



# DEPARTMENT OF ENVIRONMENTAL PROTECTION

ANGUS S. KING, JR.  
GOVERNOR

EDWARD O. SULLIVAN  
COMMISSIONER

INTERNATIONAL PAPER COMPANY )	DEPARTMENTAL
FRANKLIN COUNTY )	FINDINGS OF FACT AND ORDER
JAY, MAINE )	AIR EMISSION LICENSE
A-203-71-R-A )	AMENDMENT #8

After review of the air emission license amendment application, staff investigation reports, and other documents in the applicant's file in the Bureau of Air Quality Control, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

## I. REGISTRATION

### A. Introduction

1. ~~International Paper Company (IP) was issued Air Emission License #1431 for its Androscoggin Mill Jay, Maine facility on November 29, 1978. The license was subsequently amended on April 11, 1991 (A 203 71 C A), on September 25, 1992 (A 203 71 G M), on October 26, 1993 (A 203 71 J M), on June 30, 1994 (A 203 71 K M), on August 3, 1994 (A 203 71 L A), on June 7, 1995 (A 203 71 F A), and on July 31, 1995 (A 203 71 M A).~~
2. IP submitted an application which was received and accepted by the Department on May 22, 1995 and May 23, 1995 respectively. The application requested an air emission license amendment to address Reasonably Available Control Technology (RACT) for Volatile Organic Compounds (VOC), as required by Chapter 134 of the Maine Air Regulations.
3. In addition, IP submitted an application which was received and accepted by the Department on February 3, 1995 and February 9, 1995 respectively. The application requested an air emission license amendment to address Reasonably Available Control Technology (RACT) for Facilities that Emit Nitrogen Oxides (NOx), as required by Chapter 138, of the Maine Air Regulations.

### B. Application Classification

The application for IP is considered to be an amendment to incorporate the VOC and NOx RACT requirements as required by Chapter 134 and Chapter 138 respectively, of the Maine Air Regulations.

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AUGUSTA  
STATE HOUSE STATION 17  
AUGUSTA, MAINE 04333-0017  
(207) 287-7688 FAX: (207) 287-7826  
OFFICE LOCATED AT: RAY BUILDING, HOSPITAL STREET

PORTLAND  
312 CANCO ROAD  
PORTLAND, ME 04103  
(207) 822-6300 FAX: (207) 822-6303

BANGOR  
106 HOGAN ROAD  
BANGOR, ME 04401  
(207) 941-4570 FAX: (207) 941-4584

PRESQUE ISLE  
1235 CENTRAL DRIVE, SKYWAY PARK  
PRESQUE ISLE, ME 04769  
(207) 764-0477 FAX: (207) 764-1507

## H. BEST PRACTICAL TREATMENT

### A. Introduction

~~IP is in an attainment area for all U.S. EPA designated criteria air pollutants, except for ozone which is determined to be unclassified due to incomplete data. Maine is currently part of the Ozone Transport Region (OTR), and thus, the entire State of Maine is subject to the nonattainment requirements for ozone. Chapter 134 of the Maine Air Regulations requires that every source who has the potential to emit quantities of VOC equal to or greater than 40 tons per year apply RACT to their applicable VOC emissions. In addition, Chapter 138 of the Maine Air Regulations requires that every source who has the potential to emit quantities of NOx equal to or greater than 100 tons per year apply RACT to their applicable NOx emissions.~~

### B. RACT for VOC Emissions

1. IP operates the following sources which are eligible to achieve compliance with VOC RACT pursuant to Chapter 134, Option (D) of Section 3(A), as described below:
  - a. Bleach Plant (consisting of Bleaching Line A & B)
  - b. Waste Water Treatment Plant
  - c. Pulp Stock Washer Systems and Pulp Liquor Storage Tanks
  - d. Digester Systems A & B, Multiple Effect Evaporator Systems A & B, Smelt Tanks 1 & 2, and Lime Kilns 1 & 2

#### Bleach Plant

IP is required, pursuant to Chapter 122, to collect emissions from the Bleach Plant and have the chlorine and chlorine dioxide emissions controlled by the Bleach Plant Scrubber System. Total IP Bleach Plant chlorine and chlorine dioxide emissions after control by the wet scrubber systems are each limited to 3.0 lb/hr. As a result, some of the VOC emissions from the Bleach Plant are also collected and controlled by Bleach Plant Scrubber System. In addition, IP has discontinued the use of sodium hypochlorite as a primary bleaching agent and has substituted it with chlorine dioxide and hydrogen peroxide.

The control of emissions from the Bleach Plant by the Bleach Plant Scrubber System which complies with Chapter 122 for the control of chlorine and chlorine dioxide emissions and the discontinued use of sodium hypochlorite as a primary bleaching stage is therefore determined to be meeting VOC RACT. The Department has determined that additional VOC controls for the Bleach Plant are not feasible at this time.



Waste Water Treatment Facility

IP is required by Federal regulation to comply with their National Pollution Discharge Elimination System (NPDES). By complying with their NPDES permit, VOC emissions from IP's Waste Water Treatment Plant are controlled and thus is determined to be meeting VOC RACT. The Department has determined that additional VOC controls for the Waste Water Treatment Plant are not feasible at this time.

Pulp Stock Washer Systems and Pulp Liquor Storage Tanks

VOC emissions from the Pulp Stock Washer Systems and Pulp Liquor Storage Tanks as currently configured are determined to be meeting VOC RACT. The Department has determined that additional VOC controls for the Pulp Stock Washer Systems and Pulp Liquor Storage Tanks are not feasible at this time.

Digester Systems A & B and the Multiple Effect Evaporator Systems A & B

IP is required by Chapter 124 to collect emissions from the Digester Systems A & B and the Multiple Effect Evaporator Systems. The total reduced sulfur (TRS) emissions from these sources are to be collected and incinerated within the Lime Kilns 1 & 2. As a result, VOC emissions from the Digester Systems A & B and the Multiple Effect Evaporator Systems A & B are also collected and incinerated within the Lime Kilns 1 & 2.

The control of VOC emissions from the Digester Systems A & B and the Multiple Effect Evaporator Systems A & B by the Lime Kilns 1 & 2 which complies with Chapter 124 for the control of TRS emissions is therefore determined to be meeting VOC RACT. The Department has determined that additional VOC controls for the Digester Systems A & B and the Multiple Effect Evaporator Systems A & B are not feasible at this time.

Smelt Tanks 1 & 2

IP is required by license to control emissions from the Smelt Tanks 1 & 2. The particulate emissions from these sources are each controlled by a wet scrubber system. As a result, some of the VOC emissions from the Smelt Tanks 1 & 2 are also controlled. The control of emissions from the Smelt Tanks 1 & 2 by the wet scrubber systems which complies with the license for the control of particulate emissions is therefore determined to be meeting VOC RACT. The Department has determined that additional VOC controls for the Smelt Tanks #1 and #2 are not feasible at this time.

Lime Kilns 1 & 2

IP is required to maintain adequate combustion conditions within the Lime Kilns 1 & 2 to meet a TRS emissions limit of 20 ppmv corrected to 10% O<sub>2</sub> on a dry basis, as required by Chapter 124. As a result, VOC emissions from the Lime Kilns 1 & 2 are also controlled by maintaining adequate combustion conditions.

The control of VOC emissions from the Lime Kilns 1 & 2 by maintaining adequate combustion conditions which complies with Chapter 124 for the control of TRS emissions is therefore determined to be meeting VOC RACT. The Department has determined that additional VOC controls for the Lime Kilns 1 & 2 are not feasible at this time.

2. Flash Dryer and the Groundwood Operations

IP has identified the Flash Dryer, the Groundwood Operations and the Landfill as sources which are not exempt pursuant to Section 1(C) or eligible to achieve compliance through Section Option (D) of 3(A) and are therefore subject to an alternative VOC RACT analysis as specified by Section 3(A)(3) of Chapter 134:

a. Flash Dryer and Groundwood Operations

VOC emissions such as methanol, terpenes, pinenes, etc. are released from Groundwood Operations as the result of the heat that is generated by friction between the grinding stone and the pulpwood and are released from the Flash Dryer as the result of the heat that is supplied to the drying of the pulp into bales.

Since there is very little published VOC emission factor data from groundwood operations, emissions factors were developed by IP based on VOC source tests conducted at the IP Androscoggin Mill. Based on the test results IP has estimated the maximum potential VOC emissions from the Flash Dryer and the Groundwood Operations to be approximately 238 and 309 tons per year respectively.

Combustion of the VOCs within IP's existing boilers was not considered due the high cost associated with the ductwork which would have to be involved in transporting the gases from the flash dryer and groundwood operations. In addition, the flash dryers have particulate matter emissions which could create explosive conditions within the boilers.



IP evaluated various control technologies and found that adsorption, absorption, and condensation were infeasible based on technical considerations. Adsorbers were rejected primarily because of the lack of capture efficiency the activated carbon bed would have on methanol (the most prominent VOC) and the high moisture content of the gas stream. Absorption was rejected primarily because of the wide range of VOCs that would not be readily captured with one absorption system. Condensation was also rejected primarily because of the low VOC concentrations of the treated gas stream.

Given that the VOC emissions are generated from the naturally occurring organic compounds in the wood, there are no pollution prevention options available to IP for consideration.

IP then evaluated a single regenerative thermal oxidizer (RTO) system for the Flash Dryer and a single RTO system for the Greenwood Operations. A single RTO for each source was considered because of the large physical distance between the sources and the number of selected individual emission sources that were to be collected within each general area. Based on the estimated maximum VOC emissions from each source and the cost of RTO systems, the economic impact was determined to be the following:

One RTO System for the Flash Dryer - \$9,800/ ton  
One RTO System for the Greenwood Operations - \$8,500/ ton

Based on the energy, environmental, and economic impacts IP has therefore proposed that the VOC emissions generated from the Greenwood Operations and the Flash Dryer are currently receiving RACT.

b. Landfill

IP has proposed that the landfill emissions are relatively minor and below levels which would be feasible for capture and control. IP has estimated the quantity of non-methane VOC (NMOC) emissions to be approximately 2.3 to 3.4 tons per year by utilizing EPA's MSW Landfill Gas Emission Model and IP site specific landfill gas parameters. IP has proposed that although the IP landfill is not an MSW landfill, the emissions data would be consistent with the criteria and guidelines proposed by EPA under the draft Subpart WWW (NSPS).

It is estimated that although the NMOC emissions will vary over the years as more wastes are biodegraded, eventually the rate of emissions will decrease. Thus IP has proposed that the current on-site landfill is meeting VOC RACT and to continue the periodic sampling and analysis as long as it is required by the State Consent Order.

Based on the above, the Bureau of Air Quality Control finds that IP meets the requirements of VOC RACT as specified in Chapter 134.

C. RACT for NOx Emissions

IP is authorized to operate the following air emission units, which are subject to NOx RACT:

Equipment	Maximum Capacity	Fuel Type	Control Equipment	Stack
Power Boiler #1	680 MMBtu/hr	#6 fuel oil	none	1
Power Boiler #2	680 MMBtu/hr	#6 fuel oil	none	1
Power Boiler #3 (WFI)	480 MMBtu/hr (240 MMBtu/hr oil only)	biomass, #6 fuel oil	Venturi Scrubber	2
Recovery Boiler #1	1.98 MMlb BLS/day (315 MMBtu/hr oil only)	#6 fuel oil, black liquor	ESP	3
Recovery Boiler #2	2.82 MMlb BLS/day (405 MMBtu/hr oil only)	#6 fuel oil, black liquor	ESP	3
Lime Kiln #1	72 MMBtu/hr 215 ton/day CaO	#6 fuel oil	Venturi Scrubber	4
Lime Kiln #2	72 MMBtu/hr 215 ton/day CaO	#6 fuel oil	Venturi Scrubber	5
Flash Dryer	90 MMBtu/hr	#2 fuel oil	none	n/a

~~Chapter 138 specifies that facilities which are located outside of the moderate nonattainment area for ozone shall meet the following NOx RACT emission limits, based on the emission unit and type of fuel fired, unless the facility installs a low NOx burner system or equivalent strategies on the emission units:~~

<u>Emission Unit</u>	<u>NOx Emission Limit</u>
Mid-Size Boilers (50 to 1500 MMBtu/hr)	
— Oil only	0.40 lb/MMBtu
— Biomass only	0.30 lb/MMBtu
— Biomass and Oil	0.40 lb/MMBtu
Kraft Recovery Boilers	
— corrected to 8% O <sub>2</sub> or 12% CO <sub>2</sub>	120 ppmv wet basis
Lime Kilns	
— corrected to 10% O <sub>2</sub>	120 ppmv wet basis



~~1. Power Boilers #1 and #2~~

~~IP has proposed NOx RACT for Power Boilers #1 and #2 to be the retrofit installation of low NOx burner systems. The low NOx burner systems will utilize low NOx nozzle caps and modified atomizer internals along with the optimization of the existing registers and excess air levels.~~

~~As of the beginning of May 1995, IP had installed the low NOx burner system on Boiler #1. Immediately following the installation, IP noticed a "halo" had developed behind the burners due to a backward air flow. IP has proposed that the halo may degrade the burner and reduce the burners useful life. In order to rectify the problem, IP installed an air spoiler to break the problem air vortex. IP has proposed to continue utilizing this configuration, as set up and to check for burner degradation.~~

~~Given the uncertainty of the best rectification method and that Boiler #2 is identical to Boiler #1, IP has not installed the low NOx burners on Boiler #2. IP has however, proposed to continue the installation of the fuel low NOx atomizers, which will reduce NOx emissions by approximately 10% and to install the burners once it is determined that degradation will not occur.~~

~~IP has thus requested an extension of the May 31, 1995 compliance deadline on the basis that the low NOx burner systems as installed are not reasonably available for full operation until August 1, 1995.~~

~~The Bureau of Air Quality Control hereby grants IP the extension until August 1, 1995 for Power Boilers #1 and #2 given the fact that the installation of the low NOx burner systems is not practical or reliable, as provided for in the NOx supplement to the General Preamble (57 FR 55619), Section 2.6.2 entitled Phase in Controls Beyond May 1995.~~

~~2. Power Boiler #3 (WFI)~~

~~IP has proposed NOx RACT for Boiler #3 to be the installation of the NOx CEMS and compliance with the proposed limits on a 24 hour block average basis as specified by Chapter 138.~~

~~3. Recovery Boilers #1 and #2~~

~~IP has proposed NOx RACT for Recovery Boilers #1 and #2 to be the installation of the NOx CEMS and compliance with the proposed limit (converted to a dry basis CEM system) on a 24 hour block average basis as specified by Chapter 138.~~

~~4. Lime Kilns #1 and #2  
IP has proposed NOx RACT for Lime Kilns #1 and #2 to be compliance with the proposed limits as specified by Chapter 138.~~

5. Flash Dryer

The flash dryer at IP is used to produce bales of dried pulp. The flash dryer is considered by Chapter 138 as a miscellaneous stationary NOx source and therefore IP has proposed an alternative RACT analysis. IP evaluated the feasibility of the following NOx control options: low-NOx burners, overfire air, flue gas reburn, burners out of service, use of alternative fuels, selective non-catalytic reduction, selective catalytic reduction, and alternative operating scenarios. In conclusion, IP has concluded that none of the options listed above were found to be technically or economically feasible, and thus the existing unit as configured and operated employs RACT, based on the fact that the firing of #2 fuel oil is inherently a low NOx fuel.

Based on the above, the Bureau of Air Quality Control finds that IP meets the requirements of NOx RACT as specified in Chapter 138.

### III. EMISSION STANDARDS

IP shall meet the following NOx RACT emission limits:

<u>Equipment</u>	<u>NOx</u>
Power Boiler #3	0.40 lb/MMBtu
<del>Recovery Boiler #1 and #2</del>	<del>206 ppmv dry basis</del>
<del>—corrected to 8% O<sub>2</sub> or 12% CO<sub>2</sub></del>	
Lime Kiln #1	120 ppmv wet basis
<del>—corrected to 10% O<sub>2</sub></del>	
Lime Kiln #2	120 ppmv wet basis
<del>—corrected to 10% O<sub>2</sub></del>	
Flash Dryer	0.14 lb/MMBtu

### IV. COMPLIANCE ASSURANCE

~~A. Power Boilers #1 and #2  
1. IP shall install a NOx CEMS on each individual ducting to the combined stack. The CEMS shall meet the requirements of Chapter 117 and shall be installed and certified by May 31, 1996.~~



~~2. Upon certification of the NO<sub>x</sub> CEMS, compliance with the CEMS monitored NO<sub>x</sub> lb/MMBtu emission limit shall be determined on a 24 hr block average basis. A 24 hour block average basis shall be defined as midnight to midnight.~~

~~B. Power Boiler #3 (WFI)~~

~~1. IP shall install a NO<sub>x</sub> CEMS on the stack. The CEMS shall meet the requirements of Chapter 117 and shall be installed and certified by May 31, 1996.~~

~~2. Upon certification of the NO<sub>x</sub> CEMS, compliance with the CEMS monitored NO<sub>x</sub> lb/MMBtu emission limit shall be determined on a 24 hr block average basis. A 24 hour block average basis shall be defined as midnight to midnight.~~

~~C. Recovery Boilers #1 and #2~~

~~1. IP shall install a NO<sub>x</sub> CEMS on each individual ducting to the combined stack. The CEMS shall meet the requirements of Chapter 117 and shall be installed and certified by May 31, 1996.~~

~~2. Upon certification of the NO<sub>x</sub> CEMS, compliance with the CEMS monitored NO<sub>x</sub> ppmv emission limit shall be determined on a 24 hr block average basis. A 24 hour block average basis shall be defined as midnight to midnight.~~

~~D. Lime Kilns #1 and #2~~

~~Compliance with the Lime Kiln #1 and #2 NO<sub>x</sub> emission limits (ppmv) shall be based on a stack test conducted in accordance with the appropriate EPA test methods (40 CFR, Part 60, Appendix A) as specified in this license.~~

E. Flash Dryer

The Flash Dryer shall only fire #2 fuel oil with a sulfur content not to exceed 0.3% by weight.

### ORDER

Based on the above Findings and subject to conditions listed below the Department concludes that the emissions from this source:

- ~~will receive Best Practical Treatment,~~
- ~~will not violate applicable emission standards,~~
- ~~will not violate applicable ambient air quality standards in conjunction with emissions from other sources.~~

The Department hereby grants Air Emission License A-203-71-R-A, subject to the conditions found in Air Emission License #1431, in the Amendments:

~~\_\_\_\_\_ A 203 71 C A, \_\_\_\_\_ A 203 71 G M,~~  
~~\_\_\_\_\_ A 203 71 J M, \_\_\_\_\_ A 203 71 K M,~~  
~~\_\_\_\_\_ A 203 71 L A, \_\_\_\_\_ A 203 71 F A,~~  
~~\_\_\_\_\_ A 203 71 M A,~~ and in the following conditions:

- (tt) IP shall meet the following VOC RACT requirements:
  - a. IP shall not utilize, without a prior license revision, sodium hypochlorite as a primary bleaching agent in Bleach Plant.
  - b. IP shall comply with the terms and conditions of their NPDES permit.
  - c. IP shall collect and control emissions from the Digester Systems A & B and the Multiple Effect Evaporator Systems A & B for TRS control as required by Chapter 124.
  - d. IP shall operate the Smelt Tank Scrubbers 1 & 2 when the Smelt Tanks 1 & 2 are in operation.
  - e. IP shall meet a TRS emissions limit of 20 ppmv corrected to 10% O<sub>2</sub> on a dry basis, as required by Chapter 124 from the Lime Kilns 1 & 2.
  
- (uu) IP shall meet the following NOx RACT emission limits and requirements:

<u>Equipment</u>	<u>NOx</u>
<del>Power Boiler #3 (WFI)</del>	<del>0.40 lb/MMBtu</del>
<del>Recovery Boiler #1 and #2</del>	<del>206 ppmv dry basis</del>
<del>—corrected to 8% O<sub>2</sub> or 12% CO<sub>2</sub></del>	
<del>Lime Kiln #1</del>	<del>120 ppmv wet basis</del>
<del>—corrected to 10% O<sub>2</sub></del>	
<del>Lime Kiln #2</del>	<del>120 ppmv wet basis</del>
<del>—corrected to 10% O<sub>2</sub></del>	
Flash Dryer	0.14 lb/MMBtu



- ~~1. Power Boilers #1 and #2
  - ~~a. IP shall install a NO<sub>x</sub> CEMS on each individual ducting to the combined stack. The NO<sub>x</sub> CEMS shall meet the requirements of Chapter 117 and shall be installed and certified by May 31, 1996.~~
  - ~~b. Upon certification of the NO<sub>x</sub> CEMS, compliance with the NO<sub>x</sub> CEMS monitored NO<sub>x</sub> lb/MMBtu emission limit shall be determined on a 24 hr block average basis. A 24 hour block average basis shall be defined as midnight to midnight.~~
  - ~~c. IP shall have the low NO<sub>x</sub> burner systems installed on Power Boilers #1 and #2 by August 1, 1995. The extension for Power Boilers #1 and #2 is granted given the fact that the installation of the low NO<sub>x</sub> burner systems is not practical or reliable, as provided for in the NO<sub>x</sub> supplement to the General Preamble (57 FR 55619), Section 2.6.2 entitled Phase in Controls Beyond May 1995.~~~~
- ~~2. Power Boiler #3 (WFI)
  - ~~a. IP shall install a NO<sub>x</sub> CEMS on the WFI stack. The CEMS shall meet the requirements of Chapter 117 and shall be installed and certified by May 31, 1996.~~
  - ~~b. Upon certification of the NO<sub>x</sub> CEMS, compliance with the CEMS monitored NO<sub>x</sub> lb/MMBtu emission limit shall be determined on a 24 hr block average basis. A 24 hour block average basis shall be defined as midnight to midnight.~~~~
- ~~3. Recovery Boilers #1 and #2
  - ~~a. NO<sub>x</sub> is limited to 206 ppmv corrected to 8% O<sub>2</sub> or 12% CO<sub>2</sub> on a dry basis.~~
  - ~~b. IP shall install a CEMS on each individual ducting to the combined stack. The CEMS shall meet the requirements of Chapter 117 and shall be installed and certified by May 31, 1996.~~
  - ~~c. Upon certification of the CEMS, compliance with the CEMS monitored NO<sub>x</sub> ppmv emission limit shall be determined on a 24 hr block average basis. A 24 hour block average basis shall be defined as midnight to midnight.~~~~
- ~~4. Lime Kilns #1 and #2
  - ~~a. NO<sub>x</sub> is limited to 120 ppmv corrected to 10% O<sub>2</sub> on a wet basis.~~
  - ~~b. Compliance with the Lime Kiln #1 and #2 NO<sub>x</sub> emission limits (ppmv) shall be based on a stack test conducted in accordance with the appropriate EPA test methods (40 CFR, Part 60, Appendix A) once every two years, the first by May 31, 1997.~~~~

INTERNATIONAL PAPER COMPANY )  
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12 AMENDMENT #8 )

~~Prepare a full engineering report for the required stack testing, including an evaluation of test procedures, test results, and source operations. Submit such report to the Bureau of Air Quality Control within 30 days after each test.~~

5. Flash Dryer

The Flash Dryer shall only fire #2 fuel oil with a sulfur content not to exceed 0.3% by weight.

(vv) This amendment shall expire concurrently with Air Emission License #1431.

DONE AND DATED IN AUGUSTA, MAINE THIS 4th DAY OF October 1995.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Edward O. Sullivan*  
EDWARD O. SULLIVAN

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application February 3, 1995

Date of application acceptance May 23, 1995

Date filed with the Board of Environmental Protection \_\_\_\_\_

This Order prepared by Kim Hibbard, Bureau of Air Quality Control

