

ARKANSAS DEPARTMENT OF  
POLLUTION CONTROL AND ECOLOGY

MINUTE ORDER NO. 83-06

LOCATION - SUBJECT: Revisions to the

111(d) Plan for Control of TRS  
PAGE 1 OF 1 PAGES

Findings:

In compliance with Section 111(d) of the Clean Air Act, the Department developed a Plan for the Control of Total Reduced Sulfur TRS emissions from seven Kraft pulp mills in the State. After the submittal of the plan to the Environmental Protection Agency, there was concern as to whether the plan would be approved commensurate with the compliance schedule contained in the plan. EPA was made aware of this concern and the plan was returned to the State in order that readjustments or changes in the compliance schedule might be made. Revisions were made in the compliance schedule and a public hearing was held on January 17, 1983 to receive comments on the proposed changes.

Order:

The 111(d) Plan is hereby amended to reflect a final compliance date of six years from the date of EPA's approval of this amended Plan.

COMMISSIONERS

John P. Layton  
CHAIRMAN

SUBMITTED BY Wilson Tolefree

DATE PASSED 1-28-83

PLAN FOR THE CONTROL OF DESIGNATED POLLUTANTS  
(111(d) PLAN)

January 28, 1983

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY  
8001 NATIONAL DRIVE  
LITTLE ROCK, ARKANSAS 72209

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PLAN FOR THE CONTROL OF DESIGNATED POLLUTANTS  
(111(d) PLAN)

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PLAN FOR THE CONTROL OF DESIGNATED POLLUTANTS

(111(d) PLANS)

I. INTRODUCTION

(a) Purpose of Plan:

Section 111(d) of the Clean Air Act as amended in 1977, requires the states to develop plans to control emissions from any existing source for any air pollutant for which air quality criteria have not been issued, or which is not otherwise controlled under the Act, but to which a standard of performance would apply if such existing source were a new source.

Emission standards for designated facilities are legally enforceable regulations setting forth allowable emission rates into the atmosphere or the requirement that specific equipment be used to limit emissions. Ambient standards for designated pollutants are not the goal of the 111(d) process.

(b) Affected Facilities:

The following are categories of facilities which are to be regulated as required by 111(d) of the Clean Air Act and their identification as to emitting health or welfare related pollutants. The date of adoption of regulations to control the affected facilities within the state is also listed.

<u>Date Regulations Were Adopted</u>	<u>Type Facility</u>	<u>Health-Welfare Related</u>	<u>Pollutant</u>
January 28, 1983	Kraft Paper Mill	Welfare	Total Reduced Sulfur

(c) Plan Modifications:

As more designated facilities and pollutants are identified, appropriate sections of this Plan shall be revised as follows:

(1) Section I(b) shall be revised to list the added facilities and the dates of regulation adoption.

(2) Attachments shall be added to Exhibit II to show that the requirements of public participation are met.

(3) Section IV(b) shall be revised to indicate the appropriate part of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control which contains the regulations for any designated facility.

(4) An attachment shall be added to Exhibit IV containing the specific emission standard or equipment specification for a designated facility. This attachment shall include any required compliance schedule.

(5) Section IV(c) shall be revised to justify any exception to the emission rate specified in the guidelines for any designated facility.

(6) Section IV(d) shall be revised to show the final compliance dates of added designated facilities.

(7) Section V(c) shall be revised to show the correlation between the emission rates of a designated facility at the time of regulation adoption and at the rate at the time of final compliance.

(8) An attachment shall be added to Exhibit V to list the emissions inventory for the source containing the designated facility. Such inventory shall be compiled according to the directions of Appendix D (40 CFR 53349 November 17, 1975).

## II. PUBLIC PARTICIPATION

Public hearings concerning the control of designated facilities shall be

conducted in the manner directed by 40 CFR 60.23 and records of such hearings shall be available for public inspection for a period of two years following the dates of such hearings.

After adoption of standards for a designated facility, attachments will be added to Exhibit II to show that the required hearing was held in accordance with the above referenced directions as well as a list of witnesses appearing at the hearing and their affiliations. Additionally, a brief summary of each presentation or written submission relevant to the Plan shall be submitted as part of Exhibit II.

### III. LEGAL AUTHORITY

The Arkansas Commission on Pollution Control and Ecology is authorized under Part II of the Arkansas Water and Air Pollution Control Act (Ark. Stat. Ann. § 82-1901, et. seq.) to promulgate regulations for the control of any air contaminant which has the potential to adversely affect the health or welfare of the citizens of the State or any area of the State.

Legal authority has been established by promulgation of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control, the provisions of which, in part, are also applicable to the control of designated pollutants.

All legal authority for the purpose of making inspections, adopting emission limitations, requiring compliance schedules, seeking injunctive relief, requiring emissions data submittal, requiring record keeping, conducting tests, requiring emissions monitoring and making emission data available to the public, are provided for in the above mentioned statute. The long standing existence of the Arkansas Air Pollution Control Code and

Regulations of the Arkansas Plan of Implementation for Air Pollution Control are a demonstration of this authority. Emission data is also available to the public under the Arkansas Freedom of Information Act (Act 93 of 1967, amended by Act 1201 of 1976 and Act 652 of 1977). A copy of this Act is submitted under Exhibit III.

No additional legal authority is necessary for the adoption of emission limitations for designated pollutants and no delegation of authority for administering regulations adopted for designated pollutants shall be granted by the Commission on Pollution Control and Ecology to any agency other than the Department of Pollution Control and Ecology. A copy of the Arkansas Statute is submitted under Exhibit III.

#### IV. EMISSION STANDARDS AND COMPLIANCE SCHEDULES

(a) Emission Standards:

Designated pollutants are identified as either potentially harmful to health or potentially harmful to the public's welfare. Emission limitations suggested in EPA's guideline documents are intended to maintain concentrations of the pollutants well below that which would be harmful.

Emission standards shall be adopted by the Commission which are in keeping with guidance issued pursuant to Section 111(d) of the Clean Air Act.

(b) Regulations for Designated Facilities:

The regulations and compliance schedules limiting emissions from designated facilities are part of Section 8 of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control.

The regulations are identified by subsection below:

8.1(c)(iii) Kraft Pulp Mills

The regulations and compliance schedules for facilities regulated by Subsection 8.1 are submitted as part of Exhibit IV.

(c) Exception to Guidelines Emission Rate Recommendation:

There is an exception to the guideline limits for total reduced sulfur emissions from all kraft mills in the state with the exception of Potlatch Corporation of McGehee, Arkansas and Nekoosa Edwards #2 recovery boiler at Ashdown, Arkansas. These two mills have the newest equipment in terms of age, and being "new design" as defined in the guideline document can readily achieve the standards as published. The Arkansas emission standards do not set a numerical value for evaporators and digesters. Rather, the Plan calls for efficient incineration of all non-condensable gases from evaporators and digesters. Since most mills within the State will choose to incinerate these gases in a lime kiln, emissions from their evaporators and digesters would effectively be zero. With this realization, however, the emission standard for the lime kilns was set at 40 parts per million instead of the 20 parts per million suggested guideline standard. Because of an increased load upon the lime kiln, it is not possible for most mills to attain 20 parts per million on a constant basis. This is due to the fact that most mills have batch digesters which vary greatly in the volume and concentration of gases emitted during their cycle.

However, if a mill feels that its lime kiln is at capacity and cannot incinerate the non-condensable gases in the kiln, a separate incineration system will have to be installed. If at any time it becomes

necessary to install an incinerator, a standard will be established in accordance with EPA guideline for incinerators.

The guideline standard for recovery boilers is 20 parts per million. The Department has set the standard for all mills with the exceptions as listed previously at 40 and 200 parts per million. This has been done since all recovery boilers in use are "old design." Due to the age of most of these boilers, it is felt that a 20 parts per million standard could not be met for all periods of time without the expenditures of large amounts of capital outlay on black liquor oxidation systems. It should be noted that many of these boilers will be phased out within the next 5 - 10 years. When this happens, the new recovery boilers will have to meet New Source Performance Standards.

The guideline standards as published are essentially the same as the standards of performance for new kraft pulp mills. These standards do not adequately address the age of plants and associated equipment or replacement costs based on real dollars.

This Department considers the guideline standards presented in this Plan to be more realistic and easier to attain and maintain.

(d) Compliance Schedules for Designated Facilities

The industries listed hereafter shall achieve final compliance with Section 8.1(iii) of the Plan (111(d) Plan) as expeditiously as practical but not more than 6 years, as suggested in the EPA Guideline Document For TRS, from the effective date of this Subsection.

Exhibit IV.

Industry

Kraft Pulp Mills

(CSN 520013)  
International Paper Company  
Camden, Arkansas

(CSN 150001)  
Arkansas Kraft Corporation  
Morrilton, Arkansas

(CSN 350017)  
Weyerhaeuser Company  
Pine Bluff, Arkansas

(CSN 020013)  
Georgia-Pacific Corporation  
Crossett, Arkansas

(CSN 350016)  
International Paper Company  
Pine Bluff, Arkansas

(CSN 210036)  
Potlatch Corporation  
McGehee, Arkansas

(CSN 410002)  
Nekoosa Paper Company  
Ashdown, Arkansas

(e) Upsets, Scheduled Maintenance, Shutdowns

The rules and regulations of Section 6 of the Arkansas Plan of Implementations for Air Pollution Control shall apply to all cases of upsets, scheduled maintenance and shutdowns of both process and control equipment.

V. EMMISSION INVENTORIES, SOURCE SURVEILLANCE AND REPORTS

(a) 40 CFR 60.25(d) Requirements:

The requirements of 40 CFR 60.25(d) are provided by Section 7 of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control. Although Section 82-1937 of the Arkansas Water and Air Pollution Control

Act has been disapproved by EPA as limiting emissions disclosure to the public, an Attorney General's opinion, No. 75-37, states that Section 82-1937 cannot be interpreted to deny the public access to emissions information and that the Department must make emissions information available under the Arkansas Freedom of Information Act.

(b) Reporting Requirements:

Section 7 of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control requires sources to report all such information as the Director may reasonably require. The Department shall submit reports to EPA for the periods required by 40 CFR 60.25(e) and shall include the information required by 40 CFR 60.25(f).

(c) Emission Inventory:

A detailed emissions inventory prepared according to Appendix D is attached under Exhibit V. Summaries listed below show each designated facility with emissions at adoption date for the designated pollutant correlated with the adopted standard as the maximum allowable emission rate.

The department may approve alternate plans to the provision in Section 8.1(iii) if the facility can demonstrate that the alternate plan will achieve the same or lower mass emission rates as set forth herein and that the predicted ambient air impact does not differ significantly from that which would be achieved by this Section (8.1(iii)) of the Plan.

Kraft Paper Mills

Adoption Date - January 28, 1983

<u>Industry</u>	<u>Emission Rate - 1980</u>	<u>Maximum Allowable at Compliance Date</u>
(CSN 520013) International Paper Company Camden, Arkansas	133.7 lb-TRS/hr	71.0 lb-TRS/hr

(CSN 150001) Arkansas Kraft Corporation Morrilton, Arkansas	137.4	17.8
(CSN 350017) Weyerhaeuser Company Pine Bluff, Arkansas	315.2	39.0
(CSN 020013) Georgia-Pacific Corporation Crossett, Arkansas	1385.3	83.3
(CSN 350016) International Paper Company Pine Bluff, Arkansas	781.1	53.5
(CSN 210036) Potlatch Corporation McGehee, Arkansas	7.3	6.9
(CSN 410002) Nekoosa Paper Company Ashdown, Arkansas	86.1	19.9

## GENERAL PLAN OUTLINE

### I. Introduction

- A. Brief discussion of what designated facilities and pollutants are and generally what the control requirements are (requirements are different from SIP).
- B. General identification of the types of facilities included in the plan and their resulting pollutants (health related vs. welfare related).
- C. General discussion of provisions for updating the plan as new designated facilities and pollutants are identified.

### II. Public Participation

This section would include copies of public hearing notices, notice to the EPA Regional Administrator, notices to other States, if applicable, a certification that a public hearing was held, and a summary of relevant comments. Refer to §60.23 for specific requirements.

### III. Legal Authority

This section would include a discussion on the required legal authority addressing the specific points in §60.26. Including a copy of the State law is optional, but would be useful in making the plan more complete.

IV. Emission Standards and Compliance Schedules

- A. General discussion of what the emission standards are intended to accomplish, i.e., protect public health or protect public welfare.
  
- B. Specifically identify the regulation containing the emission standard. Although the intended approach is to include applicable emission standards as part of Section 8 of the current State regulations, this part will be approved/disapproved under 40 CFR Part 62 rather than 40 CFR Part 52. Therefore, a copy of the emission standard should be included in the plan.
  
- C. If the emission standard for a welfare related pollutant is less stringent than that in EPA's guideline, a detailed justification would be included in this section (see §60.24(d)).
  
- D. This section would also include applicable compliance schedules and increments of progress for those schedules extending more than 12 months from the date required for plan submittal (see §§60.21(h) and 60.24(e)).

V. Emission Inventories, Source Surveillance, and Reports.

- A. Regulations satisfying the requirements of §60.25(b) and (c) would be specifically identified in this section (see §60.25(d)).
- B. Brief discussion on the reporting requirements for applicable sources and the reporting to be accomplished by the State.
- C. An emission inventory for each applicable source would be included in this section (see §60.25(a) and Appendix D for requirements).

EXHIBIT IV.

EMISSION STANDARDS AND COMPLIANCE SCHEDULES

- (1) Subsection 8.1 of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control adopted May 25, 1979

AMENDMENT TO THE REGULATIONS OF THE ARKANSAS PLAN  
OF IMPLEMENTATION FOR AIR POLLUTION CONTROL

Section 8.1 of the Regulations is amended as follows by adding a subsection iii for the purpose of controlling total reduced sulfur emissions from Kraft Pulp Mills:

(iii) Kraft Pulp Mills

CSN 520013 International Paper Company of Camden, Arkansas, within 6 years of the effective date of these regulations, the Kraft Pulp Mill operated by International Paper Company of Camden, Arkansas shall efficiently incinerate all non-condensable gases from all evaporators and digesters and shall have total reduced sulfur emissions to the atmosphere no greater than -

- (1) 40 parts per million (ppm) measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 8 volume percent oxygen from any recovery furnace.
- (2) 40 parts per million measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 10 volume percent oxygen from any lime kiln, and
- (3) 0.0084 grams per kilogram of black liquor solids for a 12 hour average from any smelt dissolving tank.

CSN 350016 International Paper Company of Pine Bluff, Arkansas, within six years of the effective date of these regulations, the Kraft Pulp Mill operated by International Paper Mill of Pine Bluff, Arkansas shall efficiently incinerate all

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non-condensable gases from all evaporators and digesters and shall have total reduced sulfur emissions to the atmosphere no greater than -

- (1) 40 parts per million (ppm) measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 8 volume percent oxygen from any recovery furnace.
- (2) 40 parts per million measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 10 volume percent oxygen from any lime kiln, and
- (3) 0.0084 grams per kilogram of black liquor solids for a 12 hour average from any smelt dissolving tank.

CSN 150001 Arkansas Kraft Corporation of Morrilton, Arkansas, within six years of the effective date of these regulations, the Kraft Pulp Mill operated by Arkansas Kraft Corporation of Morrilton, Arkansas shall efficiently incinerate all non-condensable gases from all evaporators and digesters and shall have total reduced sulfur emissions to the atmosphere no greater than -

- (1) 40 parts per million (ppm) measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 8 volume percent oxygen from any recovery furnace.
- (2) 40 parts per million measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 10 volume percent oxygen from any lime kiln, and
- (3) 0.0084 grams per kilogram of black liquor solids

for a 12 hour average from any smelt dissolving tank.

CSN 350017 Weyerhaeuser Company of Pine Bluff, Arkansas, within six years of the effective date of these regulations, the Kraft Pulp Mill operated by Weyerhaeuser Company of Pine Bluff, Arkansas shall efficiently incinerate all non-condensable gases from all evaporators and digesters and shall have total reduced sulfur emissions to the atmosphere no greater than -

- (1) 200 parts per million (ppm) measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 8 volume percent oxygen from any recovery furnace.
- (2) 40 parts per million measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 10 volume percent oxygen from any lime kiln, and
- (3) 0.0084 grams per kilogram of black liquor solids for a 12 hour average from any smelt dissolving tank.

CSN 020013 Georgia-Pacific Corporation of Crossett, Arkansas, within six years of the effective date of these regulations, the Kraft Pulp Mill operated by Georgia-Pacific Corporation of Crossett, Arkansas shall efficiently incinerate all non-condensable gases from all evaporators and digesters and shall have total reduced sulfur emissions to the atmosphere no greater than -

- (1) 40 parts per million (ppm) measured as hydrogen sulfide on a dry basis and on a 12 hour average,

corrected to 8 volume percent oxygen from any recovery furnace.

- (2) 40 parts per million measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 10 volume percent oxygen from any lime kiln, and
- (3) 0.0084 grams per kilograms of black liquor solids for a 12 hour average from any smelt dissolving tank.

CSN 210036 Potlatch Corporation of McGehee, Arkansas, within six years of the effective date of these regulations, the Kraft Pulp Mill operated by Potlatch Corporation of McGehee, Arkansas shall efficiently incinerate all non-condensable gases from all evaporators and digesters and shall have total reduced sulfur emissions to the atmosphere no greater than -

- (1) 5 parts per million (ppm) measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 8 volume percent oxygen from any recovery furnace.
- (2) 20 parts per million measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 10 volume percent from any lime kiln, and
- (3) 0.0084 grams per kilogram of black liquor solids for a 12 hour average from any smelt dissolving tank.

CSN 410002 Nekoosa Paper Company of Ashdown, Arkansas, within six years of the effective date of these regulations, the Kraft Pulp Mill operated by Nekoosa Paper Company of Ashdown, Arkansas shall efficiently incinerate all non-condensable gases from all evaporators and digesters and shall have total reduced sulfur emissions to the atmosphere no greater than -

- (1) 40 parts per million (ppm) measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 8 volume percent oxygen from #1 recovery furnace;
- (2) 5 parts per million (ppm) measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to a 8 volume percent oxygen from #2 recovery furnace;
- (3) 20 parts per million measured as hydrogen sulfide on a dry basis and on a 12 hour average, corrected to 10 volume percent oxygen from any lime kiln, and
- (4) 0.0084 grams per kilogram of black liquor solids for a 12 hour average from any smelt dissolving tank.

(A) Compliance testing, which may be required as provided by Section 7(a) of these regulations, shall be performed using EPA methods, testing procedures and data reduction as set forth in 40 CFR 60.8. Testing shall be done as required by EPA Reference Method 16 as published in the Federal Register or by such alternative methods and procedures as may be approved by the Director.

(B) All Kraft Paper Mills specified in this Subsection 8.1(c)(iii) shall at the time of submittal of a compliance schedule, in accordance to 40 CFR 60.24(e), submit increments of progress as such increments relate to the installation

of equipment which will enable the attainment of the emission standard by the final compliance date.

- (C) All affected kraft pulp mills shall submit on a semi-annual basis, reports related to progress in attaining compliance with these regulations; additionally, Weyerhaeuser Company (CSN 350017) shall submit reports relating to research and engineering efforts directed to achieving lower TRS emission levels from their recovery boiler.

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EXHIBIT V.

EMISSION INVENTORIES, SOURCE SURVEILLANCE AND REPORTS

- (1) Attorney General's Opinion 75-37
- (2) Emission Inventory and Appendix D Requirements

file



STATE OF ARKANSAS  
OFFICE OF THE ATTORNEY GENERAL  
JUSTICE BUILDING, LITTLE ROCK

JIM GUY TUCKER  
ATTORNEY GENERAL

April 23, 1975

Opinion No. 75-37

APR 23 1975  
U.S. DEPT. OF JUSTICE  
APR 23 1975  
APR 23 1975

Mr. S. Ladd Davies, Director  
Department of Pollution Control and Ecology  
8001 National Drive  
Little Rock, Arkansas 72209

Dear Mr. Davies:

This is in response to your recent letter wherein you state:

"Ark. Stat. Ann. §82-1937 (Act 472 of 1949, Part 2, Section 7 as added by Act 183 of 1955, Section 7) provides that 'any information relating to secret processes, devices, or methods of manufacture or production obtained by the Commission [on Pollution Control and Ecology] or its employees in the administration of this Act [the Arkansas Water and Air Pollution Control Act] shall be kept confidential . . . .'. According to federal regulations to which this Department is subject, we are prohibited from denying public access to data obtained by the Department indicating the amount and content of emissions into the air from any equipment or facilities subject to the Act.

"I would very much appreciate your opinion as to whether or not such emission data may be released by this Department without violating Ark. Stat. Ann. §82-1937."

It is the opinion of this office that the emission data referred to in your inquiry may be released without violation of the aforementioned state statute. While the phrase "relating to" is somewhat broad, it is narrowed by its application only to "secret processes, devices, or methods of manufacture or production". Specifically, the emission of wastes is neither a process, device nor method of manufacture or production, and, hence, it does not fall within the prescribed areas of information which may not be released.

The policy and purpose of the Arkansas Water and Air Pollution Control Act, particularly with reference to air pollution as set out at Ark. Stat. Ann. §82-1931 and §82-1932, is to protect the public health and welfare. The Act generally recognizes the strong public interest in

Mr. S. Ladd Davies, Director  
April 23, 1975  
Page 2

"controlling or abating air pollution" and "preventing new air pollution, under a program which shall be consistent with the declaration of policy" contained within the Act. Denial of access to information on emissions would seem to be in derogation of this stated policy and, hence, would necessarily need to be narrowly construed.

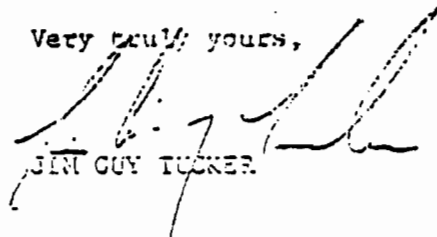
Perhaps more importantly, the denial of public access to information conflicts with the Freedom of Information Act of 1967 (Act 93 of 1967, codified as Ark. Stat. Ann. §§12-2601-2607). Specifically, the Freedom of Information Act makes all public records open to the public unless specifically excepted from the Act or required by law to be closed. Exemptions from this Act must be narrowly construed.

Consequently, in view of the public policy stated in the Arkansas Water and Air Pollution Control Act and the Freedom of Information Act, and in view of the specific wording of Ark. Stat. Ann. §82-1937, it is the opinion of this office that the statute should be narrowly construed both as to the activities and functions to which it relates and, further, as to the type of information which is considered "secret". Consistent with this construction, data obtained by the Department as to the amount and content of emissions from a particular source is not information "relating to secret processes, devices or methods of manufacture or production" within the meaning of Ark. Stat. Ann. §82-1933.

It should be noted that this opinion is directed solely to the referenced data. Public data should be segregated from data covered by Ark. Stat. Ann. §82-1937 or Section 3c of the Arkansas Air Pollution Code before dissemination. The mere fact that public and confidential information may be contained in the same file or on the same form may not in itself serve as a ground to refuse disclosure of the public information but simply places a burden on the collecting agency to separate the information in order to effect the twin public policies of confidentiality of trade secrets, etc., and public disclosure of non-confidential information.

The foregoing opinion, which I hereby approve, was prepared by Assistant Attorney General Frederic L. Frawley.

Very truly yours,



JIM GUY TUCKER

JGT:mis

## Kraft Pulp Mills

Kraft pulping is the production of paper using sulfate chemicals to dissolve the lignin from the cellulose to make pulping fiber. Paper production can be considered as a two process operation - conversion of wood to pulp and recovery of chemicals used in the process for recycle.

Pulp wood is first debarked and chipped and placed in a digester. Sodium sulfide ( $\text{Na}_2\text{S}$ ) and sodium hydroxide ( $\text{NaOH}$ ) in a water solution are added and the chips are cooked at elevated temperature and pressure. This step is continued until the lignin in the wood is dissolved. The cooked pulp is then washed with water to remove the spent chemicals. The left over liquid is referred to as weak black liquor. Depending upon the type of paper desired, the pulp can be left as is, brown kraft paper, or it can be bleached with chlorine. This is known as bleached kraft and is white in color.

The weak black liquor is now sent to a multiple effect evaporator and concentrated to 55 percent solids. At this point it is called strong black liquor. The strong black liquor is then burned in a recovery furnace to provide process steam and to convert sodium sulfate ( $\text{Na}_2\text{SO}_4$ ) to sodium sulfide ( $\text{Na}_2\text{S}$ ). The solids that remain in the recovery furnace are collectively called smelt, a mixture of sodium carbonate ( $\text{Na}_2\text{CO}_3$ ) and sodium sulfide ( $\text{Na}_2\text{S}$ ) is dissolved in water in a receiving tank. This water mixture is called green liquor. The green liquor is sent to a causticizing tank where quicklime ( $\text{CaO}$ ) is added to convert the sodium carbonate ( $\text{Na}_2\text{CO}_3$ ) to sodium hydroxide ( $\text{NaOH}$ ). The quicklime ( $\text{CaO}$ )

comes from the conversion of the calcium carbonate mud that remains after the reaction of sodium carbonate ( $\text{Na}_2\text{CO}_3$ ) and lime ( $\text{CaO}$ ) which is fired in a lime kiln. The formation of sodium hydroxide ( $\text{NaOH}$ ) completes the cycle of transformation to white liquor which is fed back to the digester.

(ii) Plant Capacities

	Max. Air Dried Tons/hr.	Avg. Air Dried Tons/yr.
Arkansas Kraft	41.4	258,460
Georgia-Pacific	69.7	457,244
International Paper (C)	34	266,900
International Paper (PB)	68.0	476,800
Weyerhaeuser	16.2	109,230
Potlatch	31.7	183,600
Nekoosa	77.7	440,000

(iii) Raw Materials Handled  
Max (lbs. oven dried chips per hour)

	Ark. Kraft	Geo.-Pac.	Int. P. (C)	Int. P. (PB)	Wey.	Potlatch	Nek.
Oven Dried Chips	220,500	261,000	120,800	263,600	55,000	150,500	242,800

Avg. (lbs. Oven dried chips per year)

	Ark. Kraft	Geo.-Pac.	Int. P. (C)	Int. P. (PB)	Wey.	Potlatch	Nek.
Oven Dried Chips	1,103,800,000	1,711,000,000	948,560,000	1,848,600,000	371,400,000	1,318,600,000	2,090,000,000

(iv) Fuels Burned

Arkansas Kraft at Morrilton

- 1) #1 power boiler  
fuel - #6 oil, 2.5 percent sulfur content  
maximum usage 450 gal/hr.  
average usage 300 gal/hr.  
average per year varies with adversity of weather
- 2) #1, 2 bark boilers  
fuel - pine bark, 20 percent ash content  
maximum usage 5 tons/hr.  
average usage 4 tons/hr.  
average per year 31,680 tons

Georgia-Pacific at Crossett

- 1) #1, 2, 3, 4-A boilers  
fuel - #6 oil, 2.3 percent sulfur content  
maximum usage 1,090 gal/hr.  
average usage 1,000 gal/hr.  
average per year 9,550,000 gal.
- 2) #5A boiler  
fuel - #6 oil, 2.3 percent sulfur content  
maximum usage 1,526 gal/hr.

	average usage	506 gal/hr.
	average per year	4,010,000 gal.
3)	#6A boiler	
	fuel - #6 oil, 2.3% sulfur content	
	maximum usage	1,526 gal/hr.
	average usage	506 gal/hr.
	average per year	4,010,000 gal.
4)	#8A boiler	
	fuel - natural gas	
	maximum usage	247,000 cf/hr.
	average usage	27,272 cf/hr.
	average per year	2,160,000,000 cf/yr.
5)	#9A boiler	
	fuel - #6 oil, 2.3 percent sulfur content	
	maximum usage	1,333 gal/hr.
	average usage	1,100 gal/hr.
	average per year	8,712,000 gal.

International Paper at Camden

1)	bark boiler	
	fuel - pine bark, 20 percent ash content	
	maximum usage	9 tons/hr.
	average usage	8 tons/hr.
	average per year	63,360 tons
2)	#1, 2 power boilers	
	fuel - #6 oil, 2.32 percent sulfur content	
	maximum usage	1,600 gal/hr.
	average usage	1,429 gal/hr.
	average per year	2,480,000 gal.

International Paper at Pine Bluff

1)	#1 bark boiler	
	fuel - pine bark, 20 percent ash content	
	maximum usage	42 tons/hr.
	average usage	36 tons/hr.
	average per year	292,000 tons
2)	#1 A-B power boilers	
	fuel - #6 oil, 2.7 percent sulfur content	
	maximum usage	3,640 gal/hr.
	average usage	3,277 gal/hr.
	average per year	25,984,000 gal.
3)	#2-A, B power boilers	
	fuel - #6 oil, 2.7 percent sulfur content	
	maximum usage	3,640 gal/hr.
	average usage	1,813 gal/hr.
	average per year	14,366,000 gal.

4) Keeler package boilers  
 fuel - natural gas  
 maximum usage 91 MCF/hr.  
 average usage 38.8 MCF/hr.  
 average per year 3.08x10<sup>6</sup> MCF

5) CE boiler  
 fuel - #6 oil, 2.7 percent sulfur content  
 maximum usage 400 gal/hr.  
 average usage 34.8 gal/hr.  
 average per year 276,000 gal.

6) Wickes package boiler  
 fuel - natural gas  
 maximum usage 60 MCF/hr.  
 average usage 15.1 MCF/hr.  
 average per year 120,288 MCF

Weyerhaeuser at Pine Bluff

1) #1 bark boiler  
 fuel - pine bark, 20% ash content  
 maximum usage 7.7 tons/hr.  
 average usage 5.3 tons/hr.  
 average per year 42,000 tons

Potlatch at McGhee

1) #1 power boiler  
 fuel - #6 oil, 0.66 percent sulfur content  
 maximum usage 3,000 gal/hr.  
 average usage 2,083 gal/hr.  
 average per year 16,500,000 gal.

Nekoosa Edwards at Ashdown

1) #1 power boiler  
 fuel - pine bark, 20 percent ash content  
 maximum usage 28 tons/hr.  
 average usage 22 tons/hr.  
 average per year 177,000 tons

2) Wickes package boilers  
 fuel - natural gas  
 maximum usage 60 MCF/hr.  
 average usage 14 MCF/hr.  
 average per year 114,274 MCF

In general, no new control equipment will need to be added to achieve control on total reduced sulfur at each paper mill. The greater part of control will be in incineration of non condensable gases from evaporators and digesters. Unless it is impossible due to design and load limits, these gases will be burned in a lime kiln. If this cannot be accomplished, a separate incinerator for these gases will have to be installed, the efficiency of which will be variable based upon load.

Perhaps the most significant factor to be considered in controlling TRS is the degree to which equipment is operated over design capacity. This is particularly true in the case of recovery boilers. It is an accepted fact in the pulp and paper industry that equipment is normally run at a much higher production rate than was originally planned. This is normally due to engineering improvements throughout the mill which remove bottlenecks and allow greater production. However, with an increase in production, the amount of TRS released into the atmosphere increases at an exponential rate. The attached plot (Figure 1) is graphic evidence that overrunning the recovery boiler leads to increased emissions of TRS. When the process equipment is run over design capacity, the associated control equipment cannot effectively control emissions to the guideline limit. In the case where black liquor oxidation is used to control TRS, major modifications will have to be instituted to achieve control. Where air is used to convert the sodium sulfide to sodium thiosulfate, molecular oxygen may have to be incorporated to raise the control efficiency to meet the guideline standard.

EMISSIONS INVENTORY











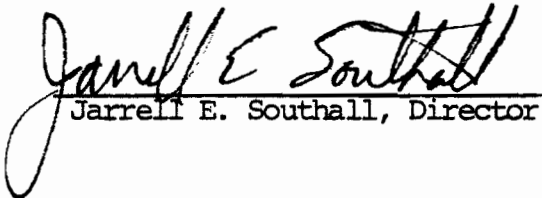


This amendment to the Regulations of the Plan shall be in full force and effect as of the date of promulgation, January 28, 1983.

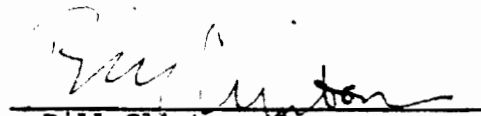
BY ORDER OF THE COMMISSION  
ON POLLUTION CONTROL AND  
ECOLOGY

BY   
John P. Saxton, Chairman

ATTEST:

  
Jarrell E. Southall, Director

APPROVED:

  
Bill Clinton, Governor  
State of Arkansas