

STATEMENT OF BASIS

for the issuance of Draft Air Permit # 0287-AOP-R4

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913

2. APPLICANT:

Domtar Industries, Inc. – Ashdown Mill
285 Highway 71 South
Little Rock, Arkansas 71822

PERMIT WRITER: Phillip Murphy

3. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Kraft paper stock manufacturing
NAICS Code: 322121

SUBMITTALS: October 3, 2003, December 12, 2003, June 1, 2004, August 24, 2004, and December 7, 2004

4. REVIEWER'S NOTES:

Minor Modification dated October 3, 2003 - Domtar requested to route the vents from the lime silos to the slaker scrubber associated with the recausticizing line. The lime silos will vent to the slaker scrubbers during times of worker entry into the lime kilns.

Renewal Application dated 12-3-2003 - The renewal application requested reclassification of the SN-39 High Density Storage Tanks as Insignificant Activity. Domtar also wants to run additional tests to the No. 2 Power Boiler (SN-05) and the No. 2 Lime Kiln (SN-09) to establish new pressure drop parameters for the associated scrubbers. Domtar requested to eliminate the lb/MMBtu for CO for the No. 2 Power Boiler at low steam rates. The permit adds the new MACT requirements of Subpart MM to the specific conditions for the Lime Kilns (SN-02 and SN-09), Recovery Boilers (SN-06 and SN-14) and the Smelt Tank Vents (SN-08 and SN-015). In the Renewal permit, the Bleachplant Vents (SN-16 to SN-18) and the Pre-Bleach Washer (SN-46) have been “bundled”, in part to show that the same regulations apply to all these sources.

Allowable fuels in the three Power Boilers expanded to include wood chips used to absorb oil spills and reprocessed motor oil.

The existing permit allowed “small quantities of tire-derived fuels” in the three Power Boilers with no upper limit. The permit allows burning of TDF at no more than 10% of the total boiler heat capacity of the three boilers in a 24-hour period.

Previous requirements for measuring and recording flue gas exit temperatures have been dropped, as stack test data shows acceptable rates of VOC destruction under normal operating procedures and combustion temperatures. Testing for acetaldehyde and benzene were discontinued in 2000 after these were demonstrated to be below detectable levels. Testing for barium has been conducted annually and will no longer be required with this permit, as testing has shown that barium emissions are consistently less than 1 ppm.

Domtar decided to use the maximum amount of #6 fuel oil in the No. 2 Lime Kiln, equivalent to 85% of heat capacity – some natural gas must be used. Test data submitted showed that SO₂ generated by the sulfur content was less than 1% of theoretical generated by combustion of fuel. Subsequent discussions led to the conclusion that almost all of the SO₂ reacts with the lime or absorbed in the caustic scrubber. Domtar decided to retain the SO₂ emission rates of criteria pollutants based on the most recent (1998) AP-42 factors for fuel oil combustion.

Minor Modification dated 12-3-2003 - Domtar requested to install a new Carbonator. The current permit (R3) indicates that Domtar installed six carbonators (SN-30 to SN-35), but actually only five are in place.

Minor Modification dated 12-7-04 - The permit adds reprocessed fuel oil as a fuel for the #1 Power Boiler and the #2 Lime Kiln.

5. COMPLIANCE STATUS:

The following summarizes the current compliance status of the facility including active/pending enforcement actions and recent compliance activities and issues:

The permittee will be in compliance with this permit upon issuance of this permit.

6. APPLICABLE REGULATIONS:

PSD Applicability

Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, et cetera)?	N	
Has this facility undergone PSD review in the past?	Y	Permits #287-AR-1, -3, -5 and -6 and Permit #946A
Is this facility categorized as a major source for PSD?	Y	
100 tpy and on the list of 28 (100 tpy)?	Y	
250 tpy all other	Y	

PSD Netting

Is netting performed to avoid PSD review in this permit?

N

7. Source and Pollutant Specific Regulatory Applicability

Source No.	Regulation	Description
Facility	40 CFR Part 63, Subpart S	NESHAPS for Hazardous Air Pollutants from the Pulp and Paper Industry
Facility	40 CFR Part 60, Subpart A	General Provisions
01	40 CFR Part 60, Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
01	40 CFR 52, Subpart E	Prevention of Significant Deterioration
02	40 CFR Part 60, Subpart BB	Standards of performance for Kraft Pulp Mills
02	40 CFR Part 63, Subpart MM	NESHAPS for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfitite and Stand-Alone Semicheical Pulp Mills
02	40 CFR 52, Subpart E	Prevention of Significant Deterioration
05	40 CFR Part 60, Subpart BB	Standards of Performance for Kraft Pulp Mills
05	40 CFR Part 60, Subpart D	Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced after August 17, 1971
06	40 CFR Part 60, Subpart BB	Standards of Performance for Kraft Pulp Mills
06	40 CFR 52, Subpart E	Prevention of Significant Deterioration
06	40 CFR Part 63, Subpart MM	NESHAPS for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfitite and Stand-Alone Semicheical Pulp Mills
08	40 CFR Part 60, Subpart BB	Standards of Performance for Kraft Pulp Mills
08	40 CFR §52.21	Prevention of Significant Deterioration

Source No.	Regulation	Description
08	40 CFR Part 63, Subpart MM	NESHAPS for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite and Stand-Alone Semichemical Pulp Mills
09	40 CFR Part 60, Subpart BB	Standards of Performance for Kraft Pulp Mills
09	40 CFR Part 63, Subpart MM	NESHAPS for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite and Stand-Alone Semichemical Pulp Mills
11	40 CFR 52, Subpart E	Prevention of Significant Deterioration
12	40 CFR Part 60, Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
14	40 CFR Part 60, Subpart BB	Standards of Performance for Kraft Pulp Mills
14	40 CFR 52, Subpart E	Prevention of Significant Deterioration
14	40 CFR Part 63, Subpart M	NESHAPS for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite and Stand-Alone Semichemical Pulp Mills
15	40 CFR Part 60, Subpart BB	Standards of Performance for Kraft Pulp Mills
15	40 CFR 52, Subpart E	Prevention of Significant Deterioration

8. EMISSION CHANGES:

The following table summarizes plant wide emission changes associated with this permitting action.

Plant Wide Permitted Emissions (ton/yr)			
Pollutant	Permit 0287-AOP-R3	Permit 0287-AOP-R4	Change
PM/PM ₁₀	3158.5	3158.5	0
SO ₂	8111.6	8111.6	0
VOC	2863.0	2857.7	-5.3
CO	12473.3	12473.3	0

NO _x	7995.6	7995.6	0
Pb	0.10	0.10	0
TRS	118.5	118.5	0
Acetaldehyde	451.24	451.24	0
Benzene	6.06	6.06	0
Chloroform	101.89	101.89	0
Formaldehyde	13.99	13.99	0
HCl	488.20	488.20	0
Methanol	536.82	533.2	-3.62
Naphthalene	4.38	4.38	0
Styrene	0.10	0.1	0
Acetone	10.86	10.86	0
Ammonia	71.5	71.5	0
Barium	4.92	4.92	0
Chlorine	27.66	27.66	0
Chlorine Dioxide	30.68	30.68	0
Phosphoric Acid	0.10	0.10	0
Sulfuric Acid	32.94	32.94	0

9. MODELING:

Pollutant	Emission Rate (lb/hr)	NAAQS Standard (µg/m ³)	Averaging Time	Highest Concentration (µg/m ³)	% of NAAQS
PM ₁₀		50	Annual	2.4	5%
		150	24-hour	17	11%
SO ₂		80	Annual	8.13	10%

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
		1,300	3-hour	476	37%
		365	24-hour	134	37%
NO _x		100	Annual	28	28%
VOC		0.12	1-hour (ppm)		0%
CO		10,000	8-hour	704.98541	7%
		40,000	1-hour	1397.32	3.5%

Other Modeling

Odor

Odor modeling for sources emitting styrene.

Pollutant	Threshold value 1-hour average	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
Styrene	1361 $\mu\text{g}/\text{m}^3$	NA	NA

H₂S Modeling

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific standards.

Pollutant	Threshold value	Modeled Concentration (ppb)	Pass?
H ₂ S	20 parts per billion (5-minute average)	40 CFR 63 Subpart BB exemption	Y
	80 parts per billion (8-hour average) residential area	40 CFR 63 Subpart BB exemption	Y
	100 parts per billion (8-hour average) nonresidential area	40 CFR 63 Subpart BB exemption	Y

Non-Criteria Pollutants

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department deemed PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m³), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m ³)	PAER (lb/hr)= 0.11*TLV	Proposed lb/hr	Pass?
Acetaldehyde	45.0	5.0	2.47	Y
Benzene	1.6	0.17	1.15	N
Chloroform	48.8	5.37	23.3	N
Formaldehyde	0.004	0.04	3.21	N
Hydrogen Chloride	0.3	0.03	111.45	N
Methanol	262	28.82	114.48	N
Naphthalene	52.42	5.77	1.00	Y
Styrene	85.2	0.85	0.1	Y
Toluene	188.4	20.7	0.09	Y
Acetone	1187	130.58	10.86	Y
Ammonia	17.4	1.91	103.1	N
Barium	0.5	0.055	1.12	N
Chlorine	1.45	0.16	6.30	N
Chlorine Dioxide	0.27	0.03	8	N
Phosphoric Acid	1	.01	0.01	Y
Sulfuric Acid	.2	.002	0.1	N

2nd Tier Screening (PAIL)

ISCST3 air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound was deemed by the Department to be one one-hundredth of the Threshold Limit Value, as listed by the ACGIH.

Pollutant	(PAIL, $\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
Benzene	15.97	15.40	Y
Chloroform	488.26	1.3	Y
Formaldehyde	3.68	0.87080	Y
Hydrogen Chloride	2.98	0.06	Y
Methanol	2620	235	Y
Ammonia	174	71.40282	Y
Barium	5	0.00401	Y
Chlorine	14.50102249	0.5	Y
Chlorine Dioxide	2.759100204	0.5	Y
Sulfuric Acid	2	0.13	Y

10. CALCULATIONS:

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Source SN-01 No. 3 Power Boiler					
PM/PM ₁₀	NSPS and PSD	0.025 lb/MMBtu	ESP	98	Controlled Lb/hr based on 790 MMBtu/hr
SO ₂	PSD BACT	0.1 lb/MMBtu (NSPS Limit)	N/A	-	PSD limit applied to unit with 620 MMBtu/hr of bark feed and 170 MMBtu/hr natural gas. (Permit 946-A)

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
VOC	PSD BACT	0.027 lb/MMBtu	N/A		PSD limit applied to unit with 790 MMBtu/hr of bark feed and natural gas at a steam production rate of 450,000 lbs/hr. (Permit 946-A)
CO	PSD BACT	0.35 lb/MMBtu	N/A		PSD limit applied to unit with 790 MMBtu/hr of a combination of bark feed and natural gas at a steam production rate of 450,000 lbs/hr. (Permit 946-A)
NO _x	PSD and NSPS Db	0.3 lb/MMBtu	N/A		PSD limit applied to unit with 790 MMBtu/hr of a combination of bark feed and natural gas at a steam production rate of 450,000 lbs/hr. (Permit 946-A)
Acetaldehyde	Stack Test	0.21 lb/hr	N/A		
Benzene	Stack Test	0.21 lb/hr	N/A		
Naphthalene	Stack Test	0.50 lb/hr	N/A		
SN-02- No. 3 Lime Kilns					
PM ₁₀ /PM	NSPS BB	0.066 gr/dscf	ESP	98	
SO ₂	PSD	0.727 lb/Ton CaO (13.3 lb/hr)			PSD limit applied to unit with 440 tons per day of lime (Permit 946-A) (0.727*440)/24= lbs/hr tpy *8760
VOC	PSD	0.795 lb/ton of CaO			287-AR-7 cites AP-42, 4 th Edition, current AP-42 does not have a factor. Calculation of lb/h and Tpy same as SO ₂ . The permit has as PSD limit but 946-A did not have in PSD. Picked up as a PSD cite in 287-AR-7.

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
CO	PSD	3.0 lb/ton CaO			PSD limit applied to unit with 440 tons per day of lime (Permit 946-A) $(3.0*440)/24=$ lbs/hr tpy *8760
NO _x	PSD	3.63 lb/ton CaO			PSD limit applied to unit with 440 tons per day of lime (Permit 946-A) $(3.63*440)/24=$ lbs/hr tpy *8760
TRS	NSPS BB	8 ppm			lbs/hr
Benzene	Stack Test	0.24 lbs/hr			Tpy=lbs/hr *8760
Methanol	Stack Test	1.31 lbs/hr			Tpy=lbs/hr *8760
Source SN 03 - No. 1 Power Boiler					
PM ₁₀ PM	Stack Test	343.0 lbs/hr			Stack test 20% SF
SO ₂	Fuel Reporting	214 lb/hr			
VOC	Stack Test	43 lb/hr			
CO	Stack Test	164 lbs/hr			Stack test 20% SF
NO _x	Stack Test	247.5 lb/hr			
Acetaldehyde	NCASI Factor	0.84			
Barium	NCASI Factor	0.77			
Benzene	NCASI Factor	0.49			
Source SN 05 - No. 2 Power Boiler					
PM ₁₀	NSPS	0.1 lb/MMBtu	Venturi Scrubber	98	Tpy is 8760 * hourly rate
SO ₂	NSPS	1.2 lb/MMBtu	Venturi Scrubber	98	Tpy is 8760 * hourly rate
VOC	AP-42 , 4 th edition, 1985	0.112 lb/mmbtu			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
CO	AP-42 , 4 th edition, 1985	0.324 Lb/mmBtu			
NO _x	NSPS	0.7 lb/MMBtu			Tpy is 8760 * hourly rate
Lead	EPA Toxic Air Pollutant Factors, October 1988	0.03 lb/hrt			
Acetaldehyde	Stack Test	0.21 lb/hr			
Benzene	Stack Test	0.21 lb/hr			
HCl	Stack Test	5.75 lb/hr			
Naphthalene	Stack Test	0.50 lb/hr			
No. 2 Recovery Boiler					
PM ₁₀	NSPS	0.044 gr/dscf	ESP	98	
SO ₂	PSD	286 lb/hr			Tpy is 8760 * hourly rate. PSD limit from 287-AR-3
VOC	AP-42 , 4 th edition, 1985	0.8 lb/ADTP			
CO	?	16.8 lb/ADTP			
NO _x		5.3 lb/ADTP			
Formaldehyde	Stack Test	0.72 lb/hr			
Hydrogen Chloride	Stack Test	51.20 lb/hr			
Methanol	Stack Test	1.18 lb/hr			
Styrene	Stack Test	3.22 lb/hr			
Sulfuric Acid	Stack Test	0.06 lb/hr			
TRS	NSPS BB	5 PPMV			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Source SN-08 - No. 2 Smelt Dissolving Tank					
PM ₁₀ / PM	NSPS BB	0.2 lb/ton BLS	Scrubber	80	PM is a PSD limit from 287-AR-3
SO ₂	PSD		Scrubber	80	SO ₂ is a PSD limit from 287-AR-3
VOC	FIRE Data Base, AP-42 , 4 th edition, 1985	0.16 lb/ARDP			
Ammonia	Stack Test	40.00 lb/hr			
Formaldehyde	Stack Test	0.36 lb/hr			
Methanol	Stack Test	5.40 lb/hr			
TRS	NSPS	0.0168 g/kg BLS	Scrubber	60	
Source SN-09 - No. 2 Lime Kiln					
PM ₁₀	NSPS	0.064 gr/dscf	Scrubber	85	
SO ₂	Permit 946A	0.727 lb/ton CaO			Based on BACT for Lime Kiln No. 3
VOC	AP-42 , 4 th edition, 1985	0.9353 lb/ton CaO			
CO	AP-42 , 4 th edition, 1985	3.0 lb/ton CaO			Based on BACT for Lime Kiln No. 3
NO _x	AP-42 , 4 th edition, 1985	3.7411 lb/ton CaO			
Benzene	Stack Test	0.23			
Methanol	Stack Test	1.18			
Formaldehyde	Stack Test	0.02			
Toluene	Stack Test	0.02			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
TRS	NSPS	8.00 ppm	Scrubber	25	
Source SN-11 - No. 2 Natural Gas-Fired Package Boiler					
PM ₁₀	AP-42 , 4 th edition, 1985	0.0029 lb/MMBtu			
SO ₂	AP-42 , 4 th edition, 1985	0.001 lb/MMBtu r			
VOC	AP-42 , 4 th edition, 1985	0.0014 1 lb/MMBtu			
CO	AP-42 , 4 th edition, 1985	0.12 lb/MMBtu			
NO _x	AP-42 , 4 th edition, 1985	0.13 lb/MMBtu			PSD limit with BACT of natural gas as fuel in Permit No. 287-AR-3 and excess O ₂ between 8 and 12%.
Source SN-12 - No. 3 Package Boiler					
PM ₁₀ /PM	AP-42 , 4 th edition, 1985	0.0029 lb/MMBtu			
SO ₂	AP-42 , 4 th edition, 1985	0.001 lb/MMBtu r			
VOC	AP-42 , 4 th edition, 1985	0.0014 1 lb/MMBtu			
CO	AP-42 , 4 th edition, 1985	0.12 lb/MMBtu			
NO _x	AP-42 , 4 th edition, 1985	0.13 lb/MMBtu			
Source SN-14 - No. 3 Recovery Boiler					
PM ₁₀ /PM	NSPS	0.044 gr/dscf	ESP	98	controlled

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
SO ₂		250 PPM			287-AR had a PSD avoidance limit of the firing rate of BLS. CEMS can show compliance now. 1861.5 tpy
VOC	AP-42 , 4 th edition, 1985	0.8 lb/ADTP			
CO		16.8 lb/ADTP			
NO _x		5.3 lb/ADTP			
Formaldehyde	Stack Test	0.87 lb/hr			
Hydrogen Chloride	Stack Test	54.50 lb/hr			
Methanol	Stack Test	0.46 lb/hr			
Styrene	Stack Test	0.07 lb/hr			
Sulfuric Acid	Stack Test	4.20 lb/hr			
TRS	NSPS BB	6.6 lb/hr			
Source SN-15 - No. 3 Smelt Dissolving Tank					
PM ₁₀ /PM	NSPS BB	0.1 g/kg BLS	Scrubber	90	
SO ₂			Scrubber	10	
VOC	FIRE Data Base, AP-42 , 4 th edition, 1985	9.9			
TRS	NSPS BB	0.0168 g/kg BLS	Scrubber	25	
Ammonia	Stack Test				
Formaldehyde	Stack Test				
Methanol	Stack Test				

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Sources SN-16 – No. 1A Bleachplant Vents, SN-17 - No. 1B Bleachplant Vents and SN-18 - No. 2 Bleachplant Vents					
VOC	Stack Test	7.0 lb/hr			Bubbled Sources
CO	Stack Test	240.4 lb/hr			
Chlorine	Stack Test	6.00 lb/hr	Scrubber	99	
Chlorine Dioxide	Stack Test	4.00 lb/hr	Scrubber	99	
Chloroform	Stack Test	16.50 lb/hr			
Source SN-20 - ERCO ClO ₂ Generator					
Chlorine	Stack Test	0.30 lb/hr			
Chlorine Dioxide	Stack Test	3.00 lb/hr			
Source SN-21 - Effluent Treatment Lagoons					
VOC	NCASI	12.8 lb/hr	Biodegradation	92	Controlled
Chloroform	NCASI	8.80 lb/hr	Biodegradation		
Formaldehyde	NCASI	0.20 lb/hr	Biodegradation		
Methanol	NCASI	59.00 lb/hr	Biodegradation	92	Controlled
Source SN-22 - No. 1A and 1B Brownstock Washers					
VOC	stack test	1A 0.57 lb/ton pulp and No. 1B .06173 lb/ton pulp			
Acetone	stack test	8.80			
Formaldehyde	stack test	1A 0.0109 lb/ton pulp			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Methanol	stack test	1A 0.01731 lb/ton pulp and No. 1B .01593 lb/ton pulp			
Source SN-23 - Storage Tank - Methanol Tank					
VOC	Society of Organic Chemical Manufactures Industry factor 287-AR-7	4.2E-4 lbs/lb throughput	N ₂ Pad		
Methanol	Society of Organic Chemical Manufactures Industry factor 287-AR-7	4.2E-4 lbs/lb throughput	N ₂ Pad		
, SN-25 - Storage Tank,					
Phosphoric Acid	Society of Organic Chemical Manufactures Industry factor 287-AR-7	1.33E-4 lbs/lb throughput			
SN-26 - Storage Tank					
Sulfuric Acid	Society of Organic Chemical Manufactures Industry factor 287-AR-7	8.37 lbs/lb throughput			
SN-28 - Storage Tank					

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
VOC	Society of Organic Chemical Manufactures Industry factor 287-AR-7	1.65E-4 lbs/lb throughput			
Source SN-29 - Reausticizer Vents					
VOC	NCASI Factor	3.7E-2 lbs/ton CaO			
Acetaldehyde	NCASI Factor	2.1E-2 lbs/ton CaO			
Ammonia	NCASI Factor	0.4 lbs/ton CaO			
Methanol	NCASI Factor	0.1 lbs/ton CaO			
Sources SN-30A, SN-30B, SN-30C, SN-30D, SN-30E and SN-30E - Lime Silos					
PM ₁₀	Stack test	4.8 lb/hr			
SO ₂	Stack test	2.4 lb/hr			
VOC	Stack test	12.6 lb/hr			
CO	Stack test	54.6 lb/hr			
NO _x	Stack test	65.4 lb/hr			
TRS	Stack test	0.36 lb/hr			
Source SN-36 - Weak Black Liquor Tanks					
VOC	Stack test	7.3 lb/hr			
Methanol	Stack test	6.30 lb/hr			
TRS	Stack test	0.1 lb/hr			
Source SN-37 - Pulp Dryer Hood and Vacuum Exhausts					
VOC	Stack test	4.7 lb/hr			
Acetaldehyde	Stack test	0.70 lb/hr			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Methanol	Stack test	2.60 lb/hr			
Source SN-38 - No. 2 and No. 3 Wood Yards					
VOC	NCASI	0.25 lbs/ton wood chips			
Source SN-40 - No. 1A and No. 1B Digester Chip Fill Exhausts					
VOC	Estimate	10 lb/hr			Compliance demonstrated by limiting time between blows
Methanol	Estimate	5.75 lb/hr			Compliance demonstrated by limiting time between blows
TRS	Estimate	2.02 lb/hr			Compliance demonstrated by limiting time between blows
Source SN-41 - Sludge Landfill					
VOC	?				
Methanol	?				
Source SN-42 - No. 2 Decker					
VOC	Stack Test	5.6 lb/hr			
Acetone	Stack Test	7.50 lb/hr			
Methanol	Stack Test	3.30 lb/hr			
Source SN-43 - Tub Grinder					
PM ₁₀ /PM	AP-42 Large diesel engines	0.1 lb/MMBtu			
SO ₂	AP-42	2.5 lb/MMBtu			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
VOC	AP-42	0.09 lb/MMBtu			
CO	AP-42	0.85 lb/MMBtu			
NO _x	AP-42	3.2 lb/MMBtu			
Sources SN-44a, SN-44b, SN-44c and SN-44d - Paper Machines					
VOC	Mass Balance			Limited by VOC and Methanol in shower water	
Methanol	Mass Balance			Limited by VOC and Methanol in shower water	
Source SN-45 - Oxygen Delignification System					
VOC	Stack Test	9.1 lb/hr			
CO	Stack Test	16.5 lb/hr			
Methanol	Stack Test	9.11 lb/hr			

Limits for TDF fuel were calculated by multiplying the boiler heat capacity (MMBtu/hr) by 10% and dividing this by the estimated Btu/lb of TDF. This hourly figure was multiplied by 24 hrs and divided by 2,000 lb/ton to give a limit for each Power Boiler in terms of tons/24 hrs.

11. TESTING REQUIREMENTS:

This permit adds additional stack testing of the following sources to assure compliance with Subpart MM.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
01	PM	5	Every 5 years	§19.702
01	PM ₁₀	201A and 202 or 5 and 202	Every 5 years	§19.702

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
SN-01	VOC	Method 25A	Every 5 years	§19.702
SN-02	PM/PM ₁₀	5 or 29	Initial test	§63.865
02	O ₂	3, 3A or 3B	Initial test	§63.865
02	PM	5	Every five years	§18.1002
02	PM ₁₀	201A and 202 or 5 and 202	Every five years	§19.702
02	VOC	25A	Every five years	§19.702
02	% Solids in Lime Mud		Once per day	§19.705
03	Sulfur Content of Fuel Oil	Manufacturer Certification or ASTM Sulfur content	Each Shipment	§19.705
03	VOC	25A	Every five years	§19.705
03	PM	5 and 202	Every five years	§18.1002
03	PM ₁₀	201A and 202 or 5 and 202	Every five years	§19.705
03	CO	10B	Every five years	§19.705
03	NO _x	7E	Every five years	§19.705
05	PM	5	Every five years	§18.1002
05	PM ₁₀	201A and 202 or 5 and 202	Every five years	§19.705
05	VOC	25A	Every five years	§19.705
05	HCl	26A	Every five years	§18.1002
06	VOC	25A	Every five years	§19.705
06	PM	5 and 202	Every five years	§19.705
06	PM ₁₀	201A and 202 or 5 and 202	Every five years	§19.705
08	TRS	16	Every five years	§18.1002
08	VOC	25A	Every five years	§19.705
08	O ₂	3A or 3B	Once	§63.865

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
08	PM	5	Every five years	§19.705
08	PM ₁₀	201A and 202 or 5 and 202	Every five years	§19.705
09	PM	5 or 29	Once	§63.865
09	O ₂	3A or 3B	Once	§63.865
09	NO _x	7E	Every five years	§19.705
14	VOC	25A	Every five years	Y
15	TRS	16	Annual	§19.804
15	Ammonia	206	Every five years	§19.703
15	PM	5 or 29	Initial	63.865
15	O ₂	3 or 3A	Initial	63.865
16,17,18	Pressure differential	Pressure transmitter	Yearly	63.453(a)(1)
16,17,18	Cl ₂ , ClO ₂	NCASI Special Report Number 91-07	Every five years	18.1002
16,17,18	CO	10B	Every five years	§19.703
16,17,18	VOC	25A	Every five years	§19.703
20	Cl ₂ , ClO ₂	NCASI Special Report Number 91-07	Every five years	18.1002
21	BOD ₅	Water Test	Daily	63.453(j)
21	Mixed Liquor TVSS	Water Test	Daily	63.453(j)
21	Horsepower of Aerator units	Observation	Daily	63.453(j)
21	Inlet liquid flow	Flow Meter	Daily	63.453(j)
21	Liquid Temperature	Thermocouple	Daily	63.453(j)

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
21	BOD ₅ percent reduction	BOD ₅	Quarterly	63.453(j)
22	Methanol	25D	Yearly	§18.1003
22	Acetone	25D	Yearly	§18.1003
30	PM	5	Every five years	§19.702
30	PM/PM ₁₀	201A and 202 or 5 and 202	Every five years	§19.702
30	SO ₂	6C	Every five years	§19.702
30	VOC	25A	Every five years	§19.702
30	NO _x	7E	Every five years	§19.702
37	VOC	25D	Yearly	§19.702
42	Methanol	NCASI Method DI/MEOH-94-02, Methanol in Process liquids by GC/FID, August 1998, Methods Manual, NCASI, Research Triangle Park, NC	Yearly	§18.1002
42	Acetone		Yearly	§18.1002
44a	VOC	25D on shower water	Yearly	§19.703
44b, 44c, 44d	Methanol	NCASI Method DI/MEOH-94-02, Methanol in Process liquids by GC/FID, August 1998, Methods Manual, NCASI, Research Triangle Park, NC	Yearly	§18.1002
45	VOC	25A	Every 5 years	§19.705
45	CO	10	Every 5 years	§19.705

12. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMs or other monitoring equipment (temperature, pressure differential, etc), frequency of recording and the need for records included in any annual, semiannual or other reports.

SN(s)	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
01	CO	CEM	Every 15 minutes; Average once/ hour	Y
01	NO _x	CEM,	Every 15 minutes; Average once/ hour	Y
01	Opacity	COMS	Six-minute average	N
02	TRS	CEM	12-hour Average	N
02	CO	CEM	Every 15 minutes; Average once/ hour	N
02	Opacity	COM	Six-minute average	N
02	O ₂	CEM	Every 15 minutes; Average once/ hour	N
03	Pressure Drop across Multi-clones	CEM	Once per 8-hr shift	N
05	CO	CEM	Every 15 minutes; Average once/ hour	N
05	SO ₂	CEM	Every 15 minutes; Average once/ hour	N
05	NO _x	CEM	Every 15 minutes; Average once/ hour	N
05	O ₂	CEM	Every 15 minutes; Average once/ hour	N
05	Temperature	CEM	Continuous	N
05	Scrubbing Liquid Flow rate	CEM	Continuous	N
05	Pressure Drop of Gas Stream	CEM	Continuous	N
06	TRS	CEM	Every 15 minutes; Average once/ hour	Y
06	CO	CEM	Every 15 minutes; Average once/ hour	Y
06	NO _x	CEM	Every 15 minutes; Average once/ hour	Y

SN(s)	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
06	SO ₂	CEM	Every 15 minutes; Average once/ hour	Y
06	Opacity	COM	Six-minute average	N
06	O ₂	CEM	Every 15 minutes; Average once/ hour	Y
06	Floor Tube Temperature	CEM	Continuous	N
08	Pressure Drop of gas stream	CEM	Continuous	Y
08	Pressure of liquid supply	Pressure Gauge	Continuous	Y
08	Scrubbing liquor flow rate	Flow meter	Continuous	Y
09	TRS	CEM	Every 15 minutes; Average once/ hour	N
09	CO	CEM	Every 15 minutes; Average once/ hour	N
09	Scrubbing liquid flow rate	Flow rate monitor	Recording device	N
09	Air pressure drop across scrubber	Pressure drop monitor	Recording device	N
09	% solids in lime mud	Testing	Every 8-hr shift	N
09	NO _x concentration	Flow rate monitors and required equation	Every 15 minutes – average calculated every hour	N
09	O ₂	CEM	Every 15 minutes; Average once/ hour	Y
09	Temperature of lime kiln	thermocouple	Continuous	N
14	Opacity	COM	Six-minute average	N
14	TRS	CEM	Every 15 minutes; Average once/ hour	N
14	O ₂	CEM	Every 15 minutes; Average once/ hour	Y
14	CO	CEM	Every 15 minutes; Average once/ hour	N

SN(s)	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
14	NO _x	CEM	Every 15 minutes; Average once/ hour	N
14	SO ₂	CEM	Every 15 minutes; Average once/ hour	Y
14	Temperature	Temperature Monitor	Continuous	N
15	Scrubber gas pressure drop	Pressure Drop	Continuous	Y
15	Scrubber Liquid Pressure	Pressure Transmitter	Continuous	Y
15	Scrubbing liquid flow rate	Flow rate monitor	Every 8 hours – average the three daily readings	N
16	Inlet air flow rate	Amperage on induced Draft Fans	Continuous	N
16	Scrubbing liquid flow rate	Flow rate monitor	Continuous	N
16	Inlet pH of Scrubber Liquid	pH monitor	Continuous	N
17	Inlet air flow rate	Amperage on induced Draft Fans	Continuous	N
17	Scrubbing liquid flow rate	Flow rate monitor	Continuous	N
17	Inlet pH of Scrubber Liquid	pH monitor	Continuous	N
18	Inlet air flow rate	Amperage on induced Draft Fans	Continuous	N
18	Scrubbing liquid flow rate	Flow rate monitor	Continuous	N
18	Inlet pH of Scrubber Liquid	pH monitor	Continuous	N
20	Absorption Water Temperature	Thermocouple	Continuous	N
21	ASB concentration	Cluster Rule Method	Daily	N
22	Shower water concentration	Testing shower water	Monthly	N
36	Temperature	Temperature Monitor	Daily	N
37	White water concentration	Testing shower water	Monthly	N
42	Shower water concentration	Testing shower water	Monthly	N

SN(s)	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
44a	Shower water VOC concentration	Testing shower water	Yearly	Y
44b-44d	Shower water MeOH concentration	Testing shower water	Yearly	Y

* Indicates frequency of recording required for the parameter (Continuously, hourly, daily, etc.)

** Indicates whether the parameter needs to be included in reports.

13. RECORD KEEPING REQUIREMENTS

The following are items (such as throughput, fuel usage, VOC content of coating, etc) that must be tracked and recorded, frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Recorded Item	Limit	Frequency	Report (Y/N)**
01	Fuel Usage	Recording of pounds of fuel used	Daily	N
01	Fuel Usage	Recording of pounds of fuel used	Monthly Average	Y
01	Fuel Usage	Recording of pounds of fuel used	12-month Rolling Average	Y
01	Hourly NO _x Emission Rate	237 lb/hr	Hourly	Y
01	30-day average NO _x emission rates		Monthly	Y
01	30-day average CO emission rates		30-day rolling average	Y
02	CaO Production	Ton/d	daily	Y
03	Fuel oil usage	2,700,000 gal/12 months	Monthly	Y
03	Pressure Drop across Multiclones	0.68 in. of H ₂ O	Every eight hours	N
05	Fuel Usage	tpd	daily	Y
05	Fuel Usage	tpd	Month	Y

SN	Recorded Item	Limit	Frequency	Report (Y/N)**
05	Fuel Usage	tpy		N
06	TRS emission	12-hour average	Daily	N
06	O ₂ Concentration	12-hour average	Daily	N
06	Hourly HCl Emissions	One-hour average	Hourly	N
06	Floor Tube Temperature	3-hour average	Hourly	Y
06	Floor Tube Temperature	monthly average	monthly	Y
06	Black Liquor Solids Rate	Daily feed	Daily	N
08	Pressure Drop of gas stream	Instantaneous	Once per shift	N
08	Pressure of liquid supply	Instantaneous	Once per shift	N
08	Scrubbing Liquor flow Rate	Flow Meter	Hourly	Y
08	Pressure Drop of gas stream	Pressure Drop	Once Every 15-minutes	Y
08	Scrubbing Liquor flow Rate	Flow Meter	Once Every 15-minutes	Y
09	TRS Concentration	CEMS	12-hour average	N
09	O ₂ Concentration	CEMS	12-hour average	N
09	Pressure Drop of gas stream	Instantaneous	Once per shift	N
09	Pressure of liquid supply	Instantaneous	Once per shift	N
09	Temperature	1-hour Rolling average	hourly	N
09	Fuel Oil Usage	Yearly	12-month Rolling average	Y
09	% Solids in lime mud		Once per shift	Y
09	CaO Production Rate	daily	daily	
09	Liquid Flow rate	Daily		N
09	Gas pressure drop	CEMs	Daily	N
12	Predicted NO _x emission rates	16 lb/hr		N

SN	Recorded Item	Limit	Frequency	Report (Y/N)**
12	Fuel Usage		Daily	Y
12	Fuel Usage		Monthly	Y
12	Hours of Operation		Hour	Y
12	Steam Loading		Hourly	N
14	TRS concentration		12-hour average	N
14	Black Liquor Firing Rate		Time below 1.5 MMLbs/day	N
14	HCl emissions	54.5 lb/hr and 238.71 tpy	Hourly	Y
14	BLS firing rate		Daily	Y
15	Scrubber Gas Pressure drop		Once per shift/ once every 15 minutes	Y
15	Scrubber Liquid Supply Pressure		Once per shift	Y
15	Scrubber Liquid flow Rate	175 gpm	Once per shift/ once every 15 minutes	Y
16	Fan Amperage	65 -105 amperes	Once per shift	Y
17	Fan Amperage	50 -105 amperes	Once per shift	Y
18	Fan Amperage	30 -80 amperes	Once per shift	Y
20	Scrubber Water Temperature		Once per shift	N
23	Tank Dimensions			N
23	Methanol Throughput	18,850,000 lbs/12 months	Monthly	Y
24	Ammonia Throughput	800,000 lbs/12 months	Monthly	Y
25	Phosphoric Acid throughput	1,500,000 lbs/12 months	Monthly	Y
26	Sulfuric Acid throughput	105,120,000 lbs/12 months	Monthly	Y
28	Formic Acid throughput	5,336,000 lbs/12 months	Monthly	Y
29	Lime processed	420,500 tons/12 months	Monthly	Y

SN	Recorded Item	Limit	Frequency	Report (Y/N)**
38	Woodchips processed	4,320,000 tons/12 months	Monthly	Y
40	Time sample port is opened	Only when retrieving sample	Daily	N
40	Spacing of digester blows	Minimum of 25 minutes	Daily	N
41	Sludge put in landfill	163,000 tons/12 months	Monthly	Y
43	Fuel Consumption	258,000 gallons/12 months	Monthly	Y
01,03,05	Tire derived fuel	220 tons/24-hours	daily	Y
ALL	Units Operating at less than 25% capacity		Yearly	Y

* Indicate frequency of recording required for the item (Continuously, hourly, daily, etc.)

** Indicates whether the item needs to be included in reports

14. OPACITY

SN	Opacity %	Justification	Compliance Mechanism
01	20	Boiler fired with many different fuels	COMS - submittals in accordance with CEM standards
02	20	This is a lime kiln. Particulate emissions are present which are not entirely caused by fuel combustion.	COMS - submittals in accordance with CEM standards
03	40	Power boiler that burns mostly fuel oil and bark.	Parametric monitoring of multi-clone pressure drop
	5	This is the limit when firing only natural gas.	No compliance mechanism needed when burning only natural gas.
05	20	This is a boiler which is fired with many different types of fuel.	Scrubber parameters - no submittal of records required.

SN	Opacity %	Justification	Compliance Mechanism
06	20	Recovery boiler. The highest allowable under the NSPS is 35%. The boiler is limited to 20% because of Department regulations.	CEMS - submittals in accordance with CEM standards
08	20	Smelt tank with 18 lb/hr of particulate matter emissions.	Scrubber parameters - Submittal of records as required by 63 Subpart MM
09	20	This is a lime kiln which has particulate matter emissions from fuel combustion as well as from proper operation of the kiln.	Scrubber parameters - Submittal of records as required by 63 Subpart MM
11	5	Natural gas fired boiler. Department study has shown that natural gas fired sources should not have any visible emissions when operated properly.	Natural gas as the only fuel used to fire this source.
12	5	Natural gas fired boiler. Department study has shown that natural gas fired sources should not have any visible emissions when operated properly.	Natural gas as the only fuel used to fire this source.
14	20	Recovery boiler. The highest allowable under the NSPS is 35%. The boiler is limited to 20% because of Department regulations.	COMS - submittals in accordance with CEM standards
15	20	Smelt tank with PM emissions of 18.7 lb/hr.	Scrubber parameters - Submittal of records as required by 63 Subpart MM
43	5	Tub grinder fired with diesel fuel.	Weekly observations - no submittal of records required

15. DELETED CONDITIONS:

The previous permit contained the following deleted Specific Conditions.

Former SC	Justification for removal
331-334	SN-39 (High Density Storage Tanks) now classified as IA
166	Gas Pressure drop temporarily waived until new testing revises the pressure drop parameters
100B	Gas Pressure drop temporarily waived until new testing revises the pressure drop parameters
246	No Styrene has been found in recent tests and there is no permitted level of Styrene from the bleaching system (SN-16, SN-17 and SN-18)

16. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

List all active permits voided/superseded/subsumed by issuance of this permit for this facility.

Permit #
0287-AOP-R3

CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

Thomas Rheume, P.E.