACT/BACT/LAER Clearinghouse (RBLC) determinations with supplementary information from state agencies for CO control at recovery boilers. Table 4-4 does not include a BACT determination for Kirby Forest Industries in Bon Wier, Texas because this facility was never constructed according to TNRCC officials. As presented in Table 4-4, the only BACT control technologies applied for CO control are proper design and good combustion practices. Catalytic oxidation is an identified transfer technology for control of CO emissions; however, it is technically infeasible as discussed below.

4.3.3.2 Technically Infeasible/Undemonstrated Control Alternatives

Catalytic Oxidation

Catalytic oxidation is a flue gas treatment control which completes the oxidation of CO to CO_2. With this technology, the gas stream is passed over a noble metal catalyst bed, commonly platinum or palladium, which increases the combustion reaction rate.

Based on discussions with Monsanto Enviro-Chem Systems, a leading supplier of catalyst technologies, utilization of catalytic oxidation would require significant pretreatment of the gas stream due to the high sulfur levels and the low amount of H_2SO_4 present in the black liquor combustion exhaust. Significant sulfur concentrations are known to poison (i.e. deactivate) the catalyst and although sulfur-resistant catalysts have been developed. they have not been

This page does not contain any enforceable permit conditions.

commercially applied to recovery boilers or applications of this size. Furthermore, even use of sulfur-resistant catalyst would require pretreatment of the gas stream and would require the installation of a wet scrubber for sulfur removal and a mist eliminator for controlling aerosols such as H_2SO_4. Additionally, increases in emissions of criteria pollutants would result from the need to reheat the gas stream (to at least 400° F) after a pretreatment scrubber and mist eliminator to ensure effectiveness of the catalyst. Consequently, the nature of the kraft recovery process makes it unsuitable for use of catalytic oxidation.

Therefore, based on the technical infeasibility associated with this technology, it is rejected from further consideration in the BACT analysis.

4.3.3.3 Evaluation of Technically Feasible Control Alternatives

Proper Design and Good Combustion Control

The RBLC search indicates that proper design and good combustion control (i.e., a sufficient amount of excess oxygen) is the recommended technology for CO control from recovery boilers. Weyerhaeuser Plymouth proposes a BACT limit for CO control of 1496 ppmw (3-hour average), to be applied whether firing fuel oil, black liquor solids, or both. This limit was derived using one year of CEMS data and applying two standard deviations to the maximum 3-hour average recorded during this period. A summary of this data is provided in Table 4-6.

4.3.4 Sulfuric Acid Mist (H_2SO_4)

Sulfuric acid mist (H_2SO_4) is generated when sulfur trioxide present in fuel oil and black liquor solids combustion exhaust combines with water vapor at a temperature below the dew point of H_2SO_4.

4.3.4.1 Control Technologies Evaluated

As provided in Table 4-5, proper boiler design is the only BACT determination for H_2SO_4 control from recovery boilers included in the RBLC, therefore, control options were developed based on engineering knowledge of applicable control technologies and control efficiencies. The only H_2SO_4 transfer control technology identified as being potentially applicable to recovery boilers is a high-energy venturi scrubber.

4.3.4.2 Evaluation of Technically Feasible Control Alternatives

High-Energy Venturi Scrubber

Technical Evaluation

A venturi scrubber consists of a venturi tube with converging and diverging sections where flue gas encounters low pressure water added at the throat. The turbulence created in the venturi throat promotes atomization of the water. The atomized water impacts and absorbs particles from the gas stream, which agglomerate and are collected in a separator, such as a demister.

This page does not contain any enforceable permit conditions.

Although wet scrubbing is a technically feasible control option for H_2SO_4, H_2SO_4 is present in the exhaust stream as a fine aerosol (0.1 μm) and even moderate removal efficiencies require high pressure drops; thus, the scrubber system is expensive to operate.[1]

Economic Impacts

Table 4-8 presents an annual cost evaluation for operating a wet scrubbing system to reduce H_2SO_4 emissions. This evaluation does not include capital costs and, therefore, annual cost estimates are conservatively low. As indicated, the expense associated with just increased electrical usage makes this option cost prohibitive. Using estimation methods obtained from EPA's Cost Control Manual, the annual electricity usage from the operation of a venturi scrubber at a 30-inch pressure drop is 27,113,076 kWh/yr at a cost of $1,355,654/yr. The proposed scrubbing system is designed to treat 9 tpy of H_2SO_4 at a 20% removal efficiency. The cost effectiveness is $152,321/ton of H_2SO_4 removed.

Energy Impacts

As discussed above, significant energy impacts are associated with the use of a venturi scrubber. The increased electrical usage would result in increased emissions of criteria pollutants and other toxics associated with combustion.

Environmental Impacts

No negative environmental impacts are associated with the venturi scrubber option.

Conclusion

The venturi scrubber option is rejected as BACT due to a prohibitively high cost effectiveness.

Proper Boiler Design

Proper boiler design is the proposed control technology for H_2SO_4 mist emissions from Recovery Boiler No. 5 with a BACT limit of 10.16 lb/hr during black liquor solids firing. To demonstrate compliance with this limit, one performance test will be conducted during the permit term using EPA Reference Method 8, or other approved test methods per 40 CFR 60.8(b).

4.4 REFERENCES

1. Table 4.11-1. EPA Handbook: Control Technologies for Hazardous Air Pollutants, EPA-625/6-91/014.

This page does not contain any enforceable permit conditions.

TABLE 4-7
LIMESTONE SLURRY SCRUBBING SYSTEM FOR SO_2 EMISSIONS REDUCTION
WEYERHAEUSER PLYMOUTH MILL
URS GREINER WOODWARD CLYDE PROJECT NO. 55100.00

DESIGN CONDITIONS				
Flue Gas Volume (acfm)	570,000			
Gas Stream Temperature (deg F)	383			
H_2O (vol %)	22			
N_2	balance			
O_2 (vol %)	6			
SO_2 (lb/hr)	54.30			
DIRECT COSTS	**Cost Est.**	**Basis for Estimate[1,2]**		
Total Equipment Costs	$4,900,000			
Dynawave Reverse Jets (3)				
Gas/Liquid Sep. & Oxidation Vessels (3)				
Entrainment Separators (6)				
ID Fans (3)				
Circulation Pumps (3)				
Agitation/Effluent Pump (3)				
Oxidation Air Blower (3)				
Reagent Slurry System (1)				
Total Installation Costs	$5,300,000			
Setting Major Equipment				
Soil Preparation and Foundations				
Structural Steel and Platforms				
Piping and Valves				
Interconnecting Ductwork				
Electrical				
Control Room				
Total Capital Cost	$10,200,000	Monsanto Enviro-Chem Estimate		
DIRECT ANNUAL OPERATING COSTS[3]				
Electricity Cost	$594,804	Elec. Cost ($/kWh):		$0.050
		Elec. Usage (kW):		1358
		(Monsanto electrical usage estimate)		
Reagent Cost	$6,742	Limestone cost ($/lb):		$0.0037
		Usage rate (lb/hr):		208
Operating Labor		(Monsanto limestone estimates)		
Operator	$35,040	$16.00	per hr	Basis: 2.0 hrs/shift * shift/8 hrs * 8760 hrs/yr
Supervisor	$5,256	15%		15% of Operator Labor
Maintenance Labor	$19,272	$17.60	per hr	1.0 hr/shift * shift/8 hrs * 8760 hr/yr
Maintenance Materials	$19,272	100 percent of maintenance labor		
INDIRECT ANNUAL COSTS				
Overhead	$47,304	0.6	* C	C = operating labor + maintenance costs
Administration	$204,000	2%	TCC	
Property Taxes	$102,000	1%	TCC	
Insurance	$102,000	1%	TCC	
Capital Recovery	$1,660,560	0.1628		10 years, 10 percent interest
TOTAL ANNUAL COSTS	$2,796,250			
SULFUR DIOXIDE EMISSIONS/COST EFFECTIVENESS				
Total Uncontrolled SO_2 Emissions	238	tons/yr		
Control Efficiency	74.5%	%		
Emission Reduction	177	tons		
Cost/ton of SO_2 Removal (COST EFFECTIVENESS)	**$15,764**	**$/ton**		

Notes:
1) Monsanto Enviro-Chem Systems - Scrubber Equipment and Installation Costs
2) Control Technologies for Hazardous Air Pollutants, EPA/625/6-91/014;
Operating and maintenance labor estimates based on EPA defaults for venturi scrubbers.
3) Some direct operating costs are not included in this estimate. These include water usage, waste disposal and wastewater disposal.

5.0 BEST AVAILABLE CONTROL TECHNOLOGY

Each pollutant subject to a Prevention of Significant Deterioration (PSD) review must meet the criteria of "Best Available Control Technology" (BACT) which refers to the maximum amount of emission currently possible with respect to technical application and economic, energy and environmental considerations. BACT must, therefore, be determined on a case by case basis. In most cases, BACT may be defined through an emission limitation.

As a result of the EPA remand involving the North County Resource Recovery project in Region IX, the effects of non-regulated PSD pollutants, such as toxic air pollutants, are to be accounted for in determining if the BACT otherwise being prescribed for a regulated pollutant(s) still represents an appropriate level and type of control. There is no specific formula for making PSD decisions for unregulated pollutants. BACT determination must take into account the latest technology and other data as of today.

To assist in bringing consistency to the BACT process, the USEPA is requiring all PSD applicants to use the "top down" approach to BACT determination. This approach consists of five steps:

1. The comprehensive listing of control technologies for each applicable pollutant.

2. Demonstration of technical feasibility to insure that each technology was appropriate for use with the gas stream to be treated.

3. Ranking of those control technologies demonstrated to be feasible by control effectiveness, including pollutant control efficiency, expected emission rate, expected emission reduction, economic impacts (cost effectiveness), environmental impacts (including air toxics) and energy impacts (benefits or disadvantages).

4. Case-by-case evaluation of energy, environmental and economic impacts.

5. Selection of the most effective option as BACT.

In addition to demonstrating compliance with all applicable PSD regulations, a PSD review must also include demonstration that any increase in North Carolina SIP toxic air pollutant emissions resulting from the modification triggering the PSD review would be in compliance with the respective TAP regulations.

5.1 Proposed BACT Determinations

Only those sources undergoing major modification must be evaluated for BACT. This would be the No. 5 Recovery Furnace.

Unit	Pollutant	Control Technology	Emission Limitations
No. 5 Recovery Boiler	SO_2 -combusting BLS -combusting fuel oil	 proper design and good combustion control low sulfur (0.05%S) No. 2 fuel oil	54.55 lb/hr
	NO_X -combusting BLS -combusting fuel oil	 proper design and good combustion control low NOx fuel oil burners	375.94 lb/hr
	CO	proper design and good combustion control	1496 ppmw (3 hour average)
	H_2SO_4 -combusting BLS	proper design	10.16 lb/hr

5.1.a. No. 5 Recovery Furnace

5.1.a.1. Sulfur Dioxide

5.1.a.1.a. Identification of available control technology

- o design and combustion control
- o wet scrubbing

5.1.a.1.b. Technically Infeasible Control Technology

Historically, Kraft recovery furnaces are designed to maximize sulfur recovery as smelt while minimizing sulfur losses as air emissions. This is done primarily by operating an overall reducing atmosphere in the combustion zone, producing sodium sulfide from the sulfate present rather than sulfur dioxide. Only one facility listed in the BACT/LAER Clearinghouse data referenced (1987-1999) proposed wet scrubbing as BACT for sulfur dioxide emission reduction. This was installed primarily for heat recovery, with sulfur dioxide reduction secondary.

A cost analysis of a wet scrubber system was conducted for a system to handle 177 tpy SO2 at 74.5% reduction efficiency. The cost effectiveness was $15, 764 per ton of H2SO4 removed. This is too costly.

5.1.a.1.c. BACT Analysis and Summary

Proposed BACT for sulfur dioxide from Recovery Furnace No. 7 when combusting black liquor solids is **no control**, with an emission limit of 54.55 lb/hr.

5.1.a.2. Nitrogen Oxides

5.1.a.2.a. Identification of Available Control Technologies

- Low NOx fuel oil burners
- Selective Non-Catalytic Reduction (SNCR)
- Selective Catalytic Reduction (SCR)
- Combustion Control

5.1.a.2.b. Technically Infeasible Control Technologies

The SNCR process uses direct gas stream injection of ammonia or urea, which reacts with the NO_X present in the furnace exhaust and produces N_2 and water. Ammonia injection has an extremely critical temperature range between 1600°F and 1900°F (probably requiring a flue gas reheat system to maintain such a high exit temperature). Urea injection allows a wider temperature range. Either material could be used in a Kraft recovery furnace, but no BACT use of SNCR for NO_X reduction in a Kraft recovery furnace has been found in the U.S. This is primarily due to potential interference to the chemical recovery kinetics. The SCR process uses the same ammonia or urea reagent, but injects it immediately upstream of a catalyst. This reduces the reaction range to from 450°F to 750°F. The flue gas must be precleaned to prevent catalyst poisoning. The very nature of the recovery process's volatilization of sodium compounds maximizes the poisoning potential. SCR has never been applied to a Kraft recovery furnace in the U.S.

5.1.a.2.c. BACT Analysis and Summary

The replacement No. 2 fuel oil burners are designed as **low NOx burners** relative to the 1975 originals. Low NOx burners function by reducing the amount of oxygen present at combustion, actually resulting in a slight increase in CO and particulate emissions. The low NOx burners can achieve as much as 50% NOx emission reduction.

Combustion control designed into the recovery furnace such as tertiary staged combustion (minimum air supplied in the primary level to maintain the required reducing atmosphere in the char bed in the smelt combustion zone and secondary and tertiary level air supplied to maximize combustion of TRS compounds) **and optimized furnace controls** are the BACT proposed for **NO_X** reduction from the No. 5 Recovery Boiler while combusting black liquor. Thermal NO_X generated by combustion will be minimized. NOX emissions using combustion control as BACT were identified in the BACT/LAER Clearinghouse for Kraft recovery furnaces ranged from 75ppm to 120ppm. A **BACT** emission limit of **374.94 lb/hr** is for firing BLS, with or without No. 2 fuel oil.

5.1.a.3. Carbon Monoxide

5.1.a.3.a. Identification of Available Control Technologies

- o Catalytic Oxidation
- o Proper Design and Combustion Control

5.1.a.3.b. Technically Infeasible Control Technologies

Significant pretreatment of the gas stream to remove high sulfur concentrations (can deactivate the catalyst) would include use of a wet scrubber. The scrubbed gas stream would also require use of a mist eliminator and reheating to at least 400°F prior to contact with the catalyst. Such expensive pretreatment would rule out the use of catalytic oxidation.

5.1.a.3.c. BACT Analysis and Summary

Proper boiler design and optimized combustion control (to assure maximum oxygen) is therefore BACT. A BACT CO limit of **1496 ppmw (3 hour average)** is proposed for the No. 5 Recovery Boiler, burning either BLS, BLS w/ No. 2 fuel oil or No. 2 fuel oil. A CEMS for CO is installed on the unit.

5.1.a.4. Sulfuric Acid Mist

5.1.a.4.a. Identification of Available Control Technologies

- o Proper Design and Combustion Control

- o High energy venturi wet scrubber

5.1.a.4.b. Technically Infeasible Control Technologies

Although only proper design and combustion control was found in the BACT-LAER Clearinghouse as a means of controlling H_2SO_4 from a recovery boiler, wet scrubbing is a possible alternative control technology for controlling acid gas emissions.

High energy demands due to the large pressure drop across a wet scrubber make this option infeasible. Even a very efficient venturi-type wet scrubber would only produce a 20 % reduction in H_2SO_4 mist emissions. At a 30 inch pressure drop, the cost effectiveness is $152, 321 per ton of H_2SO_4 removed.

5.1.a.4.c. BACT Analysis and Summary

Proper boiler design and combustion control is therefore proposed as BACT for H_2SO4 mist, with a BACT limit of **10.16 lb/hr during BLS firing**.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

OCT 0 5 2000

4APT-ARB

Donald R. van der Vaart, Ph.D., P.E.
North Carolina Department of Environment and Natural Resources
Division of Air Quality
Permits Section
1641 Mail Service Center
Raleigh, NC 27604

SUBJ: PSD Permit Application, Draft Preliminary Determination and
Draft PSD Permit
Weyerhaeuser Company - Plymouth Mill
Martin County, NC

Dear Dr. van der Vaart:

Thank you for forwarding to our office the prevention of significant deterioration (PSD) permit application, draft preliminary determination and draft PSD permit for the Weyerhaeuser Company - Plymouth Mill. This PSD project is for the proposed maintenance activities for the No. 5 black liquor recovery boiler, which include the replacement of the bottom part of the furnace and the replacement of the existing black liquor firing guns with larger ones, thus increasing the firing rate from 121 tons of black liquor solids per hour to 130 tons of black liquor solids per hour. Also, the auxiliary fuel system will be replaced to allow a switch from combusting No. 6 fuel oil to No. 2 fuel oil. Total emissions increases from the proposed project are above the thresholds requiring PSD review for sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO) and sulfuric acid mist (SAM).

Based on our review of the information submitted, we have the following comments:

1. Page 10, Section 3.1.1, Prevention of Significant Deterioration Applicability: The second paragraph in this section explains that the emissions increases for the project were determined based on data from the 1997-1998 period. The North Carolina Division of Air Quality (NCDAQ) should consider requesting the applicant to provide additional information that evaluates data from the most recent two year period as of the time the application was submitted and not the most recent two calendar years. The PSD regulations do not specify the use of calendar years.

2. Page 24, Section 4.3.1.2, Wet Scrubber, Economic Impacts: The description cites the use of the Environmental Protection Agency (EPA) *OAQPS Control Cost Manual*. However, the reference listed at the end of the section is the EPA

handbook *Control Technologies for Hazardous Air Pollutants*, EPA-625/6-91/014.

3. Page 25, Section 4.3.1.2, BACT Limit for SO_2: Weyerhaeuser proposed 54.55 lb SO_2/hr as the BACT limit for the recovery boiler when firing black liquor solids. The application further states that this limit is "well within the range of previous determinations provided in the RACT/BACT/LAER Clearinghouse (RBLC)." Since the proposed BACT limit in the application is not expressed in the same units as those included in the RBLC (as summarized in Table 4-2 of the application), EPA could not corroborate the accuracy of the statement made in the permit application. Further, proposed BACT limits should reflect the lowest level of emissions currently achievable by similar units unless adequate reasons for higher levels are provided. Stating that the limit is "well within the range of previous determinations" does not assure that the applicant has considered a limit that reflects the maximum degree of emissions reductions. Therefore, Weyerhaeuser should provide further documentation to support the proposed BACT limit for SO_2. This documentation should contain, at a minimum, the limit expressed in units that can easily be compared with the limits from the RBLC and a justification to support the limit selected if the limit does not represent the lowest level of emissions currently achievable by similar units.

   Additionally, EPA is concerned with the magnitude of the proposed limit for SO_2. The application describes that the proposed limit was derived from stack test data and increased by two standard deviations to account for variability. The resulting proposed limit is two times the highest value measured during the time period depicted in Table 4-6. Furthermore, the test results are skewed by a test occurring nine years ago (7/3/91) that showed emissions more than three times higher than in any subsequent test. EPA therefore questions the need for such a high emission limit for SO_2. Also, it will be worth clarifying whether No. 6 fuel oil was used while conducting the tests cited in the application.

4. Page 26, Section 4.3.2.2, Technically Infeasible/Undemonstrated Control Alternatives: The first paragraph under this subsection states that selective catalytic reduction (SCR) was rejected based on technical infeasibility. While, in this case, the use of SCR may not constitute BACT, SCR is not necessarily technically infeasible. As Weyerhaeuser pointed out in a later paragraph, the rejection of SCR is based mostly on technical obstacles such as costly pretreatment and reheating, and environmental impacts. Economic, environmental and energy factors are generally used to assess technically feasible alternatives and not as grounds to support a conclusion of technical infeasibility.

5. Page 28, Section 4.3.2.3, Proper Design and Good Combustion Control -NO_x: Since the proposed BACT limit for NO_x is not expressed in the same units as the

RBLC limits summarized in Table 4-3 of the application, EPA could not corroborate whether the proposed limit indeed represents BACT for the recovery boiler. Also, because the applicant only used data from three stack tests, using two standard deviations to establish the limit appears to be inappropriate. Adequate additional information, including but not limited to the proposed limit expressed in comparable units to the ones used to express the limits included in Table 4-3, and additional supporting documentation that reflects the adequacy of the proposed limit for NO_x should be considered by NCDAQ before issuing a final permit.

6. Page 29, Section 4.3.3.3, Proper Design and Good Combustion Practices - CO: The proposed BACT limit for CO is 1496 ppmw. This limit appears to be much higher than the limits listed in the RBLC as summarized in Table 4-4. However, from the information included in the application the reason for such high emissions is not apparent. The applicant should provide an explanation detailing the reason for the higher emission rate and the need for a limit that is 1.3 times the maximum value measured by one year of continuous emissions monitoring as documented in Table 4-6 of the application.

7. Page 65, Table 4-7: In the Indirect Annual Costs portion of the table, the Capital Recovery basis is identified as 10 years and 10 percent interest. The 10 percent interest rate is inconsistent with the 7 percent interest rate in the *OAQPS Control Cost Manual*. The 10 percent interest rate should be reduced to 7 percent unless the appropriateness of a higher interest rate can be documented.

8. Air Quality Analysis: The U.S. Fish and Wildlife Service (FWS) has indicated EPA that the permit application and supporting information do not provide adequate information for the evaluation of the project's impact on PSD Class I increments and the air quality related values at the Swanquarter National Wilderness Area. The Weyerhaeuser facility is located 65 km from the Swanquarter National Wilderness Area - a designated PSD Class I area under the administration of FWS. EPA recommends that no PSD construction permit be issued until the FWS's review comments are addressed and a determination is made of whether the Class I area will be adversely impacted by the emissions increases from the proposed project.

Thank you for the opportunity to comment on the PSD permit application, draft preliminary determination and draft PSD permit for the Weyerhaeuser Company - Plymouth Mill in Martin County, NC. If you have any questions regarding these comments, please direct them to either Gracy R. Danois at 404-562-9119 or Jim Little at 404-562-9118.

Sincerely,

R. Douglas Neeley
Chief
Air and Radiation Technology Branch
Air, Pesticides and Toxics
Management Division

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

Golder Associates

February 18, 2002 9937518

Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Attention: Mr. A. A. Linero, P.E.
Administrator, New Source Review Section

RE: FILE NO. 0050009-005-AC (PSD-FL-288)
STONE CONTAINER CORP. PANAMA CITY MILL
PULP PRODUCTION INCREASE

Dear Mr. Linero:

This correspondence is in response to the Florida Department of Environmental Protection's (FDEP's) letter dated December 5, 2000, concerning the above-referenced request for a pulp production increase for Stone Container Corporation's (SCC) Panama City mill. This letter also addresses the related issues raised by the U.S. Environmental Protection Agency (EPA) during a teleconference for the project held on December 15, 2000. The purpose of this letter is to present responses for the additional information requested, and to address EPA's concerns. Responses to each of the comments in the December letter are presented in the same order as they appear in the referenced letter.

Following the receipt of FDEP's letter, Mr. David Buff (Golder Associates Inc.) and Mr. Cleve Holladay (FDEP) visited the facility in October 2001 to conduct a survey of the recovery boilers building and the combination boilers building. As a result of this visit and other information obtained by Golder from SCC, more accurate building dimensions, building locations, and stack data were obtained for use in the modeling. The outcome of this process was a more precise representation of these critical buildings in the modeling analysis. The corrected modeling parameters generated more accurate modeling results. These results are also addressed in this letter.

1. COMMENT: The Department finds the response to this question sufficient.

RESPONSE: FDEP's comment is acknowledged.

2. COMMENT: Existing ambient monitoring data was provided in an attempt to satisfy the PSD preconstruction monitoring requirement for the following four pollutants: CO, NO_x, PM_{10}, and SO_2. The Department finds the data for CO and NO_x acceptable for establishing ambient background concentrations. However, since modeled PM_{10} and SO_2 concentrations challenge the Florida and National AAQS, further evaluation of the background concentrations of these pollutants is necessary. Concerns with this issue are addressed more thoroughly in item 8.

RESPONSE: Refer to Attachment A for a revised SO_2 background concentration analysis, based on our conversation with FDEP and EPA staff held on December 15, 2000. Additional modeling for

SO_2 has been performed to address the revised background values. For detailed results of the SO_2 AAQS modeling results with background concentrations, refer to Attachment E.

The background concentration used in the modeling analysis for PM_{10} has also been revised based on our discussion in December 2000 and follow up with Cleve Holladay of your staff. The 6th highest monitored 24-hour average concentration over the period 1997 to 2000 was selected to represent the background PM_{10} concentration. This concentration, 51 micrograms per cubic meter ($\mu g/m^3$), was obtained from the following data measured at the Panama City monitor located at Cherry Street and Henderson Avenue:

24-hour Average Concentrations ($\mu g/m^3$)

Year	1st	2nd	3rd
1997	62 (3)	52 (5)	51 (6)
1998	73 (2)	52 (4)	49
1999	80 (1)	50	48
2000	47	46	40

Note: (X) is ranking of values

Additional modeling for PM_{10} has been performed that includes the revised 24-hour background value. For detailed results of the PM_{10} AAQS modeling results with background concentrations, refer to Attachment E.

3. COMMENT: The Department finds the response to this question sufficient to address the problems with receptors at the property boundary. However, the PM_{10} AAQS analysis was submitted with a receptor network that is only suitable for a screening analysis. Please submit a refined PM_{10} AAQS analysis that utilizes a denser receptor network centered upon the region of maximum impact.

RESPONSE: Refined PM_{10} AAQS modeling has been conducted to include a suitable receptor density centered upon the region of maximum impact. For detailed results of the PM_{10} AAQS modeling results, refer to Attachment E.

4. COMMENT: The Department finds the response to this question sufficient, but the revised figures showing the property boundary that were mentioned in the response letter were not included. Please provide these figures to the Department.

RESONSE: The referenced figures showing the property boundary are included in Attachment F. The location of the Arizona Chemical boilers has been added to the smaller scale figure as shown in Attachment F, Figure 1a.

5. COMMENT: The Department finds the response to this question sufficient.

RESPONSE: FDEP's comment is acknowledged.

6. COMMENT: The Department finds the response to this question sufficient.

RESPONSE: FDEP's comment is acknowledged.

7. **COMMENT: The Department finds the response to this question sufficient.**

RESPONSE: FDEP's comment is acknowledged.

8. **COMMENT: Revised short term ambient background concentrations were submitted for SO_2 and PM_{10}. However, the methods used to derive these values do not seem appropriate given the importance of these values to the ambient modeling analysis. A description of the errors found with the methods utilized for each pollutant are given below:**

a) **PM_{10} – Monitoring data for this pollutant was submitted from a monitor in Panama City, FL over a period that contained data from 1997-1999. Since this monitor is located about 0.6 km north-east of SCC, it is assumed that emission from SCC that could have an impact on the monitor was inappropriate for the following reasons: First, only data from 1999 was used in the process, even though data from 1998 had higher observed concentrations. It appears that 1999 also had the least number of observations. Also, the meteorological data that was used in the analysis was from a National Weather service site that was over 8- km away, and was thus not appropriate for this type of analysis. Finally, the procedure that was used to derive the PM_{10} background concentration was not consistent with the procedure that was used to derive the SO_2 background concentration.**

b) **SO_2 – Monitoring data for this pollutant was submitted from a monitor in Pensacola, FL over a period that contained data from 1997-1999. However, since this monitor was located in an urban area, a modification of the procedure presented in Section 9.22 of the Guideline on Air Quality Models was used in an attempt to eliminate influences from large SO_2 sources in the region. This method is typically used to eliminate influences from only the source that is of concern, not surrounding sources. Although it is acknowledged that the Pensacola monitor could be influenced by nearby large sources of SO_2, it is believed that the method used to eliminate these influences was inappropriate for the following reasons: First, only data from the Ellyson Industrial Park (EIP) monitoring station was considered in the analysis, because the University Parkway (UP) station had missing wind information. However, due to the close proximity of the two monitors, it is possible to use measured PM_{10} data from the UP station in conjunction with wind data from the EIP station. Also, it appears that the Solutia and Champion SO_2 emission sources are located at a distance that is too great for them to be considered for impacts on the EIP or UP SO_2 monitors. Finally, the wind sector that was used to eliminate SO_2 influences from competing sources was too large. This sector should be no larger than 90 degrees, and it should be centered around the Gulf Power Site.**

RESPONSE: Refer to the response to comment #2 above.

9. **COMMENT: It appears to the Department that Table 5-8 has been revised to reflect changes in the modeling. However, there is still a large discrepancy between the ISCST3 and the ISC-PRIME results in the Class I area. Also, the distances from the facility to the receptors of maximum concentrations in the Class I Area appear to be erroneous. It is the Department's opinion that this issue requires further review and explanation.**

RESPONSE: Use of the ISC-PRIME Model for this project has been approved by the EPA in a letter dated December 3, 2001 (refer to Attachment B). Therefore, the comparison of each model's results is unnecessary as it is current policy to use the CALPUFF model for predicting impacts on Class I areas more than 100 kilometers (km) from the facility. A review of the CALPUFF receptor distances was performed and the correct distances have been verified.

CALPUFF modeling has been performed for the Panama City mill. The CALPUFF long-range transport model (Version 5.4) was used to predict the maximum PSD increment consumption occurring at the St. Marks and Bradwell Bay National Wilderness Areas (NWA). Meteorological data consisted of a CALMET-developed wind field that covers all of northwestern Florida, as well as southern Georgia and southeastern Alabama.

Future and PSD baseline SO_2, PM_{10}, and NO_x emissions from all PSD increment consuming and expanding sources were input to the CALPUFF model separately. These concentration files were then subtracted using the CALSUM utility program to obtain the increment consumption at each receptor. The screening analysis results for each pollutant are summarized in Attachment E, Table 5-5. The results indicate that only the allowable 3-hour SO_2 increment of 25 ug/m^3 is exceeded. Based on these results, a more detailed analysis was performed with only the increment consuming PSD sources to determine if the future SCC plant's emissions contributed to any predicted 3-hour exceedance.

The results of the detailed analysis are summarized in Table 5-6 in Attachment E. There were five predicted exceedances of the 3-hour PSD increment, occurring during three periods at two receptors at the eastern side of the Bradwell Bay NWA. One receptor had three exceedances (i.e., two increment violations), while the other receptor had two exceedances (i.e., one increment violation). The SCC facility did not contribute to three of the exceedances which occurred on Julian days 311 (11/7) and 324 (11/20). However, the SCC facility contributed 0.31 ug/m^3 to the last two exceedances that occurred on Julian day 135 (5/15). This concentration is below EPA's proposed PSD Class I significant impact level of 1.0 ug/m^3.

It is noted that the predicted exceedances were mostly due to the City of Tallahassee A.B. Hopkins plant. The distance of the impacted Bradwell Bay receptors from the A.B. Hopkins plant is only 29 km, which is probably too close for a CALPUFF analysis. A subsequent ISC-Prime modeling analysis of A.B. Hopkins alone at the Bradwll Bay NWA predicted 24-hour and 3-hour SO_2 PSD increment consumption values of 2.3 and 11.6 ug/m^3, respectively. These concentrations are well below the allowable PSD Class I increments of 5 and 25 ug/m^3, respectively.

10.a) COMMENT: The Department finds the response to this question sufficient.

RESPONSE: FDEP's comment is acknowledged.

b) COMMENT: The Department finds the response to this question sufficient.

RESPONSE: FDEP's comment is acknowledged.

c) COMMENT: The Department finds the response to this question sufficient.

RESPONSE: FDEP's comment is acknowledged.

d) COMMENT: Tables 4-3, 4-5, and 4-7 still have some inconsistencies with the emission of SO_2, NO_x, and PM_{10} from units that were selected to be modeled for the City of Tallahassee Hopkins Plant. Please explain the differences between these tables.

RESPONSE: Revised Tables 4-3, 4-5, and 4-7 are attached in Attachment E.

e) **COMMENT: It was recommended in the previous letter that the two sources at the Arizona Chemical plant be separated. However, the two sources were still combined in the modeling files that were submitted to the Department. Since the maximum SO_2 and PM_{10} modeled concentrations are close to the site boundary and challenge the Florida and National AAQS, it is still recommended that these sources not be combined in the modeling. Also, there is a discrepancy between the location of Combination Boilers No.3 and No. 4 that are listed on Table 2-3 and the location of the boilers that were input in the ISC-PRIME model.**

RESPONSE: A plot plan of the Arizona Chemical facility was obtained from FDEP Pensacola, and the two boilers were appropriately separated based on this map. A copy of the pertinent portion of the plot plan is attached as Figure 3 in Attachment F.

Also, modifications have been made to Table 2-3 in Attachment E, reflecting proper source locations for Nos. 1 & 2 Recovery Boilers, Nos. 1 & 2 Smelt Dissolving Tanks, and Nos. 3 & 4 Combination Boilers. All dispersion modeling and building downwash analyses reflect these changes. These changes were a result of the site survey conducted of the Panama City mill in October 2001, as well as careful review of engineering drawings, which allowed refinement of building locations and dimensions.

In order to better visualize the building representations used in the modeling, two 3-D graphics of the buildings and stacks are presented in Attachment F, Figures 4 and 5. Also included are photographs of these buildings. As shown, the recovery boilers building was modeled as a two tiered structure, with two separate structures: one for the two boilers (a single solid structure) and one for the ESPs. This is because the ESPs have a greater height than the boilers. The width of the boilers structure extends from the outside edge of one boiler to the outside edge of the second boiler. Even though the distance (opening) between the two boilers (40 feet) is greater than the width of each boiler (30 feet), the boilers were modeled as a single solid structure. This representation results in higher predicted concentrations (i.e., greater downwash) than would actually be expected. In general, the recovery boilers building is a very porous structure (aside from the boilers themselves, which are solid structures). This porosity allows significant air flow through the superstructure of the building as well as between the two boilers. This was verified during the sit visit in October 2001. Again, this representation would produce very conservative model results.

11. COMMENT: The Department finds the response to this question sufficient.

RESPONSE: FDEP's comment is acknowledged.

12. COMMENT: Based on your concluding paragraph, the following response is made. We will be applying the new source review requirements contained in Rule 62-212.400(5), F.A.C., which include the determination of BACT. Please review your earlier submittal, which provided a BACT evaluation for the affected emissions units subject to a BACT determination, to see if there is/are any changes that you would like to make in light of the potential application of BACT to them.

RESPONSE: The BACT information submitted previously in April and June 2000 remains valid. SCC's position remains that the state rule does not require BACT to be applied to emission units that are not undergoing a physical change or change in the method of operation. The state definition of the term "modification" excludes an increase in hours or production rate unless such change would exceed a permit limitation (Rule 62-210.200(188)). Therefore, any sources not undergoing a physical change or change in the method of operation, and only experiencing an increase in operating hours or production rate, as a result of the pulp production increase, are not part of the "modification", and therefore are not subject to BACT. Please refer to Golder's letter dated June 14, 2000, for further discussion on the state requirements for BACT, as well as potential BACT for the sources at the Panama City mill.

13. COMMENT: The future proposed potential pollutant emissions for VOC for the recovery boilers, if limited by permit, would be in violation with what has been calculated and reported as actual emissions in the AOR data submittals for the 1996 and 1997 calendar years. Please provide a response that will reconcile this situation and any other similar situation.

RESPONSE: See response to comment #14 below.

14. COMMENT: The Department is unable to verify the baseline emissions (reported within the application) from years 1996 and 1997. What follows are the TPY emissions, which were reported by SCC to FDEP, as found within FDEP's database. Please specify those Emission Units, which are excluded within SCC's baseline emissions submittal. Additionally, please justify why this data should <u>not</u> be used in lieu of your data presented; and, note that FDEP intends to utilize this data in its analysis, absent its determination of adequate support from SCC to the contrary, and the maximum future potential emissions should be re-evaluated in light of this data.

RESPONSE: A comparison of the emission factors and annual tons per year reported on the AOR and in the PSD application is presented in Attachment C. SCC has submitted an AOR to FDEP each year for about the past 20 years. SCC generally used the same emission factors each year for consistency purposes. For example, some of the factors SCC has used for AOR reporting are based on AP-42 and are in terms of lb/ton of pulp produced. Since there was no regulatory implication at the time, there was no overriding reason to periodically update the factors.

However, when performing a PSD analysis, Golder's approach, and obligation, is to use the latest, best available emission factors to most accurately describe the source. Therefore, Golder performed a comprehensive review of available emission factors and test data from the Panama City mill. The selected emission factors and references are documented in the appendices of the permit application (also refer to Attachment D of this letter, which presents a complete set of future maximum emissions tables). Many of the factors are based on NCASI studies.

Note that the emission estimates in the PSD application result in annual emissions that are equal to, higher than, or lower than those reported in the AOR, depending upon the source and pollutant. In most cases, the PSD application emissions were lower than those reported in the AOR. In such cases, the net increase in emissions due to the pulp increase are higher than if the AOR data were used. There was no attempt to either minimize or maximize the annual emissions to SCC's benefit. The only goal was to use the best available factors.

As the Professional Engineer of record on the project, I have certified that to the best of my knowledge, any emission estimates reported or relied upon in this application are true, accurate, and complete and are based upon reasonable techniques available for calculating emissions.

It is SCC's intent to use the revised emission factors, as presented in the PSD application, for future AOR reporting. Note that the No. 3 Combination Boiler and the No. 4 Combination Boiler (EUs 015 and 016) were excluded from the baseline emissions analysis, since these sources are not being affected by the pulp increase project.

Summary

Revised modeling results and other revisions to the pulp production increase application resulting from the changes described in this letter are contained in the attachments. Note the following reductions in allowable or maximum emissions that are necessary to comply with the ambient standards for PM_{10}, based on the revised background concentrations. Also, the PM emissions for the smelt dissolving tanks have been reduced to the MACT II emission levels. SCC will commit to meeting this emission level on a schedule ahead of the final MACT compliance date. These changes are summarized below:

Source	Reduced PM Emission Rate
No. 1 and No. 2 Recovery Boilers	90.0 lb/hr PM each (70.0 lb/hr PM_{10} each)
No. 1 and No. 2 Smelt Dissolving Tanks	12.37 lb/hr PM each (11.07 lb/hr PM_{10} each)
Lime Slaker	14.0 lb/hr PM/PM_{10}

The following is a summary of each attachment.

Attachment A – Revised Analysis for Determination of SO2 Background Concentrations for Stone Container's Mill Located in Panama City.

Presents the basis for the revised background SO_2 concentrations.

Attachment B – ISC-PRIME Approval Letter From EPA.

Contains approval letter from DEP.

Attachment C – Comparison of AOR and PSD Application Emission Factors.

Presents a comparison of PSD application and AOR emission factors and annual emissions.

Attachment D – Revisions to "Supplemental Information for PSD Permit Application" (April 2000).

Contains revised pages from the application form.

Attachment E – Updates to "Revised Ambient Impact Analysis for Stone Container Corporation's Panama City Mill" (May 2000).

Contains complete revised modeling analysis for all pollutants.

Attachment F – Photographs and Figures Pertaining to the Air Dispersion Modeling Analyses.

Contains figures of property boundaries, buildings and receptors, 3-D graphics of buildings and stacks, and photographs.

Please call if you have any questions concerning this information.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff

David A. Buff, P.E.
Principal Engineer
Florida P.E. # 19011
SEAL

Attachments

DB/nav

cc: Sandra Veazey, FDEP Pensacola
Charlie Ackel
Tom Clements
Steve Hamilton

P:/9937518a/Document1

B. Mitchell
C. Holladay
G. Worley, EPA
J. Bunyak, NPS

ATTACHMENT A

REVISED ANALYSIS FOR DETERMINATION OF SO_2 BACKGROUND CONCENTRATIONS FOR STONE CONTAINER'S MILL LOCATED IN PANAMA CITY

Revised Analysis for Determination of SO_2 Background Concentrations for Stone Container's Mill Located in Panama City
January 30, 2002

The methods and assumptions used to determine sulfur dioxide (SO_2) background concentrations for this project were revised based on discussions with The Florida Department of Environmental Protection (DEP) and U.S. Environmental Protection Agency (EPA) on December 15, 2000. The methods and assumptions were the same as those presented in the response letter prepared by Golder dated November 3, 2000 except that the source impact sector was based only on the location of the Gulf Power Company's Crist Power Plant and monitoring data from both monitors were included. The source impact sector is defined as the area within a 90 degree-sector downwind from the source. As a result, a monitor is assumed to have an impact from a source if the monitor is located within a 90 degree-sector downwind from the source. Concentrations are excluded from the background concentration analysis when the monitor is within a source impact sector.

The SO_2 concentrations used for this analysis were obtained from the two SO_2 monitors located in Pensacola and were presented in Golder's response letter (see Figure A-1). These monitors are identified as Ellyson Industrial Park monitor (AIRS ID No. 120330-004-01) and the University Parkway monitor (AIRS ID No. 120330-022-01). These monitors are the nearest monitors to the project that measure SO_2 concentrations. As discussed in the previous response letter, there are three major sources of SO_2 emissions in the project area: Gulf Power Company's Crist Power Plant, Solutia, and Champion International. The locations of these sources and monitors are presented in Table A-1. The source impact sector for each source relative to each monitor is shown in Table A-1. These sources are all generally located northwest to north-northwest of the two SO_2 monitors.

As mentioned earlier, background concentrations were revised from those used in the previous response letter by assuming that only the SO_2 emissions from the Gulf Power Company's Crist Power Plant would impact the SO_2 monitors. The source impact sectors for the Crist Power Plant are approximately 290 to 20 degrees for the Ellyson Industrial Park monitor and 293 to 23 degrees for the University Parkway monitor. These sectors were used to determine background concentrations from each monitor.

It should be noted that, although the other major sources are located further away from the monitors than the Crist Power Plant, these sources are likely to also impact those monitors. Therefore, the method used in this analysis to base the source impact sector only on the Crist Power Plant is a conservative approach to estimate background concentrations (i.e., higher concentrations are produced).

The wind direction data used to determine when the SO_2 emissions from the Crist Power Plant could impact the monitors were based on the meteorological data collected at the Ellyson Industrial Park monitor. Although wind direction was measured at the University Parkway monitor, very little data were usable due to malfunction of the wind direction sensor. As such, the wind direction data from this monitor was not further considered in this analysis.

A summary of the results of this analysis is presented in Table A-2. The highest 3 concentrations for each averaging period are presented for each monitor. The SO_2 background concentrations were based on the highest of the second highest concentrations measured at the two monitors. The second highest concentration is appropriate to use since the format for complying with the 3-and 24-hour average ambient air quality standards is based in the second-highest value.

As shown in Table A-2, the 3- and 24--hour average SO_2 background concentrations are estimated to be 106 and 27 ug/m^3, respectively. An electronic copy of tables containing the 3- and 24-hour average concentrations will be provided to DEP.

Table A-1. Relative Locations of SO_2 Emission Sources and Monitors Considered in Estimating SO_2 Background Concentrations

Monitor/ Source	UTM Coordinates (km)		Location from Monitor		Distance)/ Direction from Monitor		Source Impact Sector [a] (degrees)		
	East	North	x (km)	y (km)	Distance (km)	Direction (degrees)			
Relative to the Ellyson Industrial Park Monitor									
<u>Monitor</u>									
Ellyson Industrial Park	480.4	3376.8	0.0	0.0	0.0	0	NA		NA
<u>Source</u>									
Champion- Pensacola Plant	469.0	3385.8	-11.4	9.0	14.6	308	263	-	353
Solutia	476.0	3385.0	-4.4	8.2	9.3	332	287	-	17
Gulf Power- Crist Plant	478.3	3381.4	-2.1	4.6	5.1	335	290	-	20
Relative to the University Parkway Monitor									
<u>Monitor</u>									
University Parkway	479.3	3379.0	0.0	0.0	0.0	0	NA		NA
<u>Source</u>									
Champion- Pensacola Plant	469.0	3385.8	-10.3	6.8	12.3	304	259	-	349
Solutia	476.0	3385.0	-3.3	6.0	6.9	332	287	-	17
Gulf Power- Crist Plant	478.3	3381.4	-1.0	2.4	2.6	338	293	-	23

[a] Source impact sector is defined as the area within a 90-degree sector downwind from the source. In this analysis, the sector is centered on the monitor located downwind from each source. The source is assumed to have a significant impact at the monitor if the wind direction is within this sector.

Table A-2. Estimated SO_2 Background Concentrations using 1999 Monitoring Data from Pensacola

Averaging Period	Monitor	Measured Concentration [a] Rank	ppb	ug/m^3	Number of Background Obsevations (TotalObservations) [c]
3-hour	Ellyson Industrial Park	1st	30.0	78.5	1,496
	(12033-0004-01)	2nd	30.0	78.5	(2,228)
		3rd	25.0	65.4	
	University Parkway	1st	54	141.2	1,396
	(12033-0022-01)	2nd	40.5	105.9	(2,086)
		3rd	39.5	103.3	
24-hour	Ellyson Industrial Park	1st	7.45	19.5	200
	(12033-0004-01)	2nd	7.38	19.3	(338)
		3rd	7.35	19.2	
	University Parkway	1st	10.7	28.0	198
	(12033-0022-01)	2nd	10.1	26.5	(338)
		3rd	8.9	23.3	
3-hour	SO_2 Background [b]	2nd	40.5	105.9	
24-hour	SO_2 Background [b]	2nd	10.1	26.5	

[a] Based on concentrations that were measured in 1999 when the wind direction at the Ellyson Industrial Park monitor was outside of a wind direction sector of 90 degrees that was centered on the monitor located downwind from Gulf Power Company's Crist Power Plant (defined as the source impact sector). The source impact sector for each monitor relative to the Crist Power Plant is as follows:

Monitor	Source Impact Sector (degrees)
Ellyson Industrial Park	290 to 20
University Parkway	293 to 23

[b] Based on the highest of the 2nd highest concentrations measured at the two monitors.

[c] Based on the observations that met criteria of minumum of 3 and 18 valid observations for the 3- and 24-hour averaging periods, respectively, and concentrations were greater than zero.

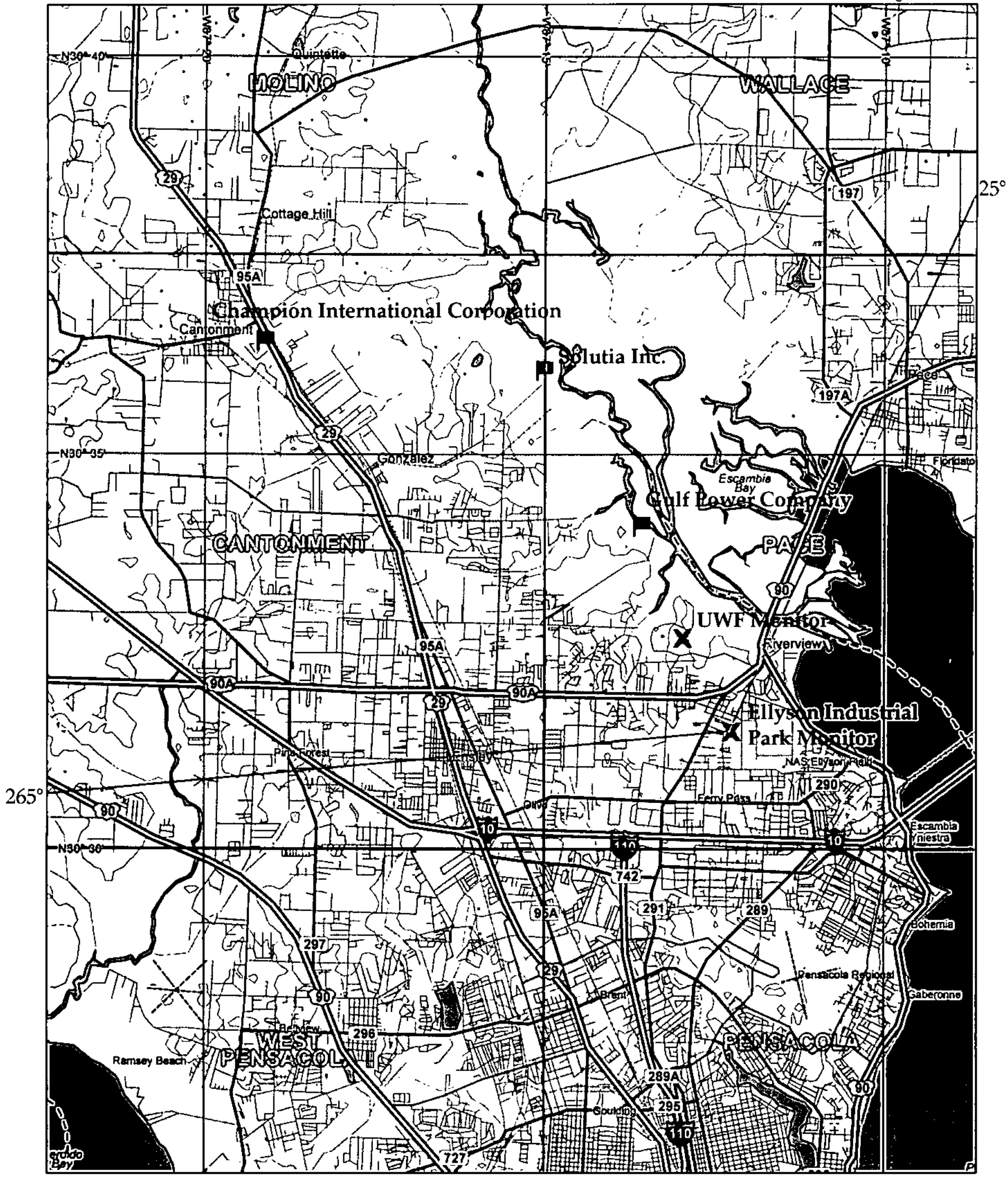


FIGURE A-1
Location of SO_2 sources and monitors considered in the background determination for Stone Container Corporation.

Golder Associates

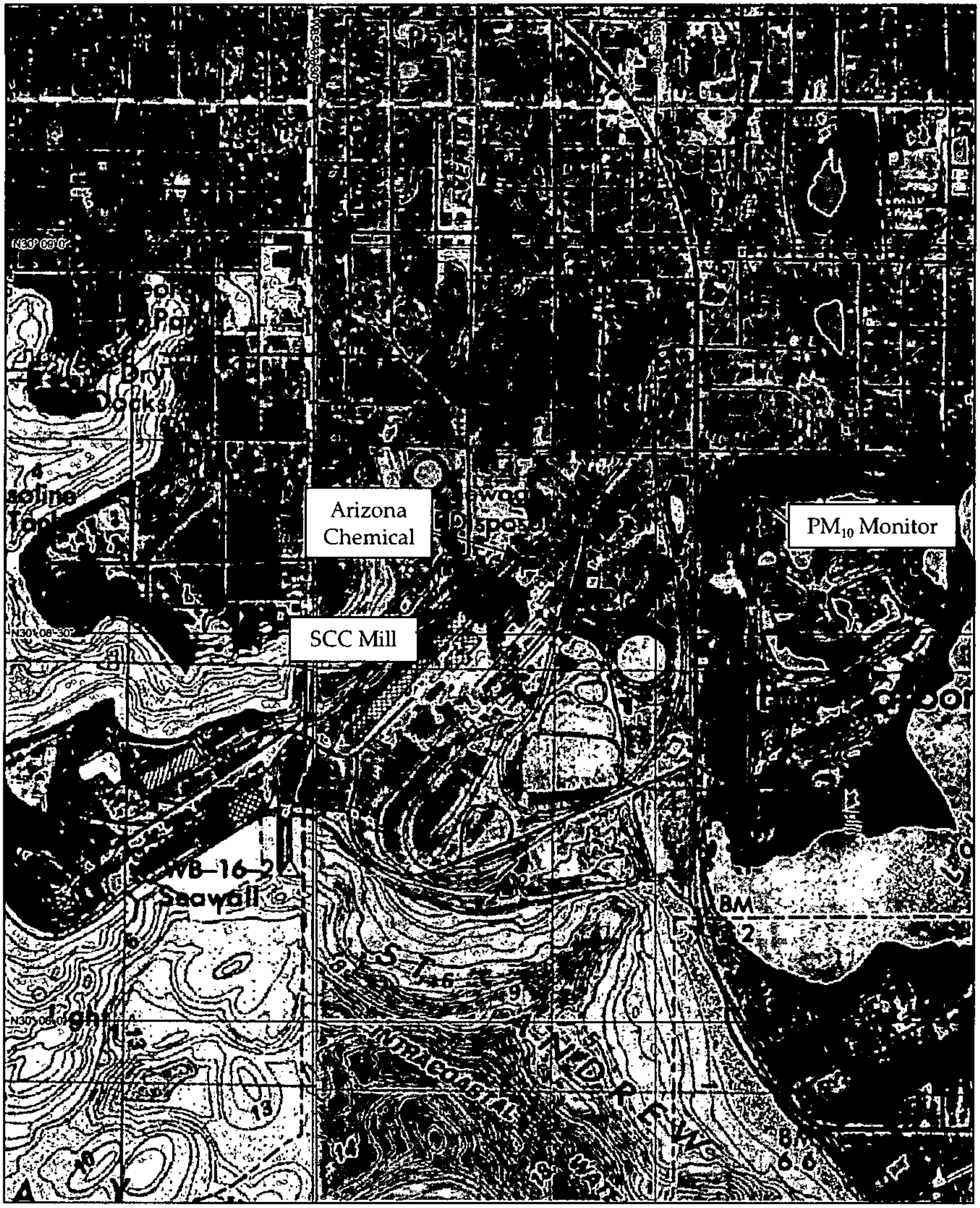


Figure A-2. Location of PM_{10} Monitor and Nearby Sources

Golder Associates

ATTACHMENT B

ISC-PRIME APPROVAL LETTER FROM EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

DEC 3 2001

DEC 20 2001

4APT-APB

Mr. A. A. Linero
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399

Re: ISC-PRIME Model for
Stone Container Corporation, Panama City Mill

Dear Mr. Linero:

This letter is in response to your request that the U.S. Environmental Protection Agency (EPA) document their approval of the use of the ISC-PRIME model to assess the ambient air quality impacts associated with the proposed modification to the Stone Container Corporation Panama City Mill in Panama City, Florida.

We have reviewed the documentation supplied in support of the use of the non-Guideline model ISC-PRIME [i.e., a model not currently recommended in EPA's Guideline on Air Quality Models (40 CFR 51, Appendix W)]. Based on EPA's technical and performance evaluations, ISC-PRIME has been found to be superior to the current guideline ISCST3 model. ISC-PRIME has, therefore, been proposed as a guideline model to replace ISCST3. Based on the following, we believe ISC-PRIME to be an appropriate and acceptable model to be used to estimate ambient air quality impacts for the proposed Stone Container modifications: 1) applicant's supporting documentation showing ISC-PRIME to be applicable and superior to ISCST3 in this application; 2) ISC-PRIME's technically superiority to the EPA guideline ISCST3 model; 3) ISC-PRIME better performance than ISCST3 in comparisons with observations; and 4) performance evaluations that show that ISC-PRIME is not significantly biased toward under-estimation of maximum concentrations.

We therefore approve the use of the ISC-PRIME model for the assessment of air quality impacts from the proposed modifications to Stone Container Corporation's Panama City Mill. In accordance with EPA's division of responsibilities with respect to the use of alternative non-Guideline models (Appendix W; Section 3.2), this approval by EPA Region 4 is a case-specific approval and should not be construed to imply approval for applications of ISC-PRIME to other projects. Although EPA's Office of Air Quality Planning and Standards has proposed generic approval of the ISC-PRIME model as a guideline model, incorporation into Appendix W is not expected until early next year.

Please note that this case-specific approval of ISC-PRIME for application to this permit revision must be included in all public notices so the public has an opportunity to comment and request a public hearing on this matter.

If you have any questions, or if we can be of further assistance, please contact Stan Krivo of my staff at 404/561-9123.

Sincerely,

Kay T. Prince

Kay T. Prince
Chief
Air Planning Branch
Air, Pesticides and Toxics
Management Division

cc: David A. Buff, Golder Associates Inc.
Cleve Holladay, FL DEP

DEC 20 2001

ATTACHMENT C

COMPARISON OF AOR AND PSD APPLICATION EMISSION FACTORS

Table C-1. AOR vs PSD Permit Application Emissions and Emission Factors

Pollutant	AOR		PSD Permit Application		Difference
	Emission Factor	TPY	Emission Factor	TPY	(TPY)
			No. 1 Recovery Boiler (EU 001)		
CO	11.0 lbs/ton ADUP	1,761.5	5.3 lbs/1,000 lbs BLS	2,476.8	715.3
NOX	1.8 lbs/ton ADUP	288.15	0.10 lb/MMBtu	272.4	-15.8
Pb	--	--	7.2E-06 lb/MMBtu	0.020	--
PM	PM tests/operating hours	184.0	Same as AOR	185.2	1.2
PM10	93.3% PM	171.65	77.6% PM	143.7	-28.0
SO2	7.0 lbs/ton ADUP	1,121.3	0.18 lb/MMBtu	490.4	-630.9
TRS	TRS tests/operating hours	28.42	Same as AOR	28.42	0.0
VOC	1.95 lbs/ton ADUP	312.2	0.058 lb/MMBtu	158.0	-154.2
			Recovery Boiler No. 2 (EU 019)		
CO	11.0 lbs/ton ADUP	1,801.2	5.3 lbs/1,000 lbs BLS	2,510.6	709
NOX	1.8 lbs/ton ADUP	294.75	0.10 lb/MMBtu	276.2	-19
Pb	--	--	7.2E-06 lb/MMBtu	0.020	--
PM	PM tests/operating hours	160.9	Same as AOR	160.9	0
PM10	93.3% PM	150.5	77.6% PM	124.9	-26
SO2	7.0 lbs/ton ADUP	1,146.2	0.18 lb/MMBtu	497.1	-649
TRS	TRS tests/operating hours	34.95	Same as AOR	34.6	0
VOC	1.95 lbs/ton ADUP	319.3	0.058 lb/MMBtu	160.2	-159
			No. 1 Smelt Dissolving Tank (EU 021)		
CO	--	--	--	--	--
NOX	2.9 lb/ton ADUP	238.9	0.033 lb/ton BLS	7.7	-231
Pb	--	--	1.7E-05 lb/ton BLS	4.0E-03	--
PM	PM tests/operating hours	70.0	Same as AOR	69.6	0
PM10	88.6% PM	61.8	89.5% PM	62.3	1
SO2	0.2 lbs/ton ADUP	32.2	0.016 lb/ton BLS	3.7	-29
TRS	TRS tests/operating hours	2.65	Same as AOR	2.61	0
VOC	0.16 lb/ton ADUP	25.95	0.062 lb/ton BLS	14.5	-11
			No. 2 Smelt Dissolving Tank (EU 020)		
CO	--	--	--	--	--
NOX	2.9 lb/ton ADUP	473.5	0.033 lb/ton BLS	7.8	-466
PB	--	--	1.7E-05 lb/ton BLS	0.0040	--
PM	PM tests/operating hours	97.15	Same as AOR	97.4	0
PM10	88.6% PM	86.05	89.5% PM	87.2	1
SO2	0.2 lbs/ton ADUP	32.6	0.016 lb/ton BLS	3.8	-29
TRS	TRS tests/operating hours	3.15	Same as AOR	3.13	0
VOC	0.16 lb/ton ADUP	25.95	0.062 lb/ton BLS	14.68	-11

Table C-1. AOR vs PSD Permit Application Emissions and Emission Factors

Pollutant	AOR		PSD Permit Application		Difference
	Emission Factor	TPY	Emission Factor	TPY	(TPY)
		Lime Kiln (EU 004)			
CO	0.1 lb/ton ADUP	32.4	0.22 lb/ton CaO	15.7	-17
NOX	1.0 lb/ton ADUP	324.1	2.19 lb/ton CaO	156.0	-168
PB	--	--	3.8E-03 lb/ton CaO	0.271	--
PM	PM tests/operating hours		Same as AOR		0
PM10	16.79% PM	16.5	98.3% PM	96.8	80
SO2	0.3 lb/ton ADUP	97	0.23 lb/ton CaO	16.4	-81
TRS	Same as PSD application		Same as AOR		0
VOC	0.25 lb/ton ADUP	80.9	0.24 lb/ton CaO	16.8	-64
		Lime Slaker (EU 005)			
CO	--	--	--	--	--
NOX	--	--	--	--	--
PB	--	--	--	--	--
PM	PM tests/operating hours	1.7	Same as AOR	1.7	0
PM10	16.7% PM	0.285	100% PM	1.7	1
SO2	--	--	--	--	--
TRS	--	--	--	--	--
VOC	--	--	0.44 lb/ton CaO	3.1	3
		Woodyard Facility (EU 030)			
CO	--	--	--	--	
NOX	--	--	--	--	
PB	--	--	--	--	
PM	0.024 lbs/ton	16.3	See Attached Table	41.3	25
PM10	55% of PM	8.95	See Attached Table	15.0	6
SO2	--	--	--	--	
TRS	--	--	--	--	
VOC	--	--	--	--	

ATTACHMENT D

REVISIONS TO "SUPPLEMENTAL INFORMATION FOR PSD PERMIT APPLICATION" (APRIL 2000)

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: **PM**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **14.0** lb/hour **61.3** tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year	
6. Emission Factor: **14.0 lb/hr** Reference: **Test Data**	7. Emissions Method Code: **0**
8. Calculation of Emissions (limit to 600 characters): **Based on proposed permit limit.**	
9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters):	

Allowable Emissions Allowable Emissions 4 of ____

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **14.0 lb/hr**	4. Equivalent Allowable Emissions: **14.0** lb/hour **61.3** tons/year
5. Method of Compliance (limit to 60 characters): **Annual source testing using EPA Reference Method 5**	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

Table 1-1. 1996-1997 Baseline Emissions, Stone Container Corp., Panama City (Revised 04/06/00)

Regulated Pollutant	No. 1 Recovery Boiler (TPY)	No. 2 Recovery Boiler (TPY)	No. 1 Smelt Dissolving Tank (TPY)	No. 2 Smelt Dissolving Tank (TPY)	Lime Kiln (TPY)	Bleach Plant (TPY)	Pulping Area (TPY)	Lime Slaker (TPY)	Woodyard (TPY)	Chemical Recovery Area (TPY)	Paper Making (TPY)	No. 3 Combination Boiler (TPY)	TOTAL BASELINE EMISSIONS (TPY)
Particulate (TSP)	185.2	160.9	69.6	97.4	98.5	--	--	1.7	41.3	--	--	--	654.6
Particulate (PM_{10})	143.7	124.9	62.3	87.2	96.8	--	--	1.7	15.0	--	--	--	531.5
Sulfur dioxide	490.4	497.1	3.7	3.8	16.4	--	--	--	--	--	--	--	1,011.4
Nitrogen oxides	272.4	276.2	7.7	7.8	156.0	--	--	--	--	--	--	75.3[a]	795.4
Carbon monoxide	2,476.8	2,510.6	--	--	15.7	119.9	--	--	--	--	--	--	5,122.9
Volatile organic compounds	158.0	160.2	14.5	14.7	16.8	73.5	57.3	3.1	--	159.5	190.9	3.7[b]	852.2
Sulfuric acid mist	30.0	14.0	0.2	0.2	1.0	--	--	--	--	--	--	--	45.5
Total Reduced Sulfur	28.4	34.6	2.6	3.1	9.4	4.7	70.0	--	--	14.4	--	--	167.3
Lead	0.020	0.020	3.97E-03	4.03E-03	0.27	--	--	--	--	--	--	--	0.32
Mercury	0.015	0.015	4.21E-05	4.26E-05	6.48E-04	--	--	--	--	--	--	--	0.031
Fluorides	--	--	--	--	--	--	--	--	--	--	--	--	--

[a] Represents emissions due to current permitted pulp production limit of 668,850 TPY ADUP.

[b] Represents VOC emissions due to condensate stripper off-gas at current permitted pulp production limit of 668,850 TPY.

Table 1-2. Maximum Future Potential Emissions at 781,000 TPY Pulp Production, Stone Container Corp., Panama City (Revised 01/30/02)

Regulated Pollutant	No . 1 Recovery Boiler (TPY)	No . 2 Recovey Boiler (TPY)	No. 1 Smelt Dissolving Tank (TPY)	No. 2 Smelt Dissolving Tank (TPY)	Lime Kiln (TPY)	Bleach Plant (TPY)	Pulping Area (TPY)	Lime Slaker (TPY)	Woodyard (TPY)	Chemical Recovery Area (TPY)	Paper Making (TPY)	TOTAL FUTURE POTENTIAL (TPY)
Particulate (TSP)	394.2	394.2	54.2	54.2	130.7	--	--	61.3	44.6	--	--	1,133.3
Particulate (PM_{10})	306.6	306.6	48.5	48.5	128.4	--	--	61.3	16.4	--	--	916.3
Sulfur dioxide	568.4	568.4	4.3	4.3	20.6	--	--	--	--	--	--	1,166.1
Nitrogen oxides	315.8	315.8	8.9	8.9	195.7	--	--	--	--	--	--	845.2
Carbon monoxide	2,872.0	2,872.0	--	--	19.7	145.0	--	--	--	--	--	5,908.7
Volatile organic compds.	183.2	183.2	16.8	16.8	21.1	13.3	70.3	5.4	--	193.8	234.3	938.2
Sulfuric acid mist	34.8	34.8	0.27	0.27	1.3	--	--	--	--	--	--	71.4
Total Reduced Sulfur	75.9	75.9	8.7	8.7	31.9	8.2	85.9	--	--	16.4	--	311.5
Lead	0.023	0.023	0.0050	0.0050	0.34	--	--	--	--	--	--	0.40
Mercury	0.017	0.017	4.90E-05	4.90E-05	8.10E-04	--	--	--	--	--	--	0.0349
Fluorides	--	--	--	--	--	--	--	--	--	--	--	--

Table 1-3. Net Change in Emissions Due to Proposed Pulp Production of 781,000 TPY
Stone Container Corp., Panama City (Revised 01/30/02)

Regulated Pollutant	1996-1997 BASELINE EMISSIONS (TPY)	FUTURE POTENTIAL EMISSIONS (TPY)	NET CHANGE (TPY)	SIGNIFICANT EMISSION RATE (TPY)	PSD REVIEW APPLIES ?
Particulate (TSP)	654.6	1,133.3	478.7	25	Yes
Particulate (PM_{10})	531.5	916.3	384.8	15	Yes
Sulfur dioxide	1,011.4	1,166.1	154.6	40	Yes
Nitrogen oxides	795.4	845.2	49.8	40	Yes
Carbon monoxide	5,122.9	5,908.7	785.8	100	Yes
Volatile organic compds.	852.2	938.2	86.0	40	Yes
Sulfuric acid mist	45.5	71.4	26.0	7	Yes
Total Reduced Sulfur	167.3	311.5	144.2	10	Yes
Lead	0.32	0.40	0.078	0.6	No
Mercury	0.0309	0.0349	0.004	0.1	No
Fluorides	--	--	--	3	No

Table A-1. Maximum Emissions from Recovery Boiler Nos. 1 and 2 , Stone Container Corporation, Panama City (Revised 01/30/02)

	Each Recovery Boiler					
Regulated Pollutant	Emission Factor		Reference	Activity Factor [a]	Hourly Emissions (lb/hr)	Annual Emissions (TPY)
Particulate (PM)	90.0	lb/hr	1	8,760 hr/yr	90.0	394.2
Particulate (PM_{10})	77.6	% of PM	6	--	70.0	306.6
Sulfur dioxide	0.18	lb/MMBtu	3	721 MMBtu/hr	129.78	568.4
Nitrogen oxides	0.10	lb/MMBtu	3	721 MMBtu/hr	72.10	315.8
Carbon monoxide	20	lb/1,000 lb BLS	7	123.7 1,000 lb BLS/hr	2,474.0	2,871.6
VOC	0.058	lb C /MMBtu	3	721 MMBtu/hr	41.82	183.2
Sulfuric acid mist	0.011	lb/MMBtu	5	721 MMBtu/hr	7.95	34.8
Total reduced sulfur	17.5	ppmvd	1	187,100 dscfm [b]	17.3	75.9
Lead	7.2E-06	lb/MMBtu	2	721 MMBtu/hr	5.2E-03	2.3E-02
Mercury	5.5E-06	lb/MMBtu	2	721 MMBtu/hr	4.0E-03	1.7E-02
Beryllium	1.9E-07	lb/MMBtu	2	721 MMBtu/hr	1.4E-04	6.0E-04
Fluorides	ND		4	--	--	--

Notes:

[a] Based on currently permitted maximum operating rate of 123,700 lb virgin BLS/hr, 5,830 Btu/lb BLS, and 8,760 hr/yr.

[b] Based on 1997 compliance testing and 8% salt cake content of BLS throughput, ie. 92% virgin BLS. Flow rate at 8% oxygen.

References:

1. Proposed maximum emission rate.
2. Emission factor based on NCASI Bulletin No. 650, Table 11D, direct contact evaporator, average factor used.
3. Emission factor based on NCASI Bulletin No. 646, Tables 8-11, direct contact evaporator with ESP, average factor used.
4. From "Application of Combustion Modifications to Industrial Combustion Equipment" EPA-600/7-79-015a. one test from recovery boiler.
5. Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil. 5% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and gaseous sulfate molecular weights (98/80).
6. Based on AP-42 Tables 10.2-1, 10.2-2, and Figure 10.2-2 for Kraft pulping sources.
7. Based on NCASI Bulletin No. 416, Table 5 and Figure 17 (20 lb/1,000 lb BLS for hourly emissions and 5.3 lb/1,000 lb BLS for annual average).

Table A-2. Maximum Emissions From the Bleach Plant, Stone Container, Panama City, Florida

Pollutant Name	Emission Factor (lb/ton ADBP)			Activity Factor		Maximum Emissions	
	Maximum	Average		Maximum (tons/hr ADBP)	Annual (tons/yr ADBP)	(lb/hr)	(TPY)
<u>Carbon Monoxide</u>							
Hardwood	0.52	0.55	(a)	48.96	428,875	25.46	117.94
Softwood	1.26	1.04	(a)	31.83	278,860	40.11	145.01
Volatile Organic Compounds (measured as total hydrocarbons)	0.62	--	(b)	--	428,875	--	13.30
Total Reduced Sulfur	3.80E-02	--	(c)	--	428,875	--	8.15

Notes:
ADBP = Air Dried Bleached Pulp
lb/hr = pounds per hour
TPY = tons per year
Footnotes:
(a) Based on revision letter for Bleach Plant, dated February 2002, Golder Associates.
(b) NCASI Technical Bulletin No. 701, Compilation of Air Toxic and Total Hydrocarbon Emissions Data for Sources at Chemical Wood Pulp Mills, Volume 1, October 1995, Table 3, for Mill BPII2.
(c) NCASI Technical Bulletin No. 701, Compilation of Air Toxic and Total Hydrocarbon Emissions Data for Sources at Chemical Wood Pulp Mills, Volume 1, October 1995, Table 3, for Mill BPIF2.

Table A-3. Maximum Emissions from Pulping Area (Brown Stock Washing) at Stone Container, Panama City

Regulated Pollutant	Emission Factor	Reference	Activity Factor	Annual Emissions (TPY)
VOC	0.18 lb C/ton ADUP	2	781,000 ton ADUP/yr	70.3
Total reduced sulfur	0.22 lb/ton ADUP	1	781,000 ton ADUP/yr	85.9

References
1. Based on NCASI Technical Bulletin No. 701, page 77, 79, and 81 (Table 5).
2. Based on NCASI Technical Bulletin No. 701, page 89 (Table 5).

Table A-4. Maximum Emissions from No. 1 Smelt Dissolving Tank at Stone Container, Panama City (Revised 01/30/02)

Regulated Pollutant	Emission Factor		Reference	Activity Factor (a)		Hourly Emissions (lb/hr)	Annual Emissions (TPY)
Particulate (PM)	0.20	lb/ton BLS	1	61.85	tons BLS/hr	12.4	54.2
Particulate (PM_{10})	89.5	% of PM	2	--		11.1	48.5
Sulfur dioxide	0.016	lb/ton BLS	3	61.85	tons BLS/hr	0.99	4.33
Nitrogen oxides	0.033	lb/ton BLS	3	61.85	tons BLS/hr	2.04	8.94
Carbon monoxide	--			--		--	--
VOC	0.062	lb/ton BLS	3	61.85	tons BLS/hr	3.83	16.8
Sulfuric acid mist	5	% of SO_2	5	--		0.061	0.27
Total reduced sulfur	0.048	lb/3000 lb BLS	6	61.85	tons BLS/hr	2.0	8.67
Lead	1.7E-05	lb/ton BLS	4	61.85	tons BLS/hr	0.001	0.005
Mercury	1.8E-07	lb/ton BLS	4	61.85	tons BLS/hr	1.1E-05	4.9E-05
Beryllium	1.4E-07	lb/ton BLS	4	61.85	tons BLS/hr	8.7E-06	3.8E-05
Fluorides	--			--		--	--

note:
(a) Based on the currently permitted maximum allowable operating rate of 123,700 lb virgin BLS/hr and 8,760 hr/yr.

References:
1. MACT standard per 40 CFR 63.862(a)(1)(B).
2. AP-42, Table 10.2-7.
3. Data is averages from NCASI Bulletin No. 646, Tables 16-18, for smelt dissolving tanks with scrubbers.
4. Data is averages from NCASI Bulletin No. 650, Tables 14A and 14B, for smelt dissolving tanks with scrubbers.
5. Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil. 5% of SO2 becomes SO3 then take into account the ratio of sulfuric acid mist and gaseous sulfate molecular weights (98/80).
6. Based on Rule 62-296.404(3)(d)1., F.A.C

Table A-5. Maximum Emissions from No. 2 Smelt Dissolving Tank at Stone Container, Panama City (Revised 01/30/02)

Regulated Pollutant	Emission Factor	Reference	Activity Factor (a)	Hourly Emissions (lb/hr)	Annual Emissions (TPY)
Particulate (PM)	0.20 lb/ton BLS	1	61.85 tons BLS/hr	12.4	54.2
Particulate (PM_{10})	89.5 % of PM	2	--	11.1	48.5
Sulfur dioxide	0.016 lb/ton BLS	3	61.85 tons BLS/hr	0.99	4.33
Nitrogen oxides	0.033 lb/ton BLS	3	61.85 tons BLS/hr	2.04	8.94
Carbon monoxide	--		--	--	--
VOC	0.062 lb/ton BLS	3	61.85 tons BLS/hr	3.83	16.8
Sulfuric acid mist	5 % of SO_2	5	--	0.061	0.27
Total reduced sulfur	0.048 lb/3000 lb BLS	6	61.85 tons BLS/hr	2.0	8.67
Lead	1.7E-05 lb/ton BLS	4	61.85 tons BLS/hr	0.001	0.005
Mercury	1.8E-07 lb/ton BLS	4	61.85 tons BLS/hr	1.1E-05	4.9E-05
Beryllium	1.4E-07 lb/ton BLS	4	61.85 tons BLS/hr	8.7E-06	3.8E-05
Fluorides	--		--	--	--

note:
(a) Based on the currently permitted maximum allowable operating rate of 123,700 lb virgin BLS/hr and 8,760 hr/yr.

References:
1. MACT standard per 40 CFR 63.862(a)(1)(B).
2. AP-42, Table 10.2-7.
3. Data is averages from NCASI Bulletin No. 646, Tables 16-18, for smelt dissolving tanks with scrubbers.
4. Data is averages from NCASI Bulletin No. 650, Tables 14A and 14B, for smelt dissolving tanks with scrubbers.
5. Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil. 5% of SO2 becomes SO3 then take into account the ratio of sulfuric acid mist and gaseous sulfate molecular weights (98/80).
6. Based on Rule 62-296.404(3)(d)1., F.A.C

Table A-6 Maximum Emissions from the Woodyard at Stone Container, Panama City

SOURCE	Type of Operation (a)	M Moisture Content (%)	U Wind Speed (MPH)	Uncontrolled Emission Factor	Type of Control	Control Efficiency (%)	Controlled Emission Factor	Activity Factor	Maximum Annual PM Emissions (tons/yr)	PM_{10} Size Multiplier (c)	Maximum Annual PM_{10} Emissions (tons/yr)
ROUNDWOOD HANDLING											
Debarker	Debarking	--	--	0.024 lbs/ton (d)	Enclosure	80	0.00480 lbs/ton	1,946,934 TPY (e)	4.673	0.35	1.635
Chipper	Continuous Drop	30	7.8	0.00013 lbs/ton	None	0	0.00013 lbs/ton	1,946,934 TPY (e)	0.125	0.35	0.044
Chip Surge Bin to Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	1,946,934 TPY (e)	0.025	0.35	0.0088
Conveyor to Tower No. 1 Chip Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	1,946,934 TPY (e)	0.025	0.35	0.0088
BARK HANDLING											
Debarker to Bark Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	155,755 TPY (f)	0.0020	0.35	0.00070
Bark Conveyor to No. 1 Bark Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	155,755 TPY (f)	0.0020	0.35	0.00070
No. 1 Bark Diverter to Emergency Bark Storage Pile.	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	0 TPY (f)	0.0000	0.35	0.00000
Emergency Bark Storage Pile	Wind Erosion	--	--	--	None	0	--	--	0.0094	1.0	0.0094
Unhogged Bark Storage Pile	Wind Erosion	--	--	--	None	0	--	--	0.0094	1.0	0.0094
Trucked Bark to Purchased Unhogged Bark Storage Pile	Batch Drop	30	7.8	0.00013 lbs/ton	None	0	0.00013 lbs/ton	316,098 TPY (g)	0.0203	0.35	0.00712
Front End Loaded to Bark Hopper	Batch Drop	30	7.8	0.00013 lbs/ton	None	0	0.00013 lbs/ton	316,098 TPY (g)	0.0203	0.35	0.00712
Wastewood Conveyor to No. 1 Bark Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	316,098 TPY (g)	0.0041	0.35	0.00142
No. 1 Bark Diverter to Disc Screen	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Bark Hog	Hammermill	--	--	0.024 lbs/ton (d)	Enclosed	80	0.00480 lbs/ton	471,853 TPY (h)	1.132	1.0	1.132
Bark Hog to Hogged Bark Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Hogged Bark Conveyor to Hogged Bark Pile	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Hogged Bark Pile	Wind Erosion	--	--	--	None	0	--	--	0.0023	1.0	0.0023
Bark Bin Cyclone	Cyclone Vent	--	--	2.0 lb/hr	Cyclone	0	2.0 lb/hr	8,760 hr/yr	8.76	0.35	3.07
Bark Bin Cyclone to Small Bark Bin and Screw	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Small Bark Bin and Screw to Bark Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Bark Conveyor to No. 2 Bark Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Bark Storage Pile Maintenance	Vehicular Traffic	--	--	0.74 lbs/VMT	None	0	0.74 lbs/VMT	21,900 VMT (i)	8.103	0.35	2.836
PURCHASED CHIP HANDLING											
Truck Unloading (Chip Van Hopper)	Batch Drop	30	7.8	0.00013 lbs/ton	Covered	60	0.000051 lbs/ton	762,300 TPY (j)	0.020	0.35	0.0069
Railcar Unloading (Chip Van Hopper)	Batch Drop	30	7.8	0.00013 lbs/ton	Covered	60	0.000051 lbs/ton	762,300 TPY (j)	0.020	0.35	0.0069
Truck Unloading Conveyor to Tower No. 1 Chip Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	762,300 TPY (j)	0.010	0.35	0.0034
Railcar Unloading Conveyor to Tower No. 1 Chip Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	762,300 TPY (j)	0.010	0.35	0.0034
MANUFACTURED AND PURCHASED CHIP PROCESSING											
Tower No. 1 Diverter to Chip Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Conveyor to Tower No. 2 Diverter (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Tower No. 2 Diverter to Chip Reclaim Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Reclaim Coveyor to Radial Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Radial Conveyor to Chip Reclaimer Storage Pile (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Reclaimer Storage Pile (2)	Wind Erosion	--	--	--	None	0	--	--	0.048	1.0	0.048
Chip Reclaimer Storage Pile to Chip Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Conveyor to Tower No. 2 Diverter (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Tower No. 2 Diverter to Chip Screw (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Screw to Primary Screen (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Screens	Screening										
Softwood Primary Screen Cyclone	Cyclone Vent	--	--	2.0 lb/hr	Cyclone, Enclosure	80	0.40 lb/hr	8,760 hr/yr	1.752	0.35	0.613
Hardwood Primary Screen Cyclone	Cyclone Vent	--	--	2.0 lb/hr	Enclosure	80	0.40 lb/hr	8,760 hr/yr	1.752	0.35	0.613
Primary Screen to Secondary Screen (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Secondary Screen to Chip Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	2,321,045 TPY (l)	0.030	0.35	0.010
Screen Building Rejects Cyclone	Cyclone Vent	--	--	2.0 lb/hr	None	0	2.0 lb/hr	8,760 hr/yr	8.760	0.35	3.066
Screen Building Rejects Cyclone to Chip Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Covered	60	0.000051 lbs/ton	994,734 TPY (m)	0.026	0.35	0.009
Fines Blowline Emergency Storage Pile	Wind Erosion	--	--	--	None	0	--	--	0.00017	1.0	0.00017
Fines Blowline Cyclone	Cyclone Vent	--	--	2.0 lb/hr	None	0	2.0 lb/hr	8,760 hr/yr	8.760	0.35	3.07
Fines Blowline Cyclone to Wastewood/Sludge Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Covered	60	0.000051 lbs/ton	9,947 TPY (n)	0.000	0.35	0.000
Chip Conveyor to No. 5 Transfer Tower (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,305,772 TPY (o)	0.043	0.35	0.015
TOTAL									44.61		16.39

Notes:

(a) Batch Drop and Continuous Drop Emission Factors are computed from AP-42 (US EPA, 1995) Section 13.2.4-3(1) $E = 0.0032 \times (U/5)^{1.3} / (M/2)^{1.4}$ lb/ton
(b) Wind Erosion Emissions based on AP-42 (US EPA, 1995) Section 13.2.5. Refer to Attachment A for derivation.
(c) PM10 Size Multiplier is based on particles < 10 micrometers
(d) Debarker emissions are based on Table 28 of NCASI Technical Bulletin No. 424 (March 1984), Fugitive Dust Emission Factors and Control Methods Important to Forest Products Industry Manufacturing Operations.
(e) Roundwood throughput is based on 466,800 cords/yr (softwood) @ 2.7 tons/cord and 178,800 cords/yr (hardwood) @ 2.85 tons/cord, plus 10 percent.
(f) Bark throughput is based on 8 percent of roundwood.
(g) Based on purchased bark.
(h) Total bark throughput is sum of manufactured bark and purchased bark.
(i) Vehicle miles traveled (VMT) was calculated assuming front end loader operating 12 hrs/day, 365 days/yr in the woodyard.
(j) Purchased chip throughput is based on 142,800 cords/yr (softwood) and 411,600 cords/yr (hardwood) @ 2.5 tons/cord, plus 10 percent.
(k) Total chip throughput is based on 92 percent of roundwood throughput plus purchased chip throughput.
(l) Based on 70% of total chip throughput.
(m) Based on 30% of total chip throughput.
(n) Fines separated from wood chip stream.
(o) Total chips minus fines.

Table A-6 Maximum Emissions from the Woodyard at Stone Container, Panama City

SOURCE	Type of Operation (a)	M Moisture Content (%)	U Wind Speed (MPH)	Uncontrolled Emission Factor	Type of Control	Control Efficiency (%)	Controlled Emission Factor	Activity Factor	Maximum Annual PM Emissions (tons/yr)	PM_{10} Size Multiplier (c)	Maximum Annual PM_{10} Emissions (tons/yr)
ROUNDWOOD HANDLING											
Debarker	Debarking	--	--	0.024 lbs/ton (d)	Enclosure	80	0.00480 lbs/ton	1,946,934 TPY (e)	4.673	0.35	1.635
Chipper	Continuous Drop	30	7.8	0.00013 lbs/ton	None	0	0.00013 lbs/ton	1,946,934 TPY (e)	0.125	0.35	0.044
Chip Surge Bin to Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	1,946,934 TPY (e)	0.025	0.35	0.0088
Conveyor to Tower No. 1 Chip Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	1,946,934 TPY (e)	0.025	0.35	0.0088
BARK HANDLING											
Debarker to Bark Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	155,755 TPY (f)	0.0020	0.35	0.00070
Bark Conveyor to No. 1 Bark Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	155,755 TPY (f)	0.0020	0.35	0.00070
No. 1 Bark Diverter to Emergency Bark Storage Pile	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.00003 lbs/ton	0 TPY (f)	0.0000	0.35	0.00000
Emergency Bark Storage Pile	Wind Erosion	--	--	--	None	0	--	--	0.0094	1.0	0.0094
Unhogged Bark Storage Pile	Wind Erosion	--	--	--	None	0	--	--	0.0094	1.0	0.0094
Trucked Bark to Purchased Unhogged Bark Storage Pile	Batch Drop	30	7.8	0.00013 lbs/ton	None	0	0.00013 lbs/ton	316,098 TPY (g)	0.0203	0.35	0.00712
Front End Loaded to Bark Hopper	Batch Drop	30	7.8	0.00013 lbs/ton	None	0	0.00013 lbs/ton	316,098 TPY (g)	0.0203	0.35	0.00712
Wastewood Conveyor to No. 1 Bark Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	316,098 TPY (g)	0.0041	0.35	0.00142
No. 1 Bark Diverter to Disc Screen	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Bark Hog	Hammermill	--	--	0.024 lbs/ton (d)	Enclosed	80	0.00480 lbs/ton	471,853 TPY (h)	1.132	1.0	1.132
Bark Hog to Hogged Bark Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Hogged Bark Conveyor to Hogged Bark Pile	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Hogged Bark Pile	Wind Erosion	--	--	--	None	0	--	--	0.0023	1.0	0.0023
Bark Bin Cyclone	Cyclone Vent	--	--	2.0 lb/hr	Cyclone	0	2.0 lb/hr	8,760 hr/yr	8.76	0.35	3.07
Bark Bin Cyclone to Small Bark Bin and Screw	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Small Bark Bin and Screw to Bark Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Bark Conveyor to No. 2 Bark Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	471,853 TPY (h)	0.0061	0.35	0.00213
Bark Storage Pile Maintenance	Vehicular Traffic	--	--	0.74 lbs/VMT	None	0	0.74 lbs/VMT	21,900 VMT (i)	8.103	0.35	2.836
PURCHASED CHIP HANDLING											
Truck Unloading (Chip Van Hopper)	Batch Drop	30	7.8	0.00013 lbs/ton	Covered	60	0.000051 lbs/ton	762,300 TPY (j)	0.020	0.35	0.0069
Railcar Unloading (Chip Van Hopper)	Batch Drop	30	7.8	0.00013 lbs/ton	Covered	60	0.000051 lbs/ton	762,300 TPY (j)	0.020	0.35	0.0069
Truck Unloading Conveyor to Tower No. 1 Chip Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	762,300 TPY (j)	0.010	0.35	0.0034
Railcar Unloading Conveyor to Tower No. 1 Chip Diverter	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	762,300 TPY (j)	0.010	0.35	0.0034
MANUFACTURED AND PURCHASED CHIP PROCESSING											
Tower No. 1 Diverter to Chip Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Conveyor to Tower No. 2 Diverter (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Tower No. 2 Diverter to Chip Reclaim Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Reclaim Coveyor to Radial Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Radial Conveyor to Chip Reclaimer Storage Pile (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Reclaimer Storage Pile (2)	Wind Erosion	--	--	--	None	0	--	--	0.048	1.0	0.048
Chip Reclaimer Storage Pile to Chip Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Conveyor to Tower No. 2 Diverter (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Tower No. 2 Diverter to Chip Screw (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Screw to Primary Screen (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Chip Screens	Screening										
Softwood Primary Screen Cyclone	Cyclone Vent	--	--	2.0 lb/hr	Cyclone, Enclosure	80	0.40 lb/hr	8,760 hr/yr	1.752	0.35	0.613
Hardwood Primary Screen Cyclone	Cyclone Vent	--	--	2.0 lb/hr	Enclosure	80	0.40 lb/hr	8,760 hr/yr	1.752	0.35	0.613
Primary Screen to Secondary Screen (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,315,779 TPY (k)	0.043	0.35	0.015
Secondary Screen to Chip Conveyor (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	2,321,045 TPY (l)	0.030	0.35	0.010
Screen Building Rejects Cyclone	Cyclone Vent	--	--	2.0 lb/hr	None	0	2.0 lb/hr	8,760 hr/yr	8.760	0.35	3.066
Screen Building Rejects Cyclone to Chip Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Covered	60	0.000051 lbs/ton	994,734 TPY (m)	0.026	0.35	0.009
Fines Blowline Emergency Storage Pile	Wind Erosion	--	--	--	None	0	--	--	0.00017	1.0	0.00017
Fines Blowline Cyclone	Cyclone Vent	--	--	2.0 lb/hr	None	0	2.0 lb/hr	8,760 hr/yr	8.760	0.35	3.07
Fines Blowline Cyclone to Wastewood/Sludge Conveyor	Continuous Drop	30	7.8	0.00013 lbs/ton	Covered	60	0.000051 lbs/ton	9,947 TPY (n)	0.000	0.35	0.000
Chip Conveyor to No. 5 Transfer Tower (2)	Continuous Drop	30	7.8	0.00013 lbs/ton	Enclosed	80	0.000026 lbs/ton	3,305,772 TPY (o)	0.043	0.35	0.015
TOTAL									44.61		16.39

Notes:

(a) Batch Drop and Continuous Drop Emission Factors are computed from AP-42 (US EPA, 1995) Section 13.2.4-3(1) E = 0.0032 x (U/5)^1.3 / (M/2)^1.4 lb/ton
(b) Wind Erosion Emissions based on AP-42 (US EPA, 1995) Section 13.2.5 Refer to Attachment A for derivation.
(c) PM10 Size Multiplier is based on particles < 10 micrometers.
(d) Debarker emissions are based on Table 28 of NCASI Technical Bulletin No. 424 (March 1984), Fugitive Dust Emission Factors and Control Methods Important to Forest Products Industry Manufacturing Operations
(e) Roundwood throughput is based on 466,800 cords/yr (softwood) @ 2.7 tons/cord and 178,800 cords/yr (hardwood) @ 2.85 tons/cord, plus 10 percent.
(f) Bark throughput is based on 8 percent of roundwood
(g) Based on purchased bark.
(h) Total bark throughput is sum of manufactured bark and purchased bark.
(i) Vehicle miles traveled (VMT) was calculated assuming front end loader operating 12 hrs/day, 365 days/yr in the woodyard
(j) Purchased chip throughput is based on 142,800 cords/yr (softwood) and 411,600 cords/yr (hardwood) @ 2.5 tons/cord, plus 10 percent.
(k) Total chip throughput is based on 92 percent of roundwood throughput plus purchased chip throughput
(l) Based on 70% of total chip throughput
(m) Based on 30% of total chip throughput
(n) Fines separated from wood chip stream.
(o) Total chips minus fines

Table A-7. Maximum Emissions from Lime Kiln (No. 6 Fuel Oil Fired) at Stone Container, Panama City

Regulated Pollutant	Emission Factor	Reference	Activity Factor[a]	Hourly Emissions (lb/hr)	Annual Emissions (TPY)
Particulate (PM)	29.83 lb/hr	1	8,760 hr/yr	29.83	130.7
Particulate (PM10)	98.3 % of PM	2	--	29.32	128.4
Sulfur dioxide	0.23 lb/ton CaO	4	20.4 ton CaO/hr	4.69	20.6
Nitrogen oxides	2.19 lb/ton CaO	4	20.4 ton CaO/hr	44.68	195.7
Carbon monoxide	0.22 lb/ton CaO	6	20.4 ton CaO/hr	4.49	19.7
VOC	0.24 lb C/ton CaO	4	20.4 ton CaO/hr	4.81	21.1
Sulfuric acid mist	0.014 lb/ton CaO	5	20.4 ton CaO/hr	0.29	1.3
Total reduced sulfur	20 ppmvd[b]	7	68,000 dscfm[c]	7.27	31.9
Lead	3.8E-03 lb/ton CaO	3	20.4 ton CaO/hr	0.08	0.34
Mercury	9.1E-06 lb/ton CaO	3	20.4 ton CaO/hr	1.9E-04	8.1E-04
Beryllium	1.7E-05 lb/ton CaO	3	20.4 ton CaO/hr	3.5E-04	1.5E-03
Fluorides	--		--	--	--

[a] Based on currently permitted operating limit of 18.35 tons CaO/hr plus 10% impurities (20.4 tons/hr), 8,760 hr/yr.

[b] TRS Emission Factor as H_2S corrected to 10% O_2 as a 12-hour average.

[c] Flow rate corrected to 10% oxygen.

References

1. Based on current permit limit, which is lower than the proposed MACT standard of 0.067gr/dscf @ 10% O_2.
2. Based on AP-42 Section 10.2 and Tables 10.2-1 and 10.2-4.
3. Based on NCASI Technical Bulletin No. 650, Table 13C.
4. Based on NCASI Technical Bulletin No. 646, Tables 12-14.
5. Based on similar derivation of sulfuric acid mist from AP-42 for fuel oil. 5% of SO_2 becomes SO_3 then take into account the ratio of sulfuric acid mist and gaseous sulfate molecular weights (98/80).
6. Based on NCASI Technical Bulletin No. 416, Table 6.
7. Based on current permitted emission limit.

Table A-8. Maximum Emissions from Lime Slaker at Stone Container, Panama City (Revised 01/30/02)

Regulated Pollutant	Emission Factor	Reference	Activity Factor[a]	Hourly Emissions (lb/hr)	Annual Emissions (TPY)
Particulate (PM)	14.0 lb/hr	1	8,760 hr/yr	14.0	61.3
Particulate (PM_{10})	100 % of PM	3	--	14.0	61.3
VOC	4.4E-02 lb/ton CaO	2	28.1 ton CaO/hr[b]	1.24	5.4
Total reduced sulfur	ND	2	--	--	--

ND = Non-detectable

Footnotes

[a] Based on ratio of 1997 CaO production and pulp production to proposed pulp production plus 10% (purchased lime) and 8,760 hr/yr.

[b] 10% impurities included

References

1. Proposed emission limit.
2. Based on NCASI Technical Bulletin No. 701,page 237 and Table 17.
3. No data found, assume 100%.

Table A-9. Maximum Emissions from Chemical Recovery Area at Stone Container, Panama City

Regulated Pollutant	Emission Factor		Reference	Activity Factor (a)		Annual Emissions (TPY)
VOC						
Black Liquor Oxidation Towers	0.34	lb C/ton ADUP	1	781,000	ton ADUP/yr	132.8
Causticizers	0.044	lb C/ton CaO	4	246,156	ton CaO/yr	5.4
Lime Mud Filters/Associated Equipment	0.0041	lb C/ton CaO	4	246,156	ton CaO/yr	0.5
Black Liquor Tanks (2)	0.091	lb/tank/hr	2	2	tanks	0.8
Black Liquor Oxidation Tank	0.1	lb/ton BLS	3	1,083,612	ton BLS/yr	54.2
Green Liquor Clarifiers and Tanks	0.0014	lb C/ton CaO	4	246,156	ton CaO/yr	0.2
					TOTAL VOC's	193.8
Total Reduced Sulfur						
Black Liquor Oxidation Towers	ND		1	--		--
Causticizers	ND		4	--		--
Lime Mud Filters/Associated Equipment	0.0005	lb /ton CaO	4	246,156	ton CaO/yr	0.1
Black Liquor Tanks (2)	0.18	lb/tank/hr	2	2	tanks	1.6
Black Liquor Oxidation Tank	0.0271	lb/ton BLS	3	1,083,612	ton BLS/yr	14.7
Green Liquor Clarifiers and Tanks	7.011E-04	lb C/ton CaO	4	246,156	ton CaO/yr	0.1
					TOTAL TRS	16.4

ND = Non-detectable

Footnotes

(a) Based on proposed maximum hourly lime slaker rate (28.1 tons/hr CaO), proposed pulp production rate, and currently permitted recovery boiler rates.

References

1. Based on NCASI Technical Bulletin No. 646, pages 27 and 28.
2. Based on NCASI Technical Bulletin No. 701, pages 111-115 (Table 7).
3. Based on NCASI Technical Bulletin No. 701, pages 145-154 (Table 11).
4. Based on NCASI Technical Bulletin No. 701, pages 237-240 (Table 17).

Table A-10. Maximum Emissions from Paper Making Area at Stone Container, Panama City

Regulated Pollutant	Emission Factor	Reference	Activity Factor	Annual Emissions (TPY)
VOC	0.60 lb C/ton ADUP	1	781,000 ton ADUP/yr	234.3
Total reduced sulfur	ND	1	--	--

ND = Non-detectable

References

1. Based on NCASI Technical Bulletin No. 701,page 3, Table 18 (pages 243 and 244).

ATTACHMENT E

UPDATES TO "REVISED AMBIENT IMPACT ANALYSIS FOR STONE CONTAINER CORPORATION'S PANAMA CITY MILL" (MAY 2000)

Table 2-1. Maximum Future Emissions Used in the Modeling Analysis for Stone Container - Panama City *(Revised 01/30/02)*

		PM_{10}		SO_2		NO_x		CO	
Emission Unit	Unit ID	lb/hr	g/s	lb/hr	g/s	lb/hr	g/s	lb/hr	g/s
No. 1 Recovery Boiler	RB1	70.0	8.82	129.8	16.35	72.1	9.08	2,474.0	311.72
No. 2 Recovery Boiler	RB2	70.0	8.82	129.8	16.35	72.1	9.08	2,474.0	311.72
No. 1 Smelt Dissolving Tank	SDT1	11.1	1.39	1.0	0.13	2.0	0.26	--	--
No. 2 Smelt Dissolving Tank	SDT2	11.1	1.39	1.0	0.13	2.0	0.26	--	--
Lime Kiln	LK1	29.3	3.69	4.7	0.59	44.7	5.63	4.5	0.57
No. 3 Combination Boiler	BB3	97.8	12.32	485.0[b]	61.11	130.1	16.39	178.0	22.43
No. 4 Combination Boiler	BB4	81.5	10.27	781.0	98.41	189.1	23.83	181.8	22.90
Modified Bleach Plant	BLEACH	--	--	--	--	--	--	40.1	5.05
Lime Slaker	LSKR	14.0[a]	1.76	--	--	--	--	--	--
Woodyard	WOODYARD	3.7	0.47	--	--	--	--	--	--
TOTALS		388.5	48.93	1,532.3	193.07	512.1	64.53	5,352.4	674.39

[a] Represents a reduction in emissions from current permitted or maximum emission rate.

[b] Maximum 24-hour average emissions. Maximum 3-hour average SO_2 emissions are 1,190.4 lb/hr.

Table 2-2. Baseline Emissions Used in the Modeling Analysis for Stone Container - Panama City *(Revised 05/30/00)*

Emission Unit	Unit ID	1974 Baseline				1988 Baseline	
		PM_{10}		SO_2		NO_x	
		Short-Term Emissions					
		lb/hr	g/s	lb/hr	g/s		
No. 1 Recovery Boiler	RB1	45.9	5.78	121.5	15.3	--	--
No. 2 Recovery Boiler	RB2	52.3	6.59	121.5	15.3	--	--
No. 1 Smelt Dissolving Tank	SDT1	4.0	0.50	7.5	0.9	--	--
No. 2 Smelt Dissolving Tank	SDT2	19.7	2.48	7.5	0.9	--	--
Lime Kiln	LK1	24.1	3.04	3.2	0.4	--	--
No. 4 Power Boiler	PB4[a]	11.9	1.50	205.5	25.9	--	--
No. 5 Power Boiler	PB5[a]	12.2	1.54	212.0	26.7	--	--
No. 6 Power Boiler	PB6	30.2	3.81	524.0	66.0		
No. 3 Combination Boiler	BB3	140.1	17.65	342.9	43.2		
No. 4 Combination Boiler	BB4	140.1	17.65	546.0	68.8	--	--
Lime Slaker	LSKR	5.0	0.63	--	--		
TOTALS		480.5	60.54	2,091.6	263.5	--	--
		Long-Term Emissions					
		TPY	g/s	TPY	g/s	TPY	g/s
No. 1 Recovery Boiler	RB1	192.7	5.54	452.8	13.0	276.9	7.97
No. 2 Recovery Boiler	RB2	219.7	6.32	452.8	13.0	287.4	8.27
No. 1 Smelt Dissolving Tank	SDT1	16.6	0.48	26.4	0.8	7.0	0.20
No. 2 Smelt Dissolving Tank	SDT2	82.9	2.38	26.4	0.8	7.8	0.22
Lime Kiln	LK1	101.2	2.91	12.0	0.3	137.0	3.94
No. 4 Power Boiler	PB4[a]	44.6	1.28	773.9	22.3	--	--
No. 5 Power Boiler	PB5[a]	44.6	1.28	773.9	22.3	97.5	2.80
No. 6 Power Boiler	PB6	111.6	3.21	1,934.7	55.7	--	--
No. 3 Combination Boiler	BB3	697.4	20.06	1,335.9	38.4	228.3	6.57
No. 4 Combination Boiler	BB4	747.7	21.51	2,114.8	60.8	484.3	13.93
Lime Slaker	LSKR	21.0	0.60	--	--	--	--
TOTALS		2,259.0	64.98	7,903.6	227.4	1,526.2	43.9

[a] Common stack in baseline.

Table 2-3. Stack Parameters and Locations Used in the Modeling Analysis for Stone Container- Panama City *(Revised 01/30/02)*

		Relative Location[a]				Stack Parameters				Operating Parameters			
		X		Y		Height		Diameter		Temperature		Velocity	
Emission Unit	Unit ID	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(°F)	(°K)	(ft/s)	(m/s)
						Future Conditions							
No. 1 Recovery Boiler[b]	RB1	43	13	-54	-16	233	71.0	6.42	1.96	298	421	86.9	26.50
No. 2 Recovery Boiler[b]	RB2	88	27	0	0	233	71.0	6.42	1.96	311	428	90.2	27.48
No. 1 Smelt Dissolving Tank	SDT1	1	0	-19	-6	233	71.0	6.00	1.83	166	348	17.2	5.25
No. 2 Smelt Dissolving Tank	SDT2	46	14	34	10	233	71.0	6.00	1.83	166	348	15.0	4.56
Lime Kiln	LK1	537	164	-118	-36	61	18.6	8.00	2.44	167	348	38.8	11.84
Slaker	LSKR	136	41	-484	-148	56	17.1	2.90	0.88	200	366	42.9	13.09
No. 3 Combination Boiler	BB3	-94	-29	106	32	213	64.9	7.83	2.39	138	332	85.9	26.18
No. 4 Combination Boiler	BB4	-117	-36	79	24	213	64.9	7.83	2.39	143	335	92.4	28.17
Bleach Plant	BLEACH	202	62	-688	-210	86	26.2	3.00	0.91	114	319	59.0	17.97
						NO_x PSD Baseline (1988) Conditions							
No. 1 Recovery Boiler[b]	RB1	43	13	-54	-16	233	71.0	6.42	1.96	310	428	88.0	26.82
No. 2 Recovery Boiler[b]	RB2	88	27	0	0	233	71.0	6.42	1.96	320	433	81.3	24.78
No. 1 Smelt Dissolving Tank	SDT1	1	0	-19	-6	233	71.0	6.00	1.83	150	339	16.9	5.15
No. 2 Smelt Dissolving Tank	SDT2	46	14	34	10	233	71.0	6.00	1.83	140	333	17.4	5.30
Lime Kiln	LK1	537	164	-118	-36	61	18.6	8.00	2.44	160	344	33.6	10.24
Slaker	LSKR	136	41	-484	-148	56	17.1	2.90	0.88	155	341	44.1	13.44
No. 5 Power Boiler	PB5	-152	-46	41	12	296	90.2	12.00	3.66	400	478	24.8	7.56
No. 3 Combination Boiler	BB3	-94	-29	106	32	213	64.9	7.83	2.39	149	338	77.1	23.50
No. 4 Combination Boiler	BB4	-117	-36	79	24	213	64.9	7.83	2.39	143	335	89.6	27.32
						PM/SO_2 PSD Baseline (1974) Conditions							
No. 1 Recovery Boiler[b]	RB1	43	13	-54	-16	233	71.0	6.42	1.96	310	428	88.0	26.82
No. 2 Recovery Boiler[b]	RB2	88	27	0	0	233	71.0	6.42	1.96	320	433	81.3	24.78
No. 1 Smelt Dissolving Tank	SDT1	1	0	-19	-6	233	71.0	6.00	1.83	150	339	16.9	5.15
No. 2 Smelt Dissolving Tank	SDT2	46	14	34	10	233	71.0	6.00	1.83	140	333	17.4	5.30
Lime Kiln	LK1	537	164	-118	-36	61	18.6	8.00	2.44	160	344	33.6	10.24
Slaker	LSKR	136	41	-484	-148	56	17.1	3.00	0.91	155	341	44.1	13.44
No. 4 Power Boiler[c]	PB4	-152	-46	41	12	296	90.2	12.00	3.66	400	478	24.8	7.57
No. 5 Power Boiler[c]	PB5	-152	-46	41	12	296	90.2	12.00	3.66	400	478	24.8	7.56
No. 6 Power Boiler	PB6	172	52	18	5	241	73.5	8.00	2.44	430	494	35.6	10.85
No. 3 Combination Boiler	BB3	-94	-29	106	32	150	45.7	8.50	2.59	440	500	48.2	14.69
No. 4 Combination Boiler	BB4	-117	-36	79	24	150	45.7	7.34	2.24	470	516	60.6	18.47

[a] Sources are relative to the air modeling origin location, which is the easternmost corner of the Combination Boilers Building.
[b] Source has two identical stacks. Parameters are for each stack.
[c] Nos. 4 and 5 Power Boilers shared a common stack.

Table 4-1. Major Features of the ISC-PRIME Model

ISC-PRIME Model Features[a]
• Polar or Cartesian coordinate systems for receptor locations
• Rural or one of three urban options which affect wind speed profile exponent, dispersion rates, and mixing height calculations
• Plume rise due to momentum and buoyancy as a function of downwind distance for stack emissions (Briggs, 1969, 1971, 1972, and 1975; Bowers, et al., 1979).
• Procedures suggested by Schulman et al. (1998) for evaluating building wake effects
• Procedures suggested by Briggs (1974) for evaluating stack-tip downwash
• Separation of multiple emission sources
• Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations
• Capability of simulating point, line, volume, area, and open pit sources
• Capability to calculate dry and wet deposition, including both gaseous and particulate precipitation scavenging for wet deposition
• Variation of wind speed with height (wind speed-profile exponent law)
• Concentration estimates for 1 hour to annual average times
• Terrain-adjustment procedures for elevated terrain including a terrain truncation algorithm for ISCST3; a built-in algorithm for predicting concentrations in complex terrain
• Consideration of time-dependent exponential decay of pollutants
• The method of Pasquill (1976) to account for buoyancy-induced dispersion
• A regulatory default option to set various model options and parameters to EPA recommended values (see text for regulatory options used)
• Procedure for calm-wind processing including setting wind speeds less than 1 m/s to 1 m/s.

Note: ISC-PRIME = Industrial Source Complex Short-Term Model with Plume Rise Model Enhancement (PRIME) downwash algorithm.

[a] References:

Bowers, J.F., J.R. Bjorklund and C.S. Cheney. 1979. Industrial Source Complex (ISC) Dispersion Model User's Guide. Volume I, EPA-450/4-79-030; Volume II. EPA-450/4-79-031. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

Briggs, G.A. 1969. Plume Rise, USAEC Critical Review Series, TID-25075. National Technical Information Service, Springfield, Virginia 22161.

Briggs, G.A. 1972. Discussion on Chimney Plumes in Neutral and Stable Surroundings. *Atmos. Environ.*, Q, 507-510.

Briggs, G.A. 1974. Diffusion Estimation for Small Emissions. *In*: ERL, ARL USAEC Report ATDL-106. U.S. Atomic Energy Commission, Oak Ridge, Tennessee.

Briggs, G.A. 1975. Plume Rise Predications. In Lectures on Air Pollution and Environmental Impact Analysis. American Meteorological Society, Boston, Massachusetts.

Briggs, G.A. 1979. Some Recent Analyses of Plume Rise Observations. *In*: Proceedings of the Second International Clean Air Congress. Academic Press, New York.

Pasquill, F. 1976. Atmospheric Dispersion Parameters in Gaussian Plume Modeling - Part II. Possible Requirements for Change in the Turner Workbook Values. EPA-600/4-76-030b, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

Schulman, L.L. and J.S. Scire. 1980. Buoyant Line and Point Source (BLP) Dispersion Model User's Guide. Document P-7304B, Environmental Research and Technology, Inc., Concord, MA.

Table 4-2. Summary of SO_2 Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Facility ID Number	Facility	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative to Smurfit-Stone Mill[a] X (km)	Y (km)	Distance (km)	Direction (deg.)	SO_2 Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included Modeling Analysis?[c]
0050001	**Arizona Chemical Company**	**3335.4**	**633.1**	**0.08**	**0.07** [f]	**0.1**	**49**	**1,226**	**2.1**	**Yes**
0050062	Granger Asphalt Paving, Inc.	3340.3	628.1	-4.7	5.2 [f]	7.0	318	74	140.0	No
0050008	Gulf Asphalt Corporation	3343.7	634.9	2.1	8.6	8.9	14	74	177.1	No
0050038	Triangle Construction Road Building Inc.	3347.0	638.8	6.0	11.9	13.3	27	45	266.5	No
0050014	**Gulf Power (L.S. Plant)**	**3349.1**	**625.2**	**-7.6**	**14.0**	**15.9**	**332**	**80,769**	**318.6**	**Yes**
0050031	**Bay County Energy Systems Inc.**	**3348.9**	**644.0**	**11.2**	**13.8**	**17.8**	**39**	**313**	**355.5**	**Yes**[d]
7770034	Drum Mix Asphalt Plant #6	3362.8	648.8	16.0	27.7	32.0	30	52	639.3	No
0450002	Sylvachem Corporation	3299.6	661.9	29.1	-35.5	45.9	141	2	917.1	No
0450005	**Florida Coast Paper Company, L.L.C.**	**3299.0**	**662.8**	**30.0**	**-36.1**	**46.9**	**140**	**3,224**	**938.8**	**Yes**
0770007	North Florida Lumber	3358.9	689.5	56.7	23.8	61.5	67	3	1230.4	No
1330035	Trawick Pit	3397.5	633.9	1.1	62.4	62.4	1	2	1247.6	No
1330005	Florida Gas Transmission Station 13	3394.2	610.6	-22.2	59.1	63.1	339	2	1262.6	No
1310008	Freeport Batch Plant	3360.3	573.1	-59.7	25.2	64.8	293	39	1296.0	No
0630031	White Construction Company	3403.5	654.2	21.4	68.4	71.7	17	96	1433.4	No
1310013	Alabama Electric Cooperative	3383.5	575.1	-57.7	48.4	75.3	310	2	1506.2	No
0630002	Baxter Asphalt & Concrete	3406.9	666.7	33.9	71.8	79.4	25	41	1588.0	No
0770009	Timber Energy Resources	3358.1	709.4	76.6	23.0	80.0	73	13	1599.6	No
0630035	Anderson Columbia Company, Inc. Plant #2	3404.5	677.0	44.2	69.4	82.3	32	23	1645.6	No
7775017	Defuniak Drum Mix Asphalt Plant	3400.5	579.5	-53.3	65.4	84.4	321	99	1687.4	No
7770049	Jones Pit Facility	3417.2	657.8	25.0	82.1	85.8	17	2	1716.4	No
7770021	#12 Asphalt Plant	3400.7	577.2	-55.6	65.6	86.0	320	56	1719.8	No
0770010	**Georgia Pacific Corporation - Hosford**	**3369.5**	**713.5**	**80.7**	**34.4**	**87.7**	**67**	**22**	**1754.5**	**Yes**[d]
0630045	Springhill Regional Landfill	3423.1	650.5	17.7	88.0	89.7	11	8	1794.9	No
0630023	Southern States Cooperative, Inc.	3424.9	651.5	18.7	89.8	91.7	12	49	1834.3	No
0630014	**Gulf Power (Scholz Plant)**	**3395.8**	**702.4**	**69.6**	**60.7**	**92.4**	**49**	**31,728**	**1847.0**	**Yes**
0630044	Apalachee Correctional Institution	3399.3	703.0	70.2	64.2	95.2	48	9	1903.5	No
0390029	Florida Gas Transmission Station 14	3377.4	719.9	87.1	42.3	96.8	64	2	1936.6	No
0390004	Florida State Hospital - Chattahoochee	3399.2	707.6	74.8	64.1	98.5	49	729	1970.2	No
7770142	Chadbourne Plant 106	3402.2	559.1	-73.7	67.1	99.7	312	23	1993.1	No
0390032	C.W. Roberts Contracting Inc.	3371.4	726.5	93.7	36.3	100.5	69	48	2009.7	No
0910064	Hurlburt Field	3364.7	529.7	-103.1	29.6	107.3	286	43	2145.4	No
0390005	Engelhard Corporation	3387.5	732.6	99.8	52.4	112.7	62	10	2254.4	No
0730003	**City of Tallahassee - Hopkins**	**3371.7**	**749.5**	**116.7**	**36.6**	**122.3**	**73**	**17,428**	**2446.7**	**Yes**[e]
7770014	Peavy and Son Construction Company	3395.2	742.4	109.6	60.1	125.0	61	98	2499.9	No
0390009	Havana Mills	3394.3	747.1	114.3	59.2	128.7	63	3	2574.4	No

Table 4-2. Summary of SO_2 Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Facility ID Number	Facility	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative to Smurfit-Stone Mill[a] X (km)	Relative to Smurfit-Stone Mill[a] Y (km)	Relative to Smurfit-Stone Mill[a] Distance (km)	Relative to Smurfit-Stone Mill[a] Direction (deg.)	SO_2 Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included Modeling Analysis?[c]
0730065	National Linen Service	3368.3	759.0	126.2	33.2	130.5	75	23	2609.9	No
0730009	Physical Plant	3368.9	760.5	127.7	33.8	132.1	75	31	2641.9	No
7770064	Woodville Plant	3361.6	762.8	130.0	26.5	132.7	78	21	2653.5	No
1290003	Primex Technologies, Ordance & Tactical	3342.1	767.6	134.8	7.0	135.0	87	245	2699.6	No
1290005	St. Marks Terminal	3338.4	769.3	136.5	3.3	136.5	89	66	2730.8	No
1290001	**City of Tallahassee S.O.Purdom Plant**	**3340.0**	**769.5**	**136.7**	**4.9**	**136.8**	**88**	**5,414**	**2735.7**	**Yes[e]**
0730034	Mitchell Brothers Inc.	3372.1	766.2	133.4	37.0	138.4	74	86	2768.7	No
1130015	DBA Santa Rosa Asphalt & Materials Inc.	3384.0	493.8	-139.0	48.9	147.4	289	14	2947.0	No
7774806	Milton Plant	3385.1	493.7	-139.1	50.0	147.8	290	36	2956.8	No
1130037	Florida Gas Transmission Station 12	3419.6	510.8	-122.0	84.5	148.4	305	4	2968.1	No
1130003	Sterling Fibers, Inc.	3380.2	489.2	-143.6	45.1	150.5	287	1	3010.3	No
1130004	Air Products and Chemicals Inc.	3383.4	487.0	-145.8	48.3	153.6	288	4	3071.8	No
0330132	Freeport-McMoran Sulphur, L.L.C.	3363.2	480.0	-152.8	28.1	155.4	280	3	3107.2	No
0330060	Coastal Fuels Marketing, Inc.	3363.4	479.6	-153.2	28.3	155.8	280	47	3115.8	No
0330067	Main Street WWTP	3363.7	478.9	-153.9	28.6	156.6	281	15	3131.4	No
0330122	Hudsco, Inc.	3375.8	480.8	-152.0	40.7	157.4	285	50	3147.1	No
7775030	Compression Coat, Inc.	3363.4	476.1	-156.7	28.3	159.2	280	11	3185.0	No
0330045	Gulf Power Co. (Crist Plant)	3381.4	478.3	-154.5	46.3	161.3	287	173,865	3226.1	No
1130014	Blackjack Creek	3412.7	488.8	-144.0	77.6	163.6	298	129	3271.6	No
0330040	Solutia Inc.	3385.0	476.0	-156.8	49.9	164.5	288	8,844	3290.7	No
7775008	Group III Asphalt, Inc.	3375.9	469.9	-162.9	40.8	167.9	284	49	3358.2	No
0330248	Specialty Minerals, Inc.	3374.6	469.6	-163.2	39.5	168.0	284	3	3359.0	No
1130043	Group III Asphalt, Inc.	3375.9	469.6	-163.2	40.8	168.2	284	30	3364.2	No
0330042	Pensacola Mill	3385.8	469.0	-163.8	50.7	171.5	287	4,433	3429.3	No
1130005	St Regis Treating Facility and Jay Gas Plant	3425.6	482.8	-150.0	90.5	175.2	301	9,859	3503.7	No
7770068	Sunbelt Resources, Inc.	3374.1	452.0	-180.8	39.0	185.0	282	22	3699.0	No

[a] The SSCC Mill is located at UTM Coordinates: North 3335.1 km; East 632.8 km

[b] Sources with emissions less than 1 TPY not considered in screening analysis.

[c] Source included in AAQS if (20 * Distance) < Emission Rate up to 100 km away from SSCC Mill.

[d] Source included in the air modeling analysis because it is a PSD source.

[e] Source included for PSD Class I analysis only, because of its proximity to PSD Class I areas.

[f] Distance from SSCC Mill to Arizona Chemical Company obained from Arizona Chemical Co. plot plan.

Table 4-3. Summary of Background SO_2 Sources Included in the Air Modeling Analysis *(Revised 01/30/02)*

Facility ID Number	Facility Units	ISC-PRIME ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s)	PSD Source? (EXP/CON)	Modeled in AAQS	Class II	Class I
0050001	Arizona Chemical Company										
	Boiler #1	ARIZCHM1	30.5	1.22	510.9	22.75	17.64		Yes	No	No
	Boiler #2	ARIZCHM2	30.5	1.22	466.5	17.64	17.64		Yes	No	No
0050014	Gulf Power										
	Lansing Smith Units 1 and 2	GULFPW12	60.7	5.49	441.0	31.30	3258.20		Yes	No	No
	Peaking Turbines	GULFPWPK	10.1	4.18	922.0	36.90	34.50		Yes	No	No
0050031	Bay County Energy Systems										
	Boilers No. 1 and 2	BAYENRGY	38.1	1.37	477.6	17.50	9.02	CON	Yes	Yes	Yes
0450005	Florida Coast Paper										
	Kiln #1		33.8	1.22	352.6	20.78	0.30				
	Kiln #2		33.8	1.22	352.6	19.85	0.30				
	Kiln #3		33.5	1.22	352.6	18.31	0.30				
	Smelt Dissolving Tank No. 5		38.1	1.07	360.4	7.71	0.44				
	Smelt Dissolving Tank No. 6		38.1	1.07	355.4	7.71	0.44				
	Smelt Dissolving Tank No. 7		30.5	2.38	367.6	2.25	1.32				
		FCPLKSDT	30.5	2.38	367.6	2.25	3.10		Yes	No	No
	Recovery Boiler #5		38.1	2.56	460.9	14.81	32.29				
	Recovery Boiler #6		38.1	2.56	394.3	2.94	32.26				
	Recovery Boiler #7		61.0	5.33	429.8	9.10	22.06				
		PCPRB567	38.1	2.56	394.3	9.10	86.61		Yes	No	No
	Power Boiler #9	FCPPB9	51.8	4.27	343.1	10.33	76.23	CON	Yes	Yes	Yes
0770010	Georgia Pacific Corporation (Hosford)										
	Dryers 1 & 2	GPHOS1	39.6	2.59	399.3	15.31	0.85	CON	No	Yes	Yes
	Panel Press	GPHOS2	30.5	2.18	340.9	18.46	0.001	CON	No	Yes	Yes
	Thermal Oil System	GPHOS10	42.0	1.68	644.3	6.35	0.005	CON	No	Yes	Yes
0630014	Gulf Power Co.(Scholz Plant)										
	Units 1 & 2 (ESP)	SCH12	45.7	4.11	438.7	12.19	912.74		Yes	No	No
1290001	City of Tallahassee S.O.Purdom Plant										
	Unit No. 2	TALPUR2	26.0	1.95	478.0	5.89	-39.88	EXP	No	No	Yes
	Unit No. 3	TALPUR3	26.0	1.95	478.0	5.89	-39.88	EXP	No	No	Yes
	Unit No. 4	TALPUR4	26.0	1.95	478.0	5.89	-39.88	EXP	No	No	Yes
	Unit No. 5	TALPUR5	38.1	3.96	447.0	7.23	-104.04	EXP	No	No	Yes
	Unit No. 6	TALPUR6	38.1	3.96	447.0	7.23	-104.04	EXP	No	No	Yes
	Unit No. 7	TALPUR7	54.9	2.74	422.0	14.44	-68.92	EXP	No	No	Yes
	Unit No. 8	TALPUR8	61.0	5.00	353.0	15.38	7.82	CON	No	No	Yes
	Gas Turbines	TALPURGT	11.6	3.05	744.0	25.56	-10.29	EXP	No	No	Yes
0730003	City of Tallahassee A.B.Hopkins Plant										
	Unit No. 1	TALHOP1	61.0	3.35	400.0	21.11	-227.59	EXP	No	No	Yes
	Unit No. 2	TALHOP2	76.2	4.27	533.0	22.60	410.76	CON	No	No	Yes

Table 4-4. Summary of PM Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Relative Location[a] Y (km)	Relative Location[a] Distance (km)	Relative Location[a] Direction (deg.)	PM Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
0050001	**Arizona Chemical Company**	**3335.4**	**633.1**	**0.08**	**0.07**	**0.1** [f]	**49**	**219**	**2.1**	**Yes**
0050005	Florida Asphalt Paving Company	3338.3	631.4	-1.4	3.2	3.5 [f]	336	29	69.9	No
0050051	Humane Soceity of Bay County	3338.8	630.7	-2.1	3.7	4.3	330	3	85.1	No
0050062	Granger Asphalt Paving, Inc.	3340.3	628.1	-4.7	5.2	7.0	318	15	140.0	No
0050024	Tyndall Air Force Base	3326.8	635.6	2.8	-8.3	8.8	161	1	175.2	No
0050038	Triangle Contruction Road Building, Inc.	3347.0	638.8	6.0	11.9	13.3	27	12	266.5	No
0050014	**Gulf Power (L.S. Plant)**	**3349.1**	**625.2**	**-7.6**	**14.0**	**15.9**	**332**	**1,836**	**318.6**	**Yes**
0050031	**Bay County Energy Systems Inc.**	**3348.9**	**644.0**	**11.2**	**13.8**	**17.8**	**39**	**59**	**355.5**	**Yes[d]**
0050028	West Bay Sawmill	3355.2	608.8	-24.0	20.1	31.3	310	37	625.6	No
7770034	Drum Mix Asphalt Plant #6	3362.8	648.8	16.0	27.7	32.0	30	12	639.3	No
0450008	Eagle Recycling Inc.	3333.9	669.1	36.3	-1.2	36.4	92	17	727.2	No
0450001	Premier Refractories Inc.	3302.8	664.7	31.9	-32.3	45.4	135	219	907.9	No
0450002	Sylvachem Corporation	3299.6	661.9	29.1	-35.5	45.9	141	36	917.1	No
0450005	**Florida Coast Paper Company, L.L.C.**	**3299.0**	**662.8**	**30.0**	**-36.1**	**46.9**	**140**	**1,831**	**938.8**	**Yes**
0770007	North Florida Lumber	3358.9	689.5	56.7	23.8	61.5	67	67	1230.4	No
1330035	Trawick Pit	3397.5	633.9	1.1	62.4	62.4	1	13	1247.6	No
1310253	Medusa - Citadel Inc.	3373.2	581.1	-51.7	38.1	64.2	306	32	1284.7	No
1310008	Freeport Batch Plant	3360.3	573.1	-59.7	25.2	64.8	293	9	1296.0	No
1330002	Florida Asphalt Paving Company	3399.8	624.4	-8.4	64.7	65.2	353	44	1304.9	No
0630031	White Construction Company	3403.5	654.2	21.4	68.4	71.7	17	31	1433.4	No
1310013	Alabama Electric Cooperative	3383.5	575.1	-57.7	48.4	75.3	310	2	1506.2	No
0630040	Golden Peanut Company	3407.7	655.1	22.3	72.6	75.9	17	11	1519.0	No
7775064	Anderson Columbia	3401.2	672.1	39.3	66.1	76.9	31	8	1538.0	No
0630052	Concrete Plant #2	3401.3	672.3	39.5	66.2	77.1	31	42	1541.0	No
1310019	Defuniak Drum Mix Asphalt Plant	3399.3	590.1	-42.7	64.2	77.1	326	87	1542.1	No
0630002	Baxter Asphalt & Concrete	3406.9	666.7	33.9	71.8	79.4	25	43	1588.0	No
0770009	Timber Energy Resources	3358.1	709.4	76.6	23.0	80.0	73	48	1599.6	No
0630035	Anderson Columbia Company, Inc. Plant #2	3404.5	677.0	44.2	69.4	82.3	32	40	1645.6	No
0630028	Marianna Sawmill	3400.1	683.3	50.5	65.0	82.3	38	2	1646.2	No
7775017	Defuniak Drum Mix Asphalt Plant	3400.5	579.5	-53.3	65.4	84.4	321	56	1687.4	No
0370008	Franklin County Board of Commissioners	3297.1	708.6	75.8	-38.0	84.8	117	77	1696.5	No
7770049	Jones Pit Facility	3417.2	657.8	25.0	82.1	85.8	17	4	1716.4	No
7770021	#12 Asphalt Plant	3400.7	577.2	-55.6	65.6	86.0	320	34	1719.8	No
7775029	Rock Crusher	3418.7	656.1	23.3	83.6	86.8	16	12	1736.6	No

Table 4-4. Summary of PM Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Relative Location[a] Y (km)	Relative Location[a] Distance (km)	Relative Location[a] Direction (deg.)	PM Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
0770010	**Georgia Pacific Corporation - Hosford**	**3369.5**	**713.5**	**80.7**	**34.4**	**87.7**	67	**293**	**1754.5**	**Yes[d]**
0910025	Florida Mining & Materials	3364.3	548.5	-84.3	29.2	89.2	289	3	1784.3	No
0630015	Golden Peanut Company	3425.2	642.1	9.3	90.1	90.6	6	1	1811.6	No
0630023	Southern States Cooperative, Inc.	3424.9	651.5	18.7	89.8	91.7	12	17	1834.3	No
0630041	Golden Peanut Company	3416.9	675.2	42.4	81.8	92.1	27	40	1842.7	No
0630014	Gulf Power (Scholz Plant)	3395.8	702.4	69.6	60.7	92.4	49	514	1847.0	No
0390034	Chattahoochee Sand & Gravel	3398.1	703.1	70.3	63.0	94.4	48	3	1887.5	No
0910031	Eglin Air Force Base	3369.6	542.6	-90.2	34.5	96.6	291	17	1931.5	No
0390004	Florida State Hospital - Chattahoochee	3399.2	707.6	74.8	64.1	98.5	49	154	1970.2	No
7774802	Shalimar Batch Plant	3370.6	540.6	-92.2	35.5	98.8	291	53	1976.0	No
7770142	Chadbourne Plant 106	3402.2	559.1	-73.7	67.1	99.7	312	6	1993.1	No
0390032	C.W. Roberts Contracting Inc.	3371.4	726.5	93.7	36.3	100.5	69	2	2009.7	No
0910027	Florida Mining & Materials	3368.5	536.0	-96.8	33.4	102.4	289	1	2048.0	No
0910061	Cox Building Corporation	3365.4	532.8	-100.0	30.3	104.5	287	33	2090.4	No
0910063	Marble Works	3364.3	532.0	-100.8	29.2	104.9	286	2	2098.8	No
0910064	Hurlburt Field	3364.7	529.7	-103.1	29.6	107.3	286	3	2145.4	No
0390025	Florida Rock Industries, Inc.	3385.4	728.4	95.6	50.3	108.0	62	28	2160.5	No
0390026	Florida Rock Industries, Inc.	3385.4	728.4	95.6	50.3	108.0	62	14	2160.5	No
0390030	Harborlite Corporation	3385.2	729.8	97.0	50.1	109.2	63	6	2183.5	No
0390007	Pat Higdon Industries	3386.5	729.9	97.1	51.4	109.9	62	5	2197.3	No
0390033	Sasser Morgan-McClellan Funeral Home	3386.1	732.6	99.8	51.0	112.1	63	2	2241.5	No
0390005	Engelhard Corporation	3387.5	732.6	99.8	52.4	112.7	62	300	2254.4	No
0910042	Funeral Services Acquisition Group	3403.6	541.7	-91.1	68.5	114.0	307	5	2279.6	No
0910033	Fleming Lumber Co.	3402.5	534.7	-98.1	67.4	119.0	304	2	2380.5	No
0730003	**City of Tallahassee - Hopkins**	**3371.7**	**749.5**	**116.7**	**36.6**	**122.3**	73	**788**	**2446.7**	**Yes[e]**
7770014	Peavy and Son Construction Company	3395.2	742.4	109.6	60.1	125.0	61	22	2499.9	No
7770100	C.W. Roberts Contracting Inc.	3370.8	752.7	119.9	35.7	125.1	73	9	2502.0	No
0730068	Fairchild Cremation Services, Inc.	3373.5	754.2	121.4	38.4	127.3	72	2	2546.6	No
0390009	Havana Mills	3394.3	747.1	114.3	59.2	128.7	63	146	2574.4	No
0730065	National Linen Service	3368.3	759.0	126.2	33.2	130.5	75	2	2609.9	No
0730009	Physical Plant	3368.9	760.5	127.7	33.8	132.1	75	46	2641.9	No
7770064	Woodville Plant	3361.6	762.8	130.0	26.5	132.7	78	31	2653.5	No
1290005	St. Marks Terminal	3338.4	769.3	136.5	3.3	136.5	89	6	2730.8	No
1290001	**City of Tallahassee S.O.Purdom Plant**	**3340.0**	**769.5**	**136.7**	**4.9**	**136.8**	**88**	**463**	**2735.7**	**Yes[e]**

Golder Associates

Table 4-4. Summary of PM Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Relative Location[a] Y (km)	Relative Location[a] Distance (km)	Relative Location[a] Direction (deg.)	PM Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
0730034	Mitchell Brothers Inc.	3372.1	766.2	133.4	37.0	138.4	74	3	2768.7	No
7770147	Anderson Columbia Inc, #5	3388.9	502.0	-130.8	53.8	141.4	292	8	2828.9	No
1130031	The Quikrete Companies	3383.5	497.1	-135.7	48.4	144.1	290	30	2881.5	No
1130017	Santa Rosa Concrete Co.	3386.5	496.8	-136.0	51.4	145.3	291	2	2906.9	No
1130172	Santa Rosa County Board of Commissioners	3382.7	494.3	-138.5	47.6	146.5	289	5	2929.0	No
7770024	Joseph Concrete Company	3387.9	496.1	-136.7	52.8	146.5	291	6	2930.9	No
7775043	Shear Concrete Products Inc.	3383.7	494.3	-138.5	48.6	146.8	289	5	2935.8	No
1130015	DBA Santa Rosa Asphalt & Materials Inc.	3384.0	493.8	-139.0	48.9	147.4	289	2	2947.0	No
7774806	Milton Plant	3385.1	493.7	-139.1	50.0	147.8	290	10	2956.8	No
1130033	Santa Rosa County Board of Commissioners	3384.7	493.1	-139.7	49.6	148.2	290	61	2964.9	No
1130039	Milton Concrete Block Plant	3382.2	492.2	-140.6	47.1	148.3	289	14	2965.6	No
1130022	Naval Air Station Whiting Field	3398.2	497.8	-135.0	63.1	149.0	295	2	2980.4	No
1130003	Sterling Fibers, Inc.	3380.2	489.2	-143.6	45.1	150.5	287	269	3010.3	No
1130004	Air Products and Chemicals Inc.	3383.4	487.0	-145.8	48.3	153.6	288	183	3071.8	No
7770058	NWF Contractors, Inc.	3370.3	482.6	-150.2	35.2	154.3	283	18	3085.9	No
0330119	Pensacola Plant	3375.6	483.9	-148.9	40.5	154.3	285	19	3086.2	No
1130173	Cogeneration Plant (Pea Ridge Plant)	3381.6	485.6	-147.2	46.5	154.3	288	5	3086.6	No
0330132	Freeport McMorran Sulphur, Inc.	3363.2	480.0	-152.8	28.1	155.4	280	16	3107.2	No
0330060	Coastal Fuels Marketing Inc.	3363.4	479.6	-153.2	28.3	155.8	280	1	3115.8	No
0330067	Main Street WWTP	3363.7	478.9	-153.9	28.6	156.6	281	20	3131.4	No
0330043	Reichhold, Inc.	3364.8	478.6	-154.2	29.7	157.0	281	1	3140.7	No
0330041	Sacred Heart Hospital	3372.0	480.0	-152.8	36.9	157.2	284	4	3143.5	No
0330122	Hudsco, Inc.	3375.8	480.8	-152.0	40.7	157.4	285	4	3147.1	No
0330126	Arizona Chemicals	3363.9	476.6	-156.2	28.8	158.8	280	4	3176.7	No
0330114	Pensacola Christian College Inc.	3371.0	477.8	-155.0	35.9	159.1	283	1	3182.7	No
7775030	Compression Coat, Inc.	3363.4	476.1	-156.7	28.3	159.2	280	5	3185.0	No
0330006	Armstrong World Industries	3363.5	475.9	-156.9	28.4	159.4	280	539	3189.0	No
0330121	Autoshred Recycling, L.L.C.	3363.4	475.8	-157.0	28.3	159.5	280	9	3190.6	No
0330129	Enviro-Mates, Inc.	3363.0	474.6	-158.2	27.9	160.6	280	66	3211.9	No
0330080	GSI Recycling, Inc.	3366.5	475.0	-157.8	31.4	160.9	281	3	3217.9	No
0330045	Gulf Power Co. (Crist Plant)	3381.4	478.3	-154.5	46.3	161.3	287	3,524	3226.1	No
0330091	Southeastern Crematory	3364.2	473.5	-159.3	29.1	161.9	280	2	3238.7	No
0330123	MAACO Auto Painting & Body Works	3373.2	475.2	-157.6	38.1	162.1	284	1	3242.8	No
0330082	Naval Air Station Pensacola	3358.3	472.3	-160.5	23.2	162.2	278	2	3243.4	No
0330112	Chadbourne Asphalt Plant 105	3361.1	472.7	-160.1	26.0	162.2	279	27	3243.9	No

Table 4-4. Summary of PM Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Relative Location[a] Y (km)	Relative Location[a] Distance (km)	Relative Location[a] Direction (deg.)	PM Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
0330097	Navy Public Works Center	3363.8	472.2	-160.6	28.7	163.1	280	3	3262.9	No
0330086	Naval Hospital	3362.3	471.2	-161.6	27.2	163.9	280	8	3277.5	No
0330133	Advanced Elastomer Systems, L.P.	3384.6	476.5	-156.3	49.5	164.0	288	5	3279.0	No
0330118	Harris Concrete and Patio Center	3362.5	470.7	-162.1	27.4	164.4	280	5	3288.7	No
0330040	Solutia Inc.	3385.0	476.0	-156.8	49.9	164.5	288	611	3290.7	No
7775008	Group III Asphalt, Inc.	3375.9	469.9	-162.9	40.8	167.9	284	16	3358.2	No
0330248	Specialty Minerals, Inc.	3374.6	469.6	-163.2	39.5	168.0	284	8	3359.0	No
1130043	Group III Asphalt, Inc.	3375.9	469.6	-163.2	40.8	168.2	284	2	3364.2	No
0330096	Navy Public Works Center	3370.0	467.0	-165.8	34.9	169.4	282	6	3388.7	No
7775074	Panhandle Land and Timber	3386.4	470.4	-162.4	51.3	170.3	288	8	3406.9	No
0330042	Pensacola Mill	3385.8	469.0	-163.8	50.7	171.5	287	1,848	3429.3	No
7775073	400 TPH Asphalt Plant	3390.9	469.8	-163.1	55.8	172.3	289	21	3446.4	No
1130027	Burkhead Gin	3425.8	485.3	-147.5	90.7	173.2	302	73	3463.1	No
1130026	Golden Gin & Warehouse	3426.1	484.8	-148.0	91.0	173.7	302	59	3474.8	No
7770068	Sunbelt Resources, Inc.	3374.1	452.0	-180.8	39.0	185.0	282	9	3699.0	No
0330024	Chadbourne Asphalt Plant 104	3414.6	454.5	-178.3	79.5	195.2	294	31	3904.4	No
0330136	West Florida Cotton Gin	3427.9	453.4	-179.4	92.8	202.0	297	78	4040.2	No

[a] The SSCC Mill is located at UTM Coordinates: North 3335.1 km; East 632.8 km

[b] Sources with emissions less than 1 TPY not considered in screening analysis.

[c] Source included in AAQS if (20 * Distance) < Emission Rate up to 100 km away from SSCC Mill.

[d] Source included in the air modeling analysis because it is a PSD source.

[e] Source included for PSD Class I analysis only, because of its proximity to PSD Class I areas.

[f] Distance from SSCC Mill to Arizona Chemical Company obained from Arizona Chemical Co. plot plan.

Table 4-5b. Summary of Background PM Volume Sources Included in the Air Modeling Analysis

Facility ID Number	Facility	Units	ISC-PRIME ID Name	Stack Parameters: Release Height (m)	Stack Parameters: Initial Lateral Dimension (m)	Stack Parameters: Initial Vertical Dimension (m/s)	Emission Rate (g/s)	PSD Source? (EXP/CON)	Modeled in: AAQS	Modeled in: Class II	Modeled in: Class I
0770010	Georgia Pacific Corporation (Hosford)										
		Bark Pile	GPHOS13	2.3	7.09	1.06	1.89E-02	CON	No	Yes	Yes
		Bark Hog	GPHOS14	3.9	0.28	0.47	1.89E-03	CON	No	Yes	Yes
		Transfer Points 1,2,3	GPHOS15	4.9	0.21	0.21	6.80E-06	CON	No	Yes	Yes
		Transfer Points 4,5,6,7	GPHOS16	7.6	0.21	0.21	2.77E-05	CON	No	Yes	Yes
		Road Segments	GPHOS17	3.7	18.34	1.70	2.20E-01	CON	No	Yes	Yes

Table 4-5a. Summary of Background PM Point Sources Included in the Air Modeling Analysis *(Revised 01/30/02)*

Facility ID Number	Facility	Units	ISC-PRIME ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s)	PSD Source? (EXP CON)	Modeled in AAQS	Class II	Class I
0050001	Arizona Chemical Company											
		Boiler #1	ARIZCHM1	30.5	1.22	510.9	22.75	2.20		Yes	No	No
		Boiler #2	ARIZCHM2	30.5	1.22	466.5	17.64	2.20		Yes	No	No
0050014	Gulf Power											
		Lansing Smith Units 1 and 2	GULFPW12	60.7	5.49	441.0	31.30	48.01		Yes	No	No
		Peaking Turbines	GULFPWPK	10.1	4.18	922.0	36.90	4.16		Yes	No	No
0050031	Bay County Energy Systems											
		Boilers No. 1 and 2	BAYENRGY	38.1	1.37	477.6	17.50	1.72	CON	Yes	Yes	Yes
0450005	Florida Coast Paper											
		Kiln #1		33.8	1.22	352.6	20.78	1.30				
		Kiln #2		33.8	1.22	352.6	19.85	1.30				
		Kiln #3		33.5	1.22	352.6	18.31	1.30				
		Slaker A		12.2	0.76	355.4	1.45	3.23				
		Slaker B		12.2	0.76	355.4	1.45	3.23				
		Smelt Dissolving Tank No. 5		38.1	1.07	360.4	7.71	0.71				
		Smelt Dissolving Tank No. 6		38.1	1.07	355.4	7.71	0.71				
		Smelt Dissolving Tank No. 7		30.5	2.38	367.6	2.25	2.51				
			FCPLKSDT	30.5	2.38	367.6	2.25	14.29		Yes	No	No
		Recovery Boiler #5		38.1	2.56	460.9	14.81	4.72				
		Recovery Boiler #6		38.1	2.56	394.3	2.94	4.72				
		Recovery Boiler #7		61.0	5.33	429.8	9.10	19.20				
			FCPRB567	38.1	2.56	394.3	9.10	28.64		Yes	No	No
		Power Boiler #9	FCPPB9	51.8	4.27	343.1	10.33	11.11	CON	Yes	Yes	Yes
0770010	Georgia Pacific Corporation (Hosford)											
		Dryers 1 & 2	GPHOS1	39.6	2.59	399.3	15.31	5.11	CON	No	Yes	Yes
		Panel Press	GPHOS2	30.5	2.18	340.9	18.46	0.36	CON	No	Yes	Yes
		Screen Fines	GPHOS3	40.2	0.71	294.3	15.97	0.26	CON	No	Yes	Yes
		Saw Trim	GPHOS4	30.5	1.12	294.3	15.09	0.17	CON	No	Yes	Yes
		Mat Reject	GPHOS5	36.6	1.22	294.3	18.48	0.25	CON	No	Yes	Yes
		Specialty Saw	GPHOS6	27.4	1.02	294.3	15.05	0.27	CON	No	Yes	Yes
		Fuel System Baghouse	GPHOS7	22.9	0.25	294.3	0.01	0.04	CON	No	Yes	Yes
		Forming Bins Baghouse	GPHOS8	32.0	0.76	294.3	22.91	0.24	CON	No	Yes	Yes
		Hammermill Baghouse	GPHOS9	40.2	0.76	294.3	15.22	0.26	CON	No	Yes	Yes
		Thermal Oil System	GPHOS10	42.0	1.68	644.3	6.35	0.01	CON	No	Yes	Yes
		Debarkers 1,2,3	GPHOS11	8.5	0.001	0.0	0.001	0.09	CON	No	Yes	Yes
		Paint Spray Booths 1,2,3	GPHOS12	10.7	0.22	294.3	0.01	0.01	CON	No	Yes	Yes
1290001	City of Tallahassee S.O.Purdom Plant											
		Unit No. 2	TALPUR2	26.0	1.95	478.0	5.89	-1.81	EXP	No	No	Yes
		Unit No. 3	TALPUR3	26.0	1.95	478.0	5.89	-1.81	EXP	No	No	Yes
		Unit No. 4	TALPUR4	26.0	1.95	478.0	5.89	-1.81	EXP	No	No	Yes
		Unit No. 5	TALPUR5	38.1	3.96	447.0	7.23	-4.73	EXP	No	No	Yes
		Unit No. 6	TALPUR6	38.1	3.96	447.0	7.23	-4.73	EXP	No	No	Yes
		Unit No. 8	TALPUR8	61.0	5.00	353.0	15.38	2.14	CON	No	No	Yes
		Gas Turbines	TALPURGT	11.6	3.05	744.0	25.56	0.01	CON	No	No	Yes
		Cooling Tower	TALPURCT	13.4	10.1	305.0	7.09	0.30	CON	No	No	Yes
0730003	City of Tallahassee A.B Hopkins Plant											
		Unit No. 2	TALHOP2	76.2	4.27	533.0	22.60	29.32	CON	No	No	Yes

Table 4-6. Summary of NO_x Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Relative Location[a] Y (km)	Relative Location[a] Distance (km)	Relative Location[a] Direction (deg.)	NOx Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
0050001	**Arizona Chemical Company**	**3335.4**	**633.1**	**0.08**	**0.07**	**0.1** [f]	**49**	**460**	**2.1**	**Yes**
0050045	Citgo Petroleum Corporation	3335.2	630.5	-2.3	0.1	2.3 [f]	273	3	45.9	No
0050024	Tyndall Air Force Base	3326.8	635.6	2.8	-8.3	8.8	161	19	175.2	No
0050008	Gulf Asphalt Corporation	3343.7	634.9	2.1	8.6	8.9	14	13	177.1	No
0050014	**Gulf Power (L.S. Plant)**	**3349.1**	**625.2**	**-7.6**	**14.0**	**15.9**	**332**	**6,920**	**318.6**	**Yes**
0050031	**Bay County Energy Systems Inc.**	**3348.9**	**644.0**	**11.2**	**13.8**	**17.8**	**39**	**236**	**355.5**	**Yes[d]**
7770034	Drum Mix Asphalt Plant #6	3362.8	648.8	16.0	27.7	32.0	30	9	639.3	No
0450008	Eagle Recycling Inc.	3333.9	669.1	36.3	-1.2	36.4	92	3	727.2	No
0450001	Premier Refractories Inc.	3302.8	664.7	31.9	-32.3	45.4	135	26	907.9	No
0450002	Sylvachem Corporation	3299.6	661.9	29.1	-35.5	45.9	141	93	917.1	No
0450005	**Florida Coast Paper Company, L.L.C.**	**3299.0**	**662.8**	**30.0**	**-36.1**	**46.9**	**140**	**2,839**	**938.8**	**Yes**
0770007	North Florida Lumber	3358.9	689.5	56.7	23.8	61.5	67	29	1230.4	No
1330035	Trawick Pit	3397.5	633.9	1.1	62.4	62.4	1	25	1247.6	No
1330005	Florida Gas Transmission Station 13	3394.2	610.6	-22.2	59.1	63.1	339	93	1262.6	No
1310008	Freeport Batch Plant	3360.3	573.1	-59.7	25.2	64.8	293	28	1296.0	No
0630031	White Construction Company	3403.5	654.2	21.4	68.4	71.7	17	8	1433.4	No
1310013	Alabama Electric Cooperative	3383.5	575.1	-57.7	48.4	75.3	310	28	1506.2	No
1310019	Defuniak Drum Mix Asphalt Plant	3399.3	590.1	-42.7	64.2	77.1	326	35	1542.1	No
0770009	Timber Energy Resources	3358.1	709.4	76.6	23.0	80.0	73	140	1599.6	No
0630035	Anderson Columbia Company, Inc. Plant #2	3404.5	677.0	44.2	69.4	82.3	32	6	1645.6	No
7775017	Defuniak Drum Mix Asphalt Plant	3400.5	579.5	-53.3	65.4	84.4	321	25	1687.4	No
7770049	Jones Pit Facility	3417.2	657.8	25.0	82.1	85.8	17	29	1716.4	No
7770021	#12 Asphalt Plant	3400.7	577.2	-55.6	65.6	86.0	320	64	1719.8	No
0770010	**Georgia Pacific Corporation - Hosford**	**3369.5**	**713.5**	**80.7**	**34.4**	**87.7**	**67**	**336**	**1754.5**	**Yes[d]**
0630045	Springhill Regional Landfill	3423.1	650.5	17.7	88.0	89.7	11	6	1794.9	No
0630014	**Gulf Power (Scholz Plant)**	**3395.8**	**702.4**	**69.6**	**60.7**	**92.4**	**49**	**4,099**	**1847.0**	**Yes**
0630044	Apalachee Correctional Institution	3399.3	703.0	70.2	64.2	95.2	48	3	1903.5	No
0910031	Eglin Air Force Base	3369.6	542.6	-90.2	34.5	96.6	291	18	1931.5	No
0390029	Florida Gas Transmission Station 14	3377.4	719.9	87.1	42.3	96.8	64	46	1936.6	No
0390004	Florida State Hospital - Chattahoochee	3399.2	707.6	74.8	64.1	98.5	49	132	1970.2	No
7770142	Chadbourne Plant 106	3402.2	559.1	-73.7	67.1	99.7	312	6	1993.1	No
0390032	C.W. Roberts Contracting Inc.	3371.4	726.5	93.7	36.3	100.5	69	12	2009.7	No
0910064	Hurlburt Field	3364.7	529.7	-103.1	29.6	107.3	286	79	2145.4	No
0390005	Engelhard Corporation	3387.5	732.6	99.8	52.4	112.7	62	18	2254.4	No
0910033	Fleming Lumber Co.	3402.5	534.7	-98.1	67.4	119.0	304	9	2380.5	No

Table 4-6. Summary of NO_x Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Relative Location[a] Y (km)	Relative Location[a] Distance (km)	Relative Location[a] Direction (deg.)	NOx Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
0730003	City of Tallahassee - Hopkins	3371.7	749.5	116.7	36.6	122.3	73	5,384	2446.7	No
7770014	Peavy and Son Construction Company	3395.2	742.4	109.6	60.1	125.0	61	25	2499.9	No
0390009	Havana Mills	3394.3	747.1	114.3	59.2	128.7	63	34	2574.4	No
0730065	National Linen Service	3368.3	759.0	126.2	33.2	130.5	75	5	2609.9	No
0730009	Physical Plant	3368.9	760.5	127.7	33.8	132.1	75	98	2641.9	No
0730062	Department of Management Services	3370.2	760.9	128.1	35.1	132.8	75	3	2656.4	No
1290005	St. Marks Terminal	3338.4	769.3	136.5	3.3	136.5	89	18	2730.8	No
1290001	**City of Tallahassee S.O.Purdom Plant**	**3340.0**	**769.5**	**136.7**	**4.9**	**136.8**	**88**	**465**	**2735.7**	**Yes[c]**
0730034	Mitchell Brothers Inc.	3372.1	766.2	133.4	37.0	138.4	74	23	2768.7	No
7770147	Anderson Columbia Inc, #5	3388.9	502.0	-130.8	53.8	141.4	292	44	2828.9	No
1130031	The Quikrete Companies	3383.5	497.1	-135.7	48.4	144.1	290	2	2881.5	No
1130015	DBA Santa Rosa Asphalt & Materials Inc.	3384.0	493.8	-139.0	48.9	147.4	289	3	2947.0	No
7774806	Milton Plant	3385.1	493.7	-139.1	50.0	147.8	290	61	2956.8	No
1130037	Florida Gas Transmission Station 12	3419.6	510.8	-122.0	84.5	148.4	305	77	2968.1	No
1130032	McLellan Field	3427.8	515.2	-117.6	92.7	149.7	308	44	2994.9	No
1130003	Sterling Fibers, Inc.	3380.2	489.2	-143.6	45.1	150.5	287	615	3010.3	No
1130004	Air Products and Chemicals Inc.	3383.4	487.0	-145.8	48.3	153.6	288	2,944	3071.8	No
1130173	Cogeneration Plant (Pea Ridge Plant)	3381.6	485.6	-147.2	46.5	154.3	288	50	3086.6	No
0330060	Coastal Fuels Marketing Inc.	3363.4	479.6	-153.2	28.3	155.8	280	13	3115.8	No
0330067	Main Street WWTP	3363.7	478.9	-153.9	28.6	156.6	281	72	3131.4	No
0330139	Transmontaigne Terminaling Inc.	3363.4	478.4	-154.4	28.3	157.0	280	6	3139.9	No
0330043	Reichhold, Inc.	3364.8	478.6	-154.2	29.7	157.0	281	42	3140.7	No
0330041	Sacred Heart Hospital	3372.0	480.0	-152.8	36.9	157.2	284	35	3143.5	No
0330122	Hudsco, Inc.	3375.8	480.8	-152.0	40.7	157.4	285	50	3147.1	No
0330114	Pensacola Christian College Inc.	3371.0	477.8	-155.0	35.9	159.1	283	444	3182.7	No
0330006	Armstrong World Industries	3363.5	475.9	-156.9	28.4	159.4	280	5	3189.0	No
0330045	Gulf Power Co. (Crist Plant)	3381.4	478.3	-154.5	46.3	161.3	287	40,807	3226.1	No
0330082	Naval Air Station Pensacola	3358.3	472.3	-160.5	23.2	162.2	278	23	3243.4	No
0330097	Navy Public Works Center	3363.8	472.2	-160.6	28.7	163.1	280	55	3262.9	No
0330086	Naval Hospital	3362.3	471.2	-161.6	27.2	163.9	280	50	3277.5	No
0330040	Solutia Inc.	3385.0	476.0	-156.8	49.9	164.5	288	2,752	3290.7	No
0330089	Puritan - Bennet Corporation	3384.6	475.8	-157.0	49.5	164.6	287	3	3292.4	No
7775008	Group III Asphalt, Inc.	3375.9	469.9	-162.9	40.8	167.9	284	25	3358.2	No
0330248	Specialty Minerals, Inc.	3374.6	469.6	-163.2	39.5	168.0	284	100	3359.0	No
1130043	Group III Asphalt, Inc.	3375.9	469.6	-163.2	40.8	168.2	284	4	3364.2	No

Table 4-6. Summary of NO_x Facilities Considered for Inclusion in the AAQS and PSD Class I and Class II Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Y (km)	Distance (km)	Direction (deg.)	NOx Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
0330096	Navy Public Works Center	3370.0	467.0	-165.8	34.9	169.4	282	84	3388.7	No
0330042	Pensacola Mill	3385.8	469.0	-163.8	50.7	171.5	287	5,875	3429.3	No
1130026	Golden Gin & Warehouse	3426.1	484.8	-148.0	91.0	173.7	302	2	3474.8	No
1130005	St Regis Treating Facility and Jay Gas Plant	3425.6	482.8	-150.0	90.5	175.2	301	75	3503.7	No
7770068	Sunbelt Resources, Inc.	3374.1	452.0	-180.8	39.0	185.0	282	14	3699.0	No

[a] The SSCC Mill is located at UTM Coordinates: North 3335.1 km, East 632.8 km

[b] Sources with emissions less than 1 TPY not considered in screening analysis.

[c] Source included in AAQS if (20 * Distance) < Emission Rate up to 100 km away from SSCC Mill.

[d] Source included in the air modeling analysis because it is a PSD source.

[e] Source included for PSD Class I analysis only, because of its proximity to PSD Class I areas.

[f] Distance from SSCC Mill to Arizona Chemical Company obained from Arizona Chemical Co. plot plan.

Table 4-7. Summary of Background NO_X Sources Included in the Air Modeling Analysis *(Revised 01/30/02)*

Facility ID Number	Facility	Units	ISC-PRIME ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s)	PSD Source? (EXP/CON)	Modeled in AAQS	Class II	Class I
0050001	Arizona Chemical Company											
		Boiler #1	ARIZCHM1	30.5	1.22	510.9	22.75	6.62		Yes	No	No
		Boiler #2	ARIZCHM2	30.5	1.22	466.5	17.64	6.62		Yes	No	No
0050014	Gulf Power (L.S. Plant)											
		Lansing Smith Units 1 and 2	GULFPW12	60.7	5.49	441.0	31.30	258.00		Yes	No	No
		Peaking Turbines	GULFPWPK	10.1	4.18	922.0	36.90	47.67		Yes	No	No
0050031	Bay County Energy Systems											
		Boilers No. 1 and 2	BAYENRGY	38.1	1.37	477.6	17.50	6.78	CON	Yes	Yes	Yes
0450005	Florida Coast Paper Company, L.L.C.											
		Kiln #1		33.8	1.22	352.6	20.78	7.76				
		Kiln #2		33.8	1.22	352.6	19.85	7.76				
		Kiln #3		33.5	1.22	352.6	18.31	7.76				
			FCPLKSDT	30.5	2.38	367.6	2.25	23.28		Yes	No	No
		Recovery Boiler #5		38.1	2.56	460.9	14.81	34.03				
		Recovery Boiler #6		38.1	2.56	394.3	2.94	16.80				
		Recovery Boiler #7		61.0	5.33	429.8	9.10	4.40				
			PCPRB567	38.1	2.56	394.3	9.10	55.23		Yes	No	No
		Power Boiler #9	FCPPB9	51.8	4.27	343.1	10.33	33.34		Yes	No	No
0770010	Georgia Pacific Corporation (Hosford)											
		Dryers 1 & 2	GPHOS1	39.6	2.59	399.3	15.31	9.07	CON	No	Yes	Yes
		Panel Press	GPHOS2	30.5	2.18	340.9	18.46	1.35	CON	No	Yes	Yes
		Thermal Oil System	GPHOS10	42.0	1.68	644.3	6.35	0.76	CON	No	Yes	Yes
0630014	Gulf Power Co. (Scholz Plant)		#									
		Units 1 & 2 (ESP)	SCH12	45.7	4.11	438.7	12.19	117.91		Yes	No	No
1290001	City of Tallahassee S.O.Purdom Plant											
		Unit No. 5	TALPUR5	38.1	3.96	447.0	7.23	-0.52	EXP	No	No	Yes
		Unit No. 6	TALPUR6	38.1	3.96	447.0	7.23	-1.25	EXP	No	No	Yes
		Unit No. 7	TALPUR7	54.9	2.74	422.0	14.44	11.98	CON	No	No	Yes
		Auxiliary Boiler	TALPURAUX	9.2	0.61	450.0	6.47	0.0675	CON	No	No	Yes

Table 4-8. Summary of CO Facilities Considered for Inclusion in the AAQS Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Relative Location[a] Y (km)	Relative Location[a] Distance (km)	Relative Location[a] Direction (deg.)	CO Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
0050001	**Arizona Chemical Company**	**3335.4**	**633.1**	**0.08**	**0.07**	**0.1** [d]	**49**	**52**	**2.1**	**Yes**
0050045	Citgo Petroleum Corporation	3335.2	630.5	-2.3	0.1	2.3 [d]	273	9	45.9	No
0050024	Tyndall Air Force Base	3326.8	635.6	2.8	-8.3	8.8	161	4	175.2	No
0050008	Gulf Asphalt Corporation	3343.7	634.9	2.1	8.6	8.9	14	3	177.1	No
0050014	Gulf Power (L.S. Plant)	3349.1	625.2	-7.6	14.0	15.9	332	114	318.6	No
0050031	**Bay County Energy Systems Inc.**	**3348.9**	**644.0**	**11.2**	**13.8**	**17.8**	**39**	**813**	**355.5**	**Yes**
7770034	Drum Mix Asphalt Plant #6	3362.8	648.8	16.0	27.7	32.0	30	9	639.3	No
0450002	Sylvachem Corporation	3299.6	661.9	29.1	-35.5	45.9	141	25	917.1	No
0450005	**Florida Coast Paper Company, L.L.C.**	**3299.0**	**662.8**	**30.0**	**-36.1**	**46.9**	**140**	**2,563**	**938.8**	**Yes**
0770007	North Florida Lumber	3358.9	689.5	56.7	23.8	61.5	67	265	1230.4	No
1330035	Trawick Pit	3397.5	633.9	1.1	62.4	62.4	1	5	1247.6	No
1330005	Florida Gas Transmission Station 13	3394.2	610.6	-22.2	59.1	63.1	339	97	1262.6	No
1310008	Freeport Batch Plant	3360.3	573.1	-59.7	25.2	64.8	293	11	1296.0	No
0630031	White Construction Company	3403.5	654.2	21.4	68.4	71.7	17	8	1433.4	No
1310013	Alabama Electric Cooperative	3383.5	575.1	-57.7	48.4	75.3	310	2	1506.2	No
0770009	Timber Energy Resources	3358.1	709.4	76.6	23.0	80.0	73	1,218	1599.6	No
0630035	Anderson Columbia Company, Inc. Plant #2	3404.5	677.0	44.2	69.4	82.3	32	6	1645.6	No
7775017	Defuniak Drum Mix Asphalt Plant	3400.5	579.5	-53.3	65.4	84.4	321	21	1687.4	No
7770049	Jones Pit Facility	3417.2	657.8	25.0	82.1	85.8	17	6	1716.4	No
7770021	#12 Asphalt Plant	3400.7	577.2	-55.6	65.6	86.0	320	31	1719.8	No
0770010	Georgia Pacific Corporation - Hosford	3369.5	713.5	80.7	34.4	87.7	67	203	1754.5	No
0630045	Springhill Regional Landfill	3423.1	650.5	17.7	88.0	89.7	11	67	1794.9	No
0630014	Gulf Power (Scholz Plant)	3395.8	702.4	69.6	60.7	92.4	49	26	1847.0	No
0910031	Eglin Air Force Base	3369.6	542.6	-90.2	34.5	96.6	291	5	1931.5	No
0390029	Florida Gas Transmission Station 14	3377.4	719.9	87.1	42.3	96.8	64	49	1936.6	No
0390004	Florida State Hospital - Chattahoochee	3399.2	707.6	74.8	64.1	98.5	49	71	1970.2	No
7770142	Chadbourne Plant 106	3402.2	559.1	-73.7	67.1	99.7	312	7	1993.1	No
0390032	C.W. Roberts Contracting Inc.	3371.4	726.5	93.7	36.3	100.5	69	12	2009.7	No
0910033	Fleming Lumber Co.	3402.5	534.7	-98.1	67.4	119.0	304	85	2380.5	No
0730003	City of Tallahassee - Hopkins	3371.7	749.5	116.7	36.6	122.3	73	170	2446.7	No
7770014	Peavy and Son Construction Company	3395.2	742.4	109.6	60.1	125.0	61	27	2499.9	No
0390009	Havana Mills	3394.3	747.1	114.3	59.2	128.7	63	90	2574.4	No
0730065	National Linen Service	3368.3	759.0	126.2	33.2	130.5	75	1	2609.9	No
0730009	Physical Plant	3368.9	760.5	127.7	33.8	132.1	75	67	2641.9	No
0730062	Department of Management Services	3370.2	760.9	128.1	35.1	132.8	75	4	2656.4	No
1290005	St. Marks Terminal	3338.4	769.3	136.5	3.3	136.5	89	2	2730.8	No
1290001	City of Tallahassee S.O.Purdom Plant	3340.0	769.5	136.7	4.9	136.8	88	509	2735.7	No
0730034	Mitchell Brothers Inc.	3372.1	766.2	133.4	37.0	138.4	74	15	2768.7	No

Table 4-8. Summary of CO Facilities Considered for Inclusion in the AAQS Modeling Analyses *(Revised 01/30/02)*

Plant ID	Facility Name	UTM Coordinates North (km)	UTM Coordinates East (km)	Relative Location[a] X (km)	Relative Location[a] Y (km)	Relative Location[a] Distance (km)	Relative Location[a] Direction (deg.)	CO Emissions Rate[b] (TPY)	Q Emissions Threshold Distance x 20	Included in Modeling Analysis?[c]
7770147	Anderson Columbia Inc, #5	3388.9	502.0	-130.8	53.8	141.4	292	4	2828.9	No
1130031	The Quikrete Companies	3383.5	497.1	-135.7	48.4	144.1	290	20	2881.5	No
1130015	DBA Santa Rosa Asphalt & Materials Inc.	3384.0	493.8	-139.0	48.9	147.4	289	3	2947.0	No
7774806	Milton Plant	3385.1	493.7	-139.1	50.0	147.8	290	28	2956.8	No
1130037	Florida Gas Transmission Station 12	3419.6	510.8	-122.0	84.5	148.4	305	97	2968.1	No
1130032	McLellan Field	3427.8	515.2	-117.6	92.7	149.7	308	22	2994.9	No
1130004	Air Products and Chemicals Inc.	3383.4	487.0	-145.8	48.3	153.6	288	556	3071.8	No
1130173	Cogeneration Plant (Pea Ridge Plant)	3381.6	485.6	-147.2	46.5	154.3	288	18	3086.6	No
0330060	Coastal Fuels Marketing Inc.	3363.4	479.6	-153.2	28.3	155.8	280	3	3115.8	No
0330139	Transmontaigne Terminaling Inc.	3363.4	478.4	-154.4	28.3	157.0	280	15	3139.9	No
0330041	Sacred Heart Hospital	3372.0	480.0	-152.8	36.9	157.2	284	9	3143.5	No
0330114	Pensacola Christian College Inc.	3371.0	477.8	-155.0	35.9	159.1	283	443	3182.7	No
0330045	Gulf Power Co. (Crist Plant)	3381.4	478.3	-154.5	46.3	161.3	287	1,374	3226.1	No
0330091	Southeastern Crematory	3364.2	473.5	-159.3	29.1	161.9	280	1	3238.7	No
0330082	Naval Air Station Pensacola	3358.3	472.3	-160.5	23.2	162.2	278	5	3243.4	No
0330097	Navy Public Works Center	3363.8	472.2	-160.6	28.7	163.1	280	14	3262.9	No
0330086	Naval Hospital	3362.3	471.2	-161.6	27.2	163.9	280	12	3277.5	No
0330040	Solutia Inc.	3385.0	476.0	-156.8	49.9	164.5	288	7,136	3290.7	No
0330089	Puritan - Bennet Corporation	3384.6	475.8	-157.0	49.5	164.6	287	49	3292.4	No
7775008	Group III Asphalt, Inc.	3375.9	469.9	-162.9	40.8	167.9	284	12	3358.2	No
0330248	Specialty Minerals, Inc.	3374.6	469.6	-163.2	39.5	168.0	284	14	3359.0	No
1130043	Group III Asphalt, Inc.	3375.9	469.6	-163.2	40.8	168.2	284	4	3364.2	No
0330096	Navy Public Works Center	3370.0	467.0	-165.8	34.9	169.4	282	15	3388.7	No
0330042	Pensacola Mill	3385.8	469.0	-163.8	50.7	171.5	287	1,089	3429.3	No
7770068	Sunbelt Resources Inc.	3374.1	452.0	-180.8	39.0	185.0	282	11	3699.0	No

[a] The SSCC Mill is located at UTM Coordinates: North 3335.1 km, East 632.8 km

[b] Sources with emissions less than 1 TPY not considered in screening analysis.

[c] Source included in AAQS if (20 * Distance) < Emission Rate up to 100 km away from SSCC Mill.

[d] Distance from SSCC Mill to Arizona Chemical Company obained from Arizona Chemical Co. plot plan.

Table 4-9. Summary of Background CO Sources Included in the Air Modeling Analysis *(Revised 01/30/02)*

Facility ID Number	Facility	Units	ISC-PRIME ID Name	Stack Parameters Height (m)	Diameter (m)	Temper. (K)	Velocity (m/s)	Emission Rate (g/s)
0050001	Arizona Chemical Company							
		Boiler #1	ARIZCHM1	30.5	1.22	510.9	22.75	0.75
		Boiler #2	ARIZCHM2	30.5	1.22	466.5	17.64	0.75
0050031	Bay County Energy Systems							
		Boilers No. 1 and 2	BAYENRGY	38.1	1.37	477.6	17.50	23.38
0450005	Florida Coast Paper							
		Kiln #1		33.8	1.22	352.6	20.78	0.55
		Kiln #2		33.8	1.22	352.6	19.85	0.55
		Kiln #3		33.5	1.22	352.6	18.31	0.55
			FCPLKSDT	30.5	2.38	367.6	2.25	1.65
		Recovery Boiler #5		38.1	2.56	460.9	14.81	2.13
		Recovery Boiler #6		38.1	2.56	394.3	2.94	34.03
			PCPRB567	38.1	2.56	394.3	9.10	36.16
		Power Boiler #9	FCPPB9	51.8	4.27	343.1	10.33	35.91

Table 4-10. SCC Mill Building Structures Considered in the Air Modeling Analysis *(Revised 01/30/02)*

Structure	Height		Length		Width	
	ft	m	ft	m	ft	m
Recovery Boiler Building's ESPs 1+2[a]	214	65.2	124	37.8	45	13.7
Recovery Boilers 1+2[b]	173	52.7	100	30.5	34	10.4
Bleach Plant	71	21.6	123	37.5	78	23.8
Engineering & Maintenance	35	10.7	315	96.0	56	16.9
Offices/Storeroom	35	10.7	362	110.2	89	27.0
Cooling Towers	30	9.1	200	60.8	90	27.4
Pulp Mill	83	25.3	296	90.1	194	59.0
Paper Mill	40	12.2	1284	391.4	353	107.4
Bark Boilers Building	83	25.3	98	29.7	140	42.7
Power Boiler 6 Building[c]	150	45.7	35	10.5	53	16.0

[a] Sources were modeled as a single solid structure having the height and width of the ESPs and the length of the recovery boilers.

[b] Sources were modeled as a single solid structure.

[c] Existed during baseline (1974 and 1988) only.

Table 4-11. Property Boundary Receptors Used in the Air Modeling Analysis *(Revised 01/30/02)*

Receptor	Distance X (m)	Distance Y (m)	Receptor	Distance X (m)	Distance Y (m)
1	-224.3	382.8	35	-454.2	-603.4
2	-124.3	382.8	36	-487.7	-622.4
3	-76.8	330.4	37	-487.7	-522.4
4	-33.0	274.1	38	-559.6	-534.5
5	48.4	254.6	39	-643.6	-588.9
6	53.1	154.7	40	-727.5	-643.2
7	15.4	71.3	41	-814.1	-688.4
8	60.6	4.4	42	-897.5	-743.7
9	121.5	26.7	43	-990.0	-775.9
10	159.5	39.9	44	-1084.8	-754.8
11	171.5	-34.4	45	-1164.0	-695.1
12	207.0	-6.8	46	-1238.6	-629.5
13	266.1	43.6	47	-1309.1	-558.6
14	315.3	116.5	48	-1379.6	-487.7
15	414.0	120.7	49	-1328.7	-450.5
16	476.2	82.2	50	-1234.1	-420.9
17	478.0	-17.8	51	-1151.2	-365.3
18	479.9	-117.8	52	-1061.6	-320.8
19	481.7	-217.8	53	-972.0	-276.4
20	483.6	-317.7	54	-887.2	-248.9
21	485.4	-417.7	55	-820.8	-320.5
22	487.3	-517.7	56	-721.8	-328.0
23	489.1	-617.7	57	-634.7	-283.0
24	478.9	-697.4	58	-538.8	-259.6
25	390.4	-653.5	59	-460.6	-236.6
26	291.3	-664.7	60	-438.9	-149.3
27	192.8	-681.6	61	-423.7	-148.8
28	93.6	-691.2	62	-335.9	-158.5
29	-6.4	-689.4	63	-277.2	-89.6
30	-103.8	-670.3	64	-234.2	-0.4
31	-200.1	-643.4	65	-239.6	93.0
32	-288.4	-599.6	66	-179.0	172.5
33	-363.6	-537.7	67	-188.0	263.9
34	-454.2	-503.4	68	-223.1	356.5

Note: Distances are relative to the air modeling origin location, which is the easternmost corner of the Combination Boilers Building.

Table 4-12. Summary of Receptors Used for the PSD Class I Modeling Anlyses

Receptor	UTM Coordinate (m)		Receptor	UTM Coordinate (m)		Receptor	UTM Coordinate (m)	
Number	Easting	Northing	Number	Easting	Northing	Number	Easting	Northing
St. Marks NWR			50	771000	3332000	100	784000	3336183
1	769660	3334380	51	773000	3330500	101	783000	3336171
2	770000	3333480	52	774000	3330500	102	791646	3336585
3	770420	3332920	53	771000	3336000	103	791439	3338244
4	771060	3332350	54	773000	3336000	104	789431	3338305
5	771850	3332110	55	774000	3336000	105	791300	3332259.3
6	772100	3332710	56	775000	3335000	106	791300	3331468.6
7	772380	3332160	57	775000	3334000	107	790443	3338299.2
8	772230	3331440	58	775000	3333000	108	791257.6	3335786.3
9	771570	3331050	59	776000	3333000			
10	771450	3330530	60	776000	3331000	**St. Marks NWR (Thoms Isl.)**		
11	771700	3330220	61	778000	3333500	109	744700	3322400
12	772420	3329810	62	779000	3334000	110	745400	3321399.9
13	773350	3329870	63	789000	3333000	111	746500	3321399.9
14	774000	3330230	64	794368	3328454.5	112	747100	3320500
15	774270	3331020	65	778372	3332268.5	113	746400	3319899.9
16	774100	3330040	66	778882.5	3332190.7	114	746200	3318800
17	774740	3330480	67	779661.2	3332675.2	115	745600	3318000
18	775370	3330910	68	780388.1	3332580.1	116	745200	3319200
19	776140	3331240	69	780742.8	3332363.7	117	745200	3320399.9
20	776220	3331880	70	781219.2	3332424.5	118	744100	3321500
21	776490	3332400	71	781868.1	3332952.4	119	744700	3321000
22	776440	3333010	72	782335.4	3332987	120	744700	3321700
23	777370	3332250	73	782984.3	3333471.6	121	745400	3321000
24	770000	3338000	74	783192	3333359.1	122	745400	3322000
25	770000	3336000	75	783936.1	3333488.9	123	746000	3319500
26	772000	3336000	76	784585	3333627.3	124	746000	3320500
27	772000	3333000	77	785173.4	3333203.3	125	746000	3321200
28	772000	3331000	78	785597	3333748.3			
29	775000	3333000	79	786159.4	3333644.4	**Bradwell Bay NWR**		
30	775000	3331000	80	787000	3333750	1	728000	3343000
31	777000	3333000	81	788000	3333218.75	2	728000	3341000
32	770200	3339000	82	782000	3335390.24	3	731000	3343000
33	770200	3338000	83	781000	3335268.29	4	731000	3341000
34	770200	3337200	84	780000	3333939	5	731000	3338000
35	774400	3336100	85	789500	3331512	6	733000	3343000
36	770400	3333000	86	791098	3330375	7	733000	3341000
37	768900	3337600	87	790098	3330847	8	733000	3338000
38	769100	3336800	88	794098	3329274	9	733000	3336000
39	768800	3338400	89	793098	3329183	10	733000	3333000
40	769300	3338800	90	792098	3329606	11	736000	3346000
41	769800	3339100	91	791244	3330549	12	736000	3343000
42	768755	3338411	92	791305	3333366	13	736000	3341000
43	769098	3338713	93	790915	3335000	14	736000	3338000
44	769399	3338902	94	791342	3337159	15	736000	3336000
45	769717	3339105	95	789000	3337914	16	738000	3343000
46	770257	3339219	96	788000	3337182	17	738000	3341000
47	769200	3336000	97	787000	3336476	18	741000	3341000
48	769700	3335000	98	786000	3336415			
49	770000	3334000	99	785000	3336244			

Table 5-1. Maximum Predicted Pollutant Impacts Due to All Future Sources, *(Revised 01/30/02)* AAQS Screening Analyses

Averaging Time	Concentration[a] (ug/m³)	Receptor Location[b] Direction (degree)	Distance (m)	Time Period (YYMMDDHH)
SO_2				
Annual				
	19.9	320	1100	86123124
	20.9	300	1100	87123124
	24.9	300	1100	88123124
	22.7	310	1100	89123124
	32.6	300	1100	90123124
HSH 24-Hour				
	169	130	1100	86012624
	183	290	800	87120724
	142	300	1100	88040124
	154	140	800	89022324
	200	300	1100	90052524
HSH 3-Hour				
	727	300	800	86060412
	843	300	800	87011724
	602	330	1100	88080612
	792	310	1100	89072615
	733	300	1100	90031215
NO_2				
Annual				
	6.3	170	1100	86123124
	6.1	300	1100	87123124
	8.3	300	1100	88123124
	7.6	310	1100	89123124
	11.0	310	1100	90123124
PM_{10}				
Annual				
	10.2	172.3	697.5	86123124
H6H 24-Hour				
	65.0	15.4	71.3	87052824
CO				
HSH 8-Hour				
	2,077	85.8	60.8	86011508
	2,066	85.8	60.8	87021224
	2,115	85.8	60.8	88040716
	1,521	85.8	60.8	89031224
	1,912	85.8	60.8	90040424
HSH 1-Hour				
	5,591	85.8	60.8	86041721
	6,292	85.8	60.8	87011824
	6,489	85.8	60.8	88041117
	4,551	85.8	60.8	89042722
	5,764	85.8	60.8	90111004

[a] Based on 5-year meteorological record, Pensacola/Apalachicola, 1986-87, and Apalachicola /Apalachicola, 1988-90

[b] Relative to Modeling Analysis Origin Location

Notes

YYMMDDHH = Year, Month, Day, Hour Ending

HSH = Highest, 2nd-Highest Concentration in 5 years.

H6H = Highest, 6th-Highest Concentration in 5 years.

Table 5-2. Maximum Predicted Pollutant Impacts Due to All Future Sources for Comparison to AAQS, Refined Analysis

Averaging Time	Concentration (ug/m^3) Total	Modeled	Background	Receptor Location[b] Direction (degree)	Distance (m)	Time Period (YYMMDDHH)	Florida AAQS (ug/m^3)
SO_2							
Annual	46.4	34.4	12	304	1200	90123124	60
HSH 24-Hour	246	219	27	302	1100	90052524	260
HSH 3-Hour	962	856	106	300	900	87011724	1,300
NO_2							
Annual	31	12	19	304	1100	90123124	100
PM_{10}							
Annual	35.2	10.2	25	172.3	697.5	86123124	50
H6H 24-Hour	116	65.0	51	15.4	71.3	87052824	150
CO							
HSH 8-Hour	6,448	2,115	4,333	85.8	60.8	88040716	10,000
HSH 1-Hour	13,044	6,489	6,555	85.8	60.8	88041117	40,000

[a] Based on 5-year meteorological record, Pensacola/Apalachicola, 1986-87, and Apalachicola /Apalachicola, 1988-90

[b] Relative to Modeling Analysis Origin Location

Notes

YYMMDDHH = Year, Month, Day, Hour Ending

HSH = Highest, 2nd-Highest Concentration in 5 years.

H6H = Highest, 6th-Highest Concentration in 5 years.

Table 5-3. Maximum Predicted Pollutant PSD Class II Increment, Screening Analysis *(Revised 01/30/02)*

Averaging Time	Concentration[a] (ug/m³)	Receptor Location[b]		Time Period (YYMMDDHH)
		Direction (degree)	Distance (m)	
SO_2				
Annual				
	3.94	300	800	86123124
	4.37	300	800	87123124
	6.50	300	1100	88123124
	5.28	300	1100	89123124
	8.99	300	1100	90123124
HSH 24-Hour				
	28.8	300	800	86051024
	48.7	300	800	87092724
	46.1	300	1100	88040224
	46.0	300	1100	89051924
	75.5	300	800	90060124
HSH 3-Hour				
	385.3	300	800	86041912
	412.0	300	800	87060912
	359.5	310	800	88062012
	459.8	310	800	89072615
	407.4	300	800	90091312
PM_{10}				
Annual				
	2.80	30	100	86123124
	2.42	172.3	697.5	87123124
	2.76	252.1	291.3	88123124
	2.66	310	500	89123124
	3.07	252.1	291.3	90123124
HSH 24-Hour				
	27.4	18.9	163.6	86100124
	24.3	12.2	72.9	87062024
	17.1	172.3	697.5	88022024
	18.8	18.9	163.6	89050924
	15.8	300	800	90060124
NO_2				
Annual				
	1.4	310	1100	86123124
	1.4	300	1100	87123124
	2.0	300	1100	88123124
	1.8	310	1100	89123124
	2.6	300	1100	90123124

[a] Based on 5-year meteorological record, Pensacola/Apalachicola, 1986-87, and Apalachicola /Apalachicola, 1988-90

[b] Relative to Modeling Analysis Origin Location

Notes

NA = Not Applicable

YYMMDDHH = Year, Month, Day, Hour Ending

HSH = Highest, 2nd-Highest Concentration in 5 years.

Table 5-4. Maximum Predicted Pollutant PSD Increment Consumption For Comparision With PSD Class II Allowable Increments, Refined Analysis *(Revised 01/30/02)*

Averaging Time	Concentration (ug/m³)	Receptor Location[b] Direction (degree)	Receptor Location[b] Distance (m)	Time Period (YYMMDDHH)	Allowable PSD Class II Increment (ug/m³)
SO_2					
Annual	9.7	302	1000	90123124	20
HSH 24-Hour	82.8	302	900	90060124	91
HSH 3-Hour	460	310	800	89072615	512
PM_{10}					
Annual	3.1	252.1	291.3	90123124	17
HSH 24-Hour	27.4	18.9	163.6	86100124	30
NO_2					
Annual	2.8	304	1200	90123124	25

[a] Based on 5-year meteorological record, Pensacola/Apalachicola, 1986-87, and Apalachicola/Apalachicola, 1988-90
[b] Relative to Modeling Analysis Origin Location

Notes:
YYMMDDHH = Year, Month, Day, Hour Ending
HSH = Highest, 2nd-Highest Concentration in 5 years.
PSD = Prevention of Significant Deterioration

Table 5-5. Maximum Predicted SO_2, PM_{10}, and NO_2 PSD Increment at the Bradwell Bay and St. Marks NWRs

Averaging Time	Concentration[a] (ug/m^3)	Receptor Location (UTM) (m)	(m)	Time Period (DDDHH)	Allowable PSD Class I Increment (ug/m^3)
SO_2					
Annual					
	<0	NA	NA	NA	2
HSH 24-Hour					
	4.09	736000	3346000	209/23	5
HSH 3-Hour					
	27.4	736000	3346000	324/11	25
PM_{10}					
Annual					
	<0	NA	NA	NA	1
HSH 24-Hour					
	0.55	741000	3341000	284/23	5
NO_2					
Annual					
	0.24	769400	3338900	NA	2.5

[a] Based on CALPUFF model and NW Florida Calmet Wind Field, 1990; UTM Coordinates in Zone 16.

Note:

NA = Not Applicable

PSD = Prevention of Significant Deterioration

DDDHH = Julian Day, Hour Ending

UTM = Universal Transverse Mercator

HSH = Highest, 2nd-Highest

Table 5-6. Maximum SO_2 Contribution from SCC During Predicted 3-Hour PSD Class I Exceedances

Concentration[a] (ug/m^3)		Receptor Location (UTM)		Time Period	PSD Class I Significant
All Future Sources	SCC Only	(m)	(m)	(DDDHH)	Impact (ug/m^3)
49.0	0.0	736000	3346000	311/11	1.0
27.4	0.0	736000	3346000	324/11	
25.9	0.31	736000	3346000	135/8	
31.5	0.0	736000	3343000	311/11	
25.4	0.31	736000	3343000	135/8	

[a] Based on CALPUFF model and NW Florida Calmet Wind Field, 1990; UTM Coordinates in Zone 16.

Note:

NA = Not Applicable

PSD = Prevention of Significant Deterioration

DDDHH = Julian Day, Hour Ending

UTM = Universal Transverse Mercator

ATTACHMENT F

PHOTOGRAPHS AND FIGURES PERTAINING TO THE AIR DISPERSION MODELING ANALYSES

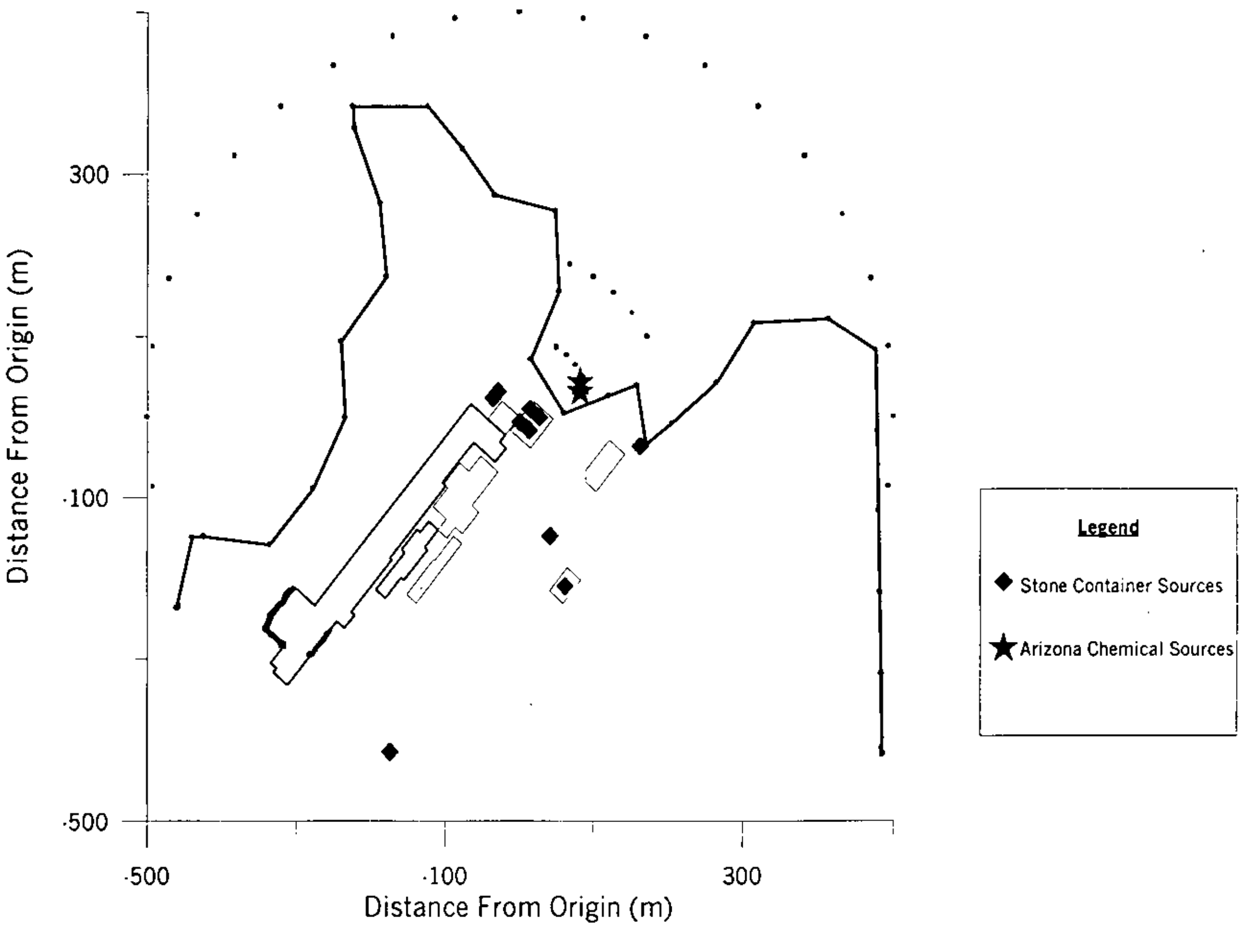


Figure 1a. SCC Panama City Mill Property Boundaries and Receptors
Arizona Chemical Co. and SCC Sources

Golder Associates

Source: Golder, 2001.

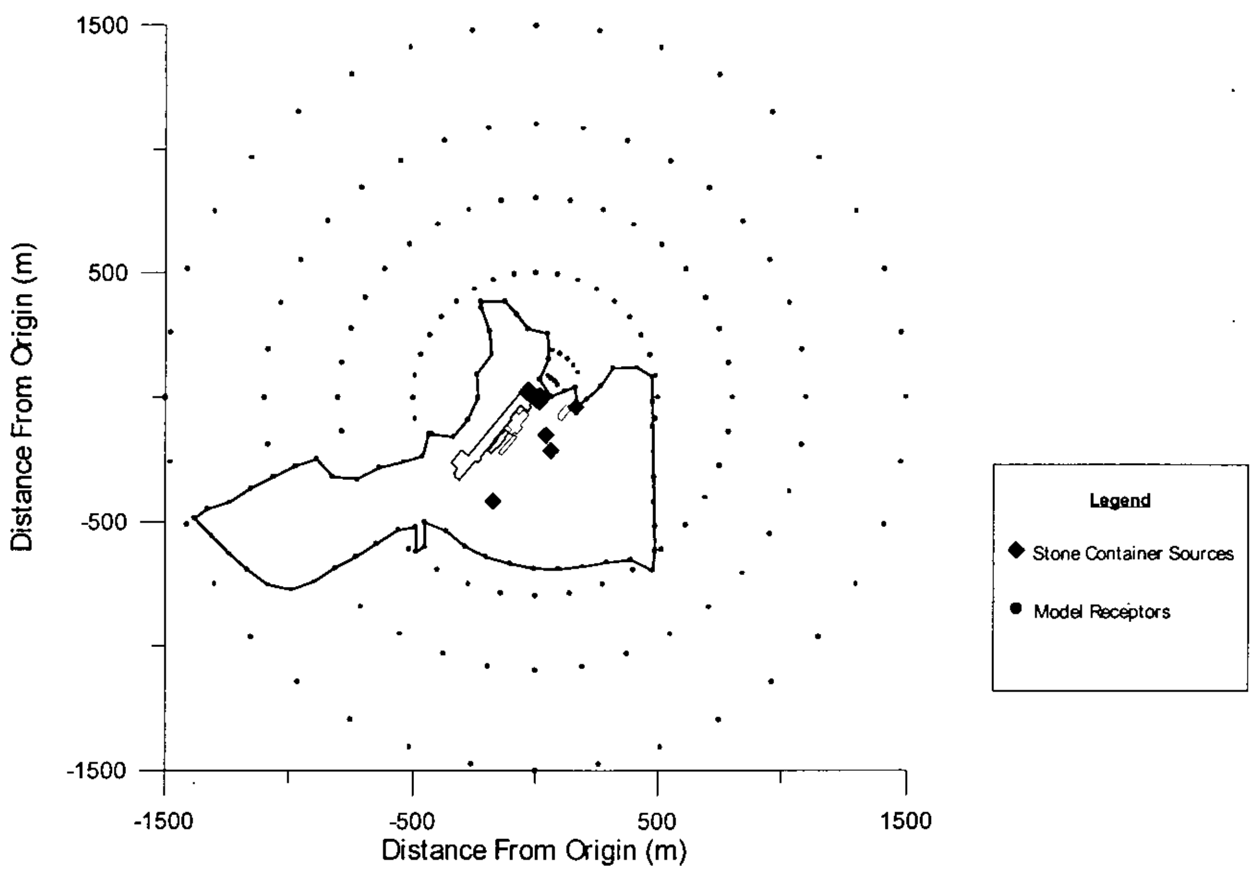


Figure 1b. SCC Panama City Mill Property Boundaries, Receptors, and Sources

Source: Golder, 2001.

Golder Associates

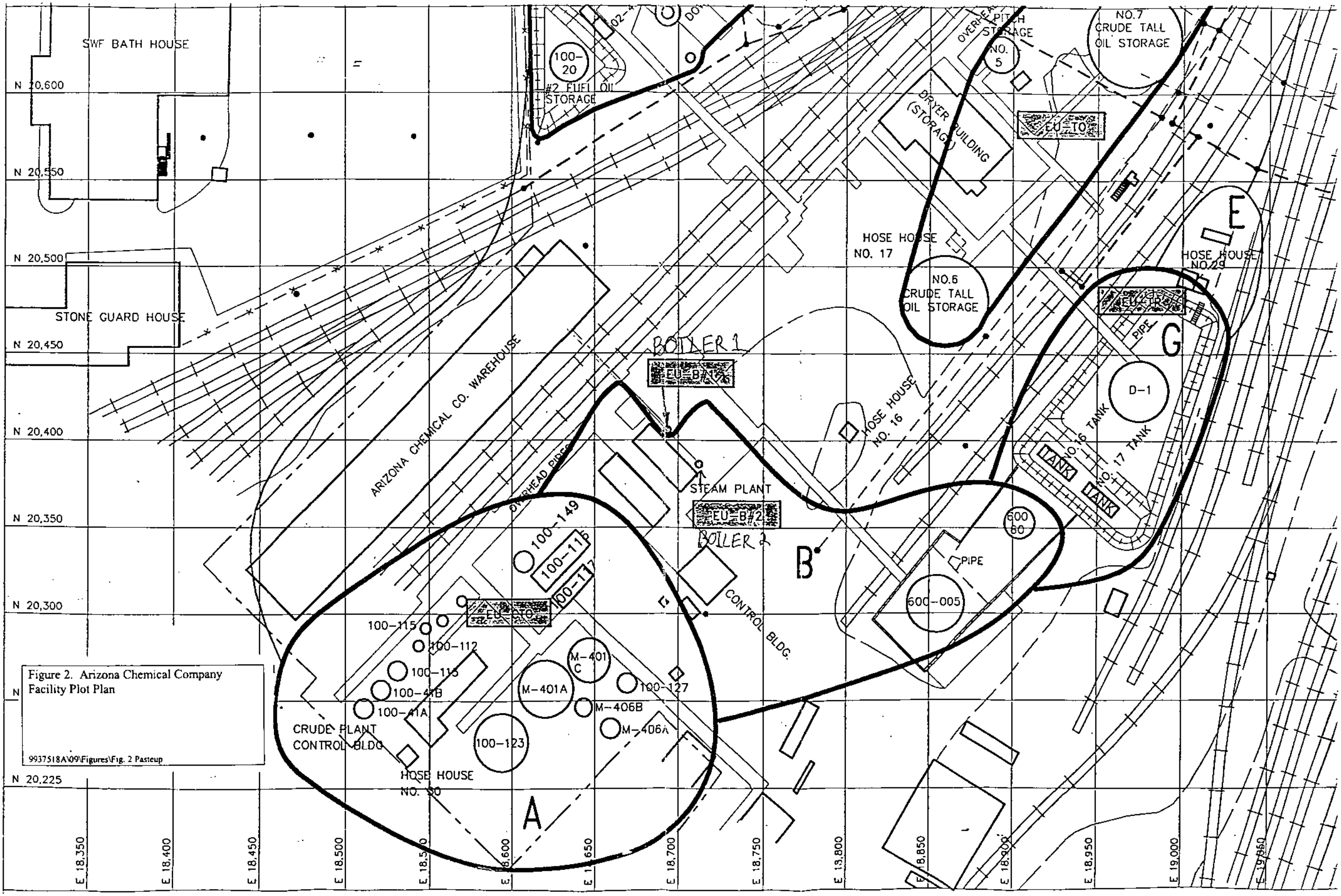


Figure 2. Arizona Chemical Company Facility Plot Plan

9937518A\09\Figures\Fig. 2 Pasteup

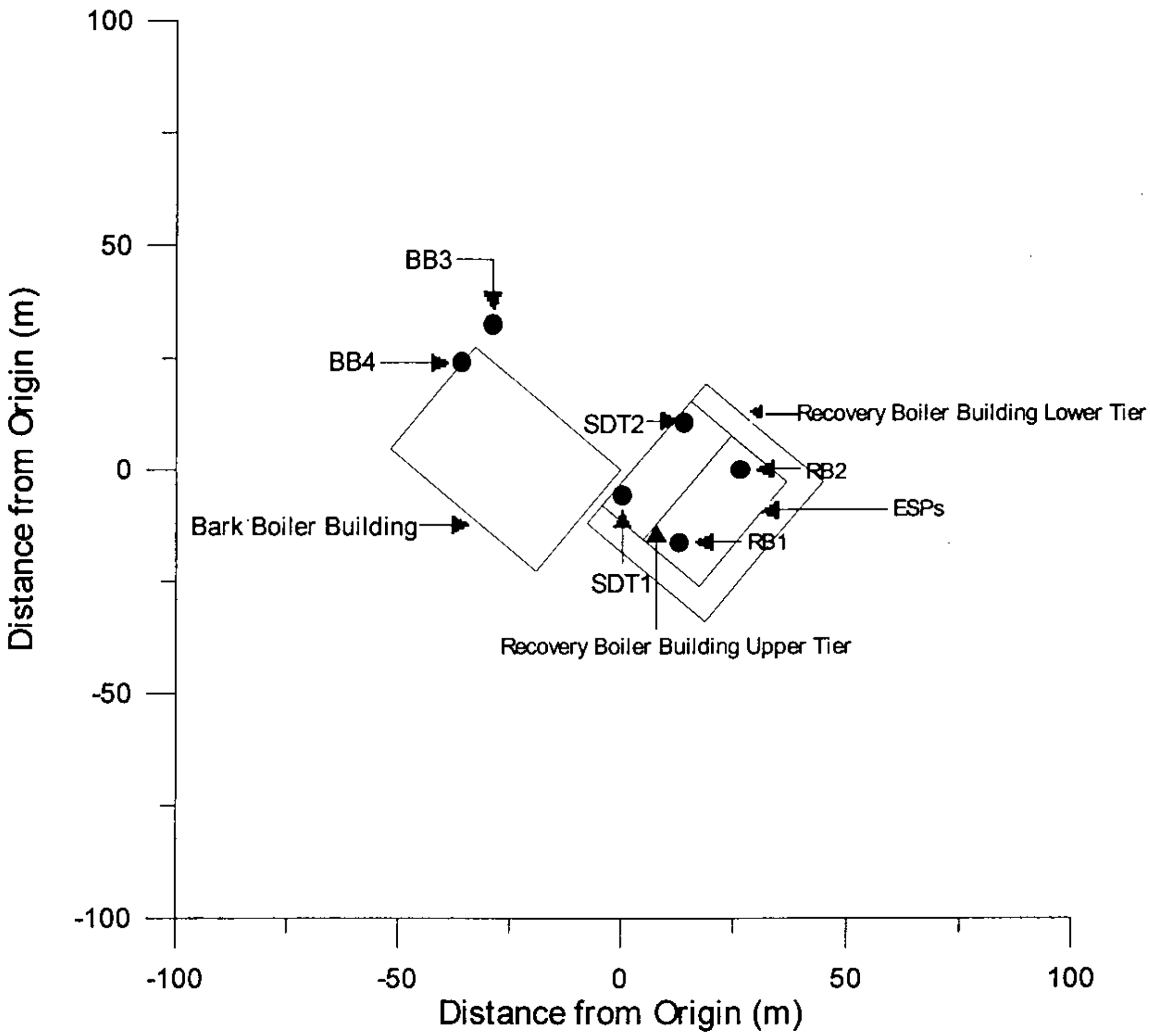


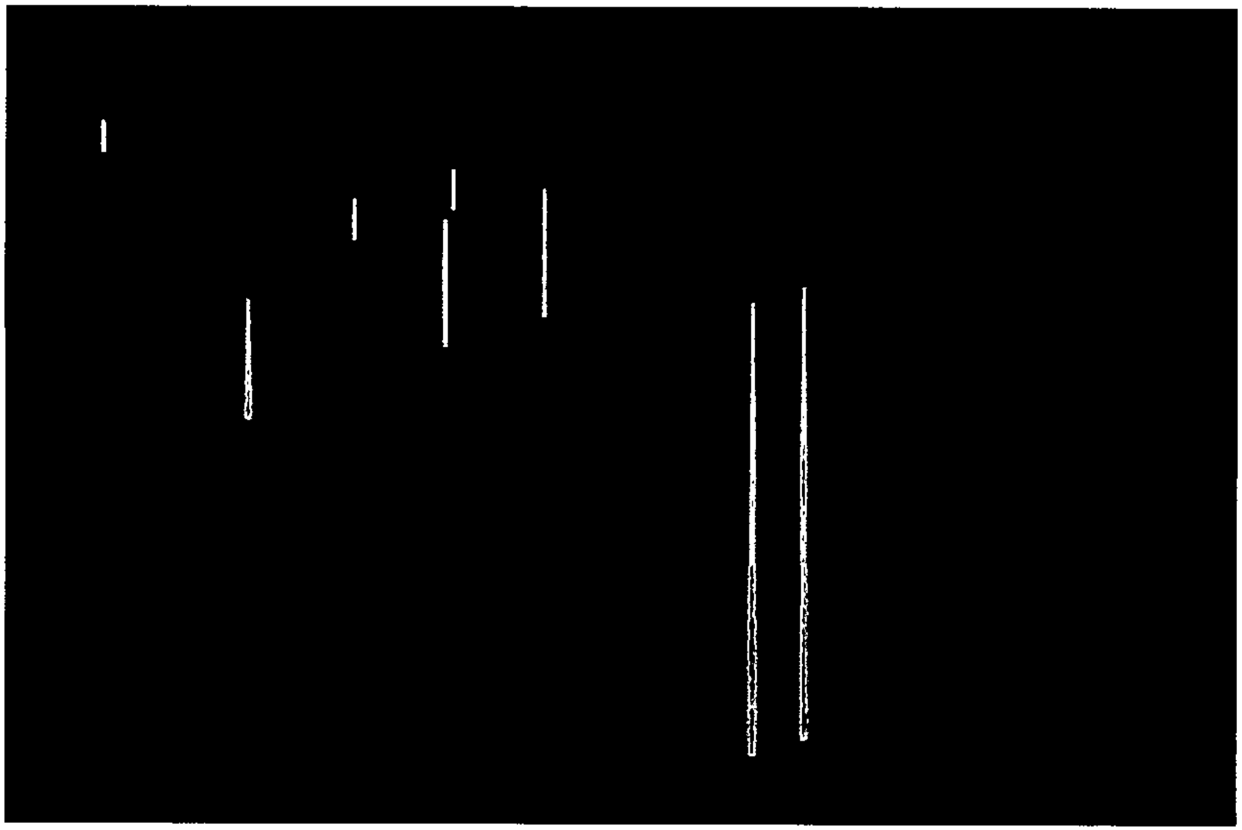
Figure 3. Plot of Recovery Boilers, Bark Boilers, Smelt Dissolving Tanks, and Nearby Buil

Golder Associates

Source: Golder, 2001.

TITLE:

Figure 4. Recovery and Combination Boiler With Associated Stacks



COMMENTS:

STACKS
9

BUILDINGS:
10

COMPANY NAME:

Golder Associates, Inc.

DATE:
2/5/2002

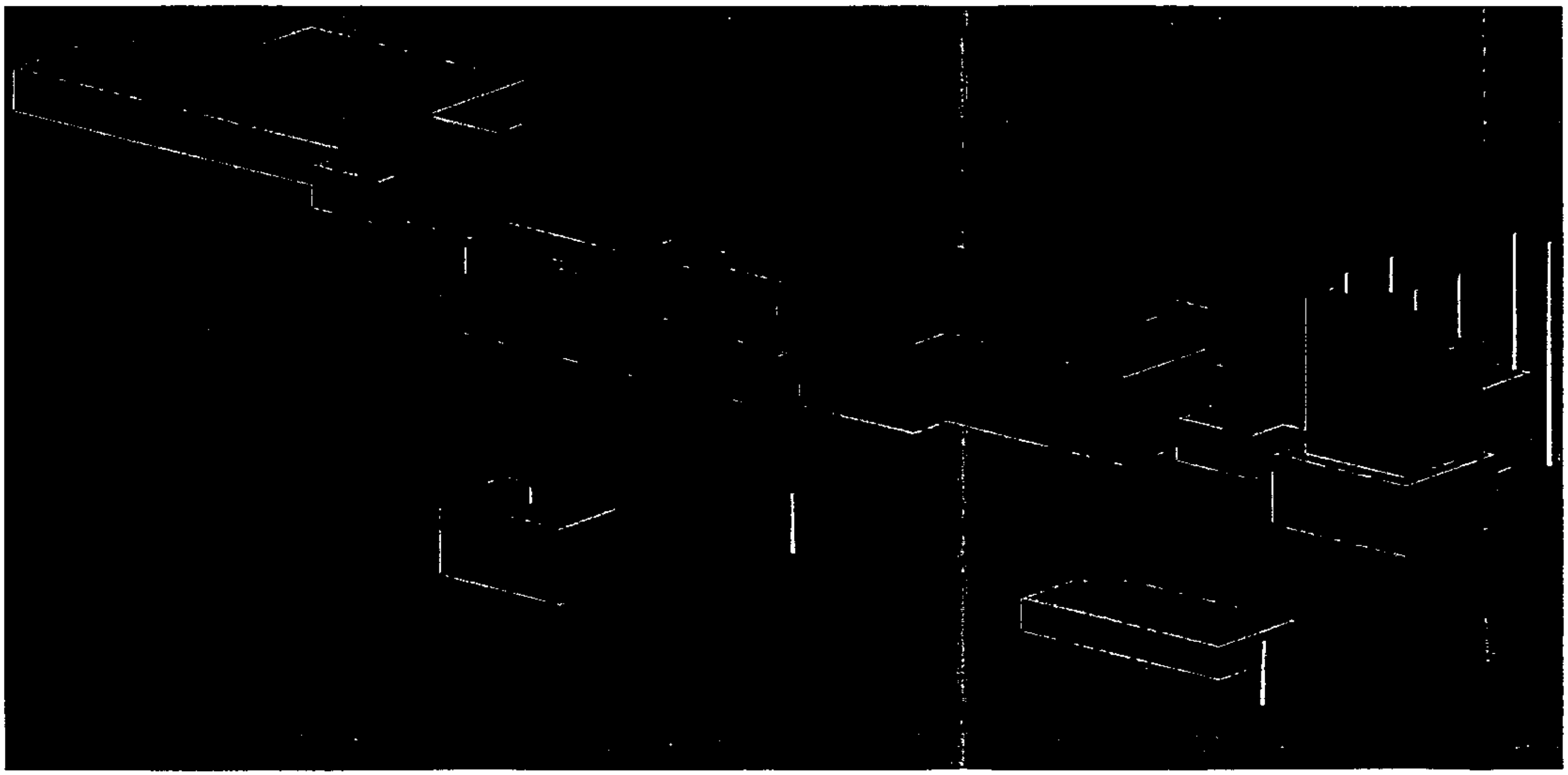
PROJECT NO.:

BPIP 3D View - Lakes Environmental Software

9937518A\09\Figures\Fig. E-44.ppt

TITLE

Figure 5. Facility Layout - Stone Container Corporation, Panama City



COMMENTS:

STACKS:
9

BUILDINGS:
10

COMPANY NAME:
Golder Associates, Inc.

DATE:
2/5/2002

PROJECT NO

9937518A\09\Figures\FigureF-2.ppt

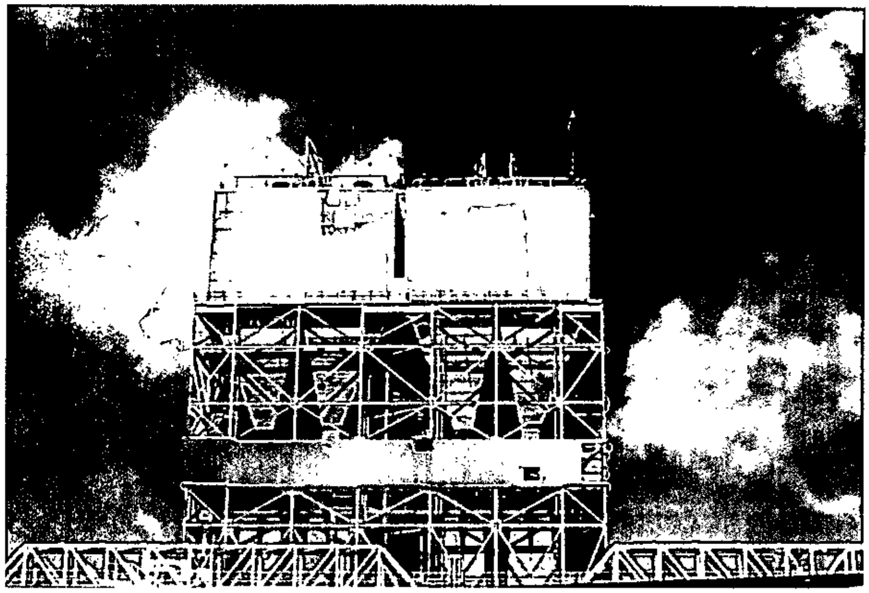


Photo 1. View From Southeast to Northwest

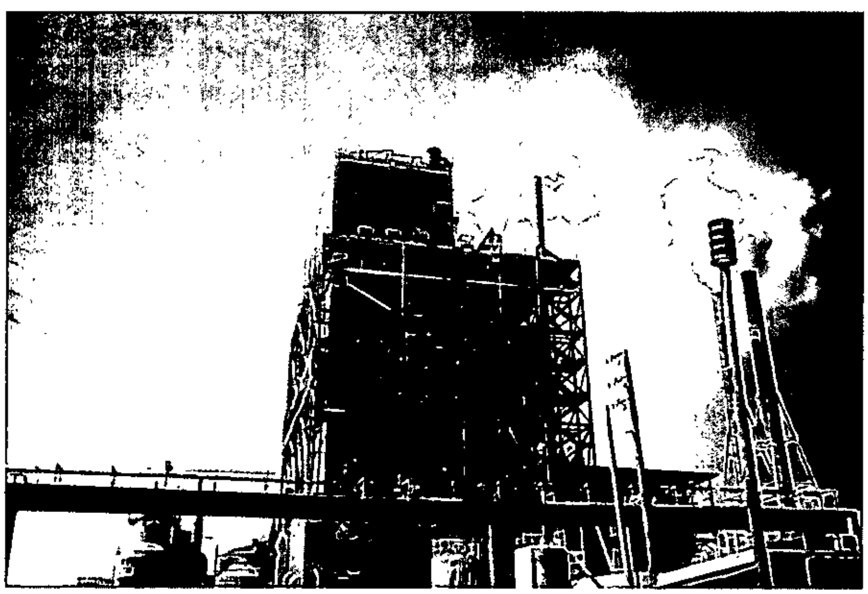


Photo 2. View From Northeast to Southwest.

Figure 6a.
Stone Container Panama City Photos – Recovery Boiler Building

Golder Associates

Source: Golder, 2001.

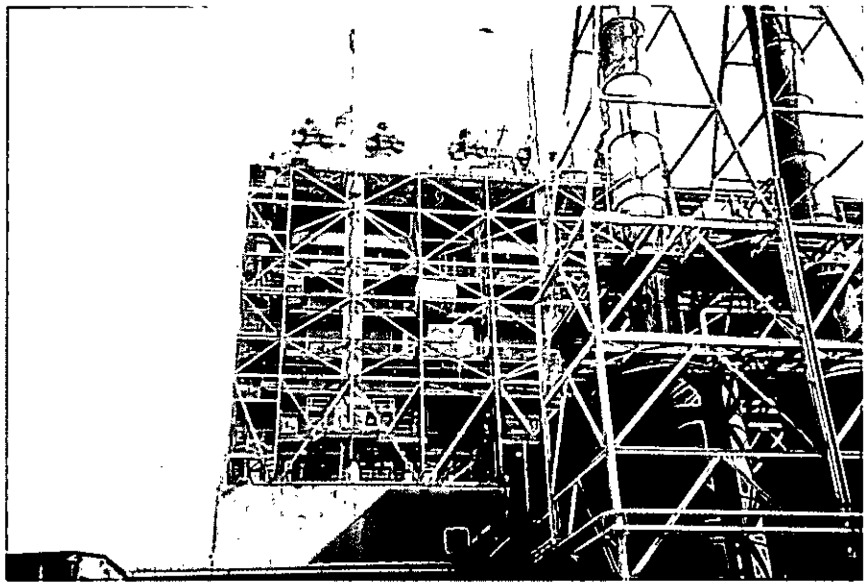


Photo 3. View From Northwest to Southeast (Close-Up)

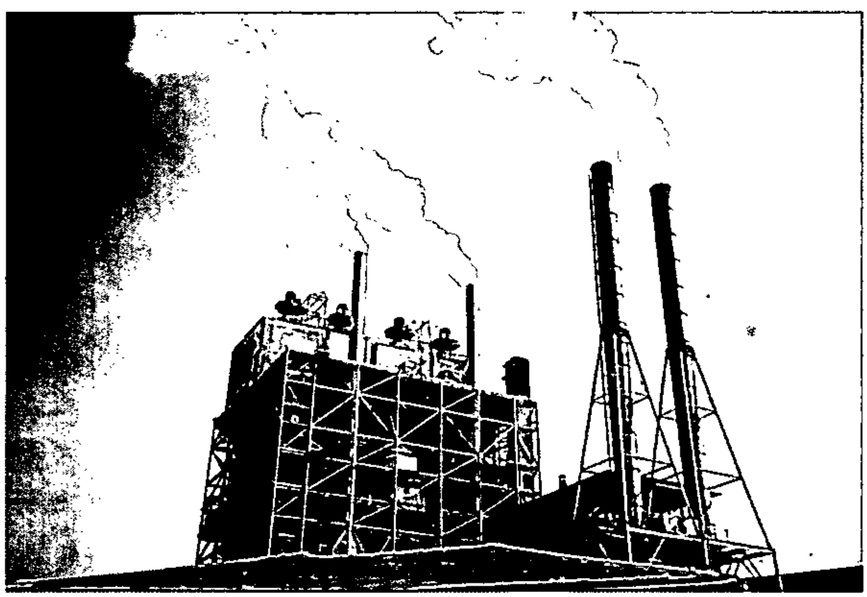


Photo 4. View From Northwest to Southeast (Distant)

Figure 6b.
Stone Container Panama City Photos – Recovery Boiler Building (background)
Combination Boiler Building (foreground)

Golder Associates

Source: Golder, 2001.