

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0287-AOP-R11 AFIN: 41-00002

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Domtar A.W. LLC
285 Highway 71 South
Ashdown, Arkansas 71822

3. PERMIT WRITER:

Charles Hurt, P.E.

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Paper (except Newsprint) Mills
NAICS Code: 322121

5. SUBMITTALS:

6/8/2012

6. REVIEWER'S NOTES:

Domtar A.W. LLC. –Ashdown Mill (AFIN: 41-00002) operates a paper mill located at 285 Highway 71 South in Ashdown, Arkansas 71822. Domtar submitted an application to establish emission limits for certain pollutants pursuant to recent stack testing conducted at the Oxygen Delignification System (SN-45) and to allow an additional fuel to be combusted in the Rental Boiler (SN-47). Emission limits for acetaldehyde and total reduced sulfur (TRS) were included for SN-45. Emission limits for NO_x and SO₂ were revised at SN-47 to allow combustion of used oil and reprocessed oil that has been blended with the fuel oil. Also, SN-47 was renamed to No. 4 Package Boiler. Overall, permitted emissions increased by 38.4 tpy SO₂, 4.6 tpy NO_x, 5.39 tpy acetaldehyde, 0.44 tpy formaldehyde, and 8.76 tpy TRS.

7. COMPLIANCE STATUS:

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

An inspection report for the most recent inspection (July 2012) was not available because the report was not yet drafted. The previous inspection was November 16, 2011, and there were no compliance issues were noted in the report.

8. PSD APPLICABILITY:

a. Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N

b. Is the facility categorized as a major source for PSD? Y

- Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list, or
- CO_2e potential to emit $\geq 100,000$ tpy and ≥ 100 tpy/ ≥ 250 tpy of combined GHGs?

If yes, explain why this permit modification is not PSD.

There were no significant increases for any of the affect pollutants.

9. GHG MAJOR SOURCE (TITLE V):

Indicate one:

- Facility is classified as a major source for GHG and the permit includes this designation
- Facility does not have the physical potential to be a major GHG source
- Facility has restrictions on GHG or throughput rates that limit facility to a minor GHG source. Describe these restrictions: _____

10. 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, Sulfite and Stand-Alone Semicheical Pulp Mills
02	40 CFR 52, Subpart E	Prevention of Significant Deterioration

Source No.	Regulation	Description
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, Sulfite 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
08	40 CFR Part 63, Subpart MM	NESHAPS for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite and Stand-Alone Semicheical 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 Semicheical Pulp Mills
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 Semicheical Pulp Mills
15	40 CFR Part 60, Subpart BB	Standards of Performance for Kraft Pulp Mills
38, 15	40 CFR 52, Subpart E	Prevention of Significant Deterioration

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. MODELING:

Criteria Pollutants

Examination of the source type, location, plot plan, land use, emission parameters, and other available information indicate that modeling is not warranted at this time for particulate matter, CO, and lead. Model results for those pollutants are from a previous permit modification.

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
PM ₁₀	472.9	150	24-Hour	125.4 ^A	81.6
SO ₂	3,112.4	80	Annual	63	78.8
		1300	3-Hour	1,024	78.8
		365	24-Hour	337	92.3
CO	3,000.8	10,000	8-Hour	216	2.2
		40,000	1-Hour	664	1.7
NO _x	1,902.8	100	Annual	74	74
Pb	0.17	0.15	Rolling 3-month Period over 3 years (not to be exceeded in any 3 month period)	0.014	7.3

^A Includes Little Rock 2009 background concentration of 38 $\mu\text{g}/\text{m}^3$

^B Includes background for 2010 El Dorado (SO₂) and Little Rock (NO₂)

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 has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
1,1,1-Trichloroethane	1909	209.9	0.08	Yes
1,1,2,2-Tetrachloroethane	6.9	0.76	0.23	Yes
1,1-Dichloroethane	404.8	44.52	0.29	Yes
1,1-Dichloroethene	19.8	2.18	0.02	Yes
1,2-Dichloroethane	40.5	4.45	0.05	Yes
1,2-Dichloropropane	46.2	5.08	0.02	Yes
1,3-Butadiene	4.424	0.4866	0.000161	Yes
Acetone	1187.1	130.5	16.87	Yes
Acrylonitrile	4.3	0.48	0.41	Yes
Carbon Disulfide	3.1	0.34	0.05	Yes
Carbon Tetrachloride	31.46	3.46	0.001	Yes

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Carbonyl Sulfide	245.6	27.02	0.04	Yes
Chlorobenzene	46.03	5.06	0.03	Yes
Chloroethane	263.8	29.02	0.1	Yes
Chromium	0.5	0.055	0.0499	Yes
Dichlorobenzene	60.1	6.61	0.0402	Yes
Dichloromethane	173.7	19.1	1.45	Yes
Ethylbenzene	434.2	47.76	0.6001	Yes
Ethylene Dibromide	0.3	0.033	0.0002	Yes
Hexane	176.2	19.38	5.74	Yes
Methyl Isobutyl Ketone	81.9	9.01	0.23	Yes
Naphthalene	52.4	5.76	1.01	Yes
PAH	35	3.85	0.0008	Yes
Perchloroethylene	169.5	18.6	0.75	Yes
Phenol	19.2	2.11	0.0297	Yes
Styrene	85.2	9.37	0.22	Yes
Toluene	75.4	8.28	4.86	Yes
Trichloroethylene	53.7	5.91	0.45	Yes
Xylene	434.2	47.76	1.56	Yes
Acetaldehyde	45	4.95	13.01	No
Acrolein	0.23	0.03	0.46	No
Ammonia	17.4	1.91	128.2	No
Antimony	0.5	0.055	0.0607	No
Arsenic	0.01	0.0011	0.0309	No
Benzene	1.6	0.18	9.49	No
Beryllium	0.00005	0.000055	0.0062	No
Cadmium	0.002	0.00022	0.078	No
Chlorine	1.45	0.1595	6.3	No
Chlorine Dioxide	0.2759	0.0303	3	No
Chloroform	48.8	5.37	17.084	No
Chromium VI	0.01	0.0011	0.0117	No
Cobalt	0.02	0.0022	0.0714	No
Formaldehyde	0.37	0.04	8.12	No
HCl	3	0.33	51.2	No
Lead	0.05	0.0055	0.1743	No
Manganese	0.2	0.022	4.91	No
Mercury	0.01	0.0011	0.0095	No
Methanol	262.1	28.82	507.1	No
Nickel	0.1	0.01	0.6012	No
Selenium	0.2	0.02	0.0678638	No
Sulfuric Acid	0.2	0.02	4.2	No
TRS	1.39	0.153	49.34	No
Vinyl Chloride	2.6	0.28	0.56	No

2nd Tier Screening (PAIL)

AERMOD 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 has been 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?
Acetaldehyde	450	10.93	Yes
Acrolein	2.3	0.27	Yes
Ammonia	174	122.7	Yes
Antimony	5	0.00283	Yes
Arsenic	0.1	1.18E-03	Yes
Benzene	16	0.81	Yes
Beryllium	5.00E-04	2.40E-04	Yes
Cadmium	0.02	4.17E-03	Yes
Chlorine	14.50102249	1.89	Yes
Chlorine Dioxide	2.759	1.53	Yes
Chloroform	488	10.4	Yes
Chromium VI	0.1	3.60E-04	Yes
Cobalt	0.2	3.24E-03	Yes
Formaldehyde	3.7	1.22	Yes
HCl	29.8	4.9578	Yes
Lead	0.5	0.011	Yes
Manganese	2	0.5142	Yes
Mercury	0.1	1.36E-03	Yes
Methanol	2621	776	Yes
Nickel	1.0	0.024	Yes
Selenium	2.0	2.71E-03	Yes
Sulfuric Acid	2.0	0.065	Yes
TRS ^A	13.9	10.69	Yes
Vinyl Chloride	25.6	2.4	Yes

Other Modeling:

H₂S Modeling:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H₂S Standards

Y

The facility is subject to and complies with 40 CFR Part 60, Subpart BB and is exempt pursuant to §8-3-103-(d)(2)(B)(ii).

13. CALCULATIONS:

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/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)
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 lb/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 lb/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 lb/hr. (Permit 946-A)
Lead	NCASI ¹	5.04E-06 lb/MMBtu	ESP	N/A	790 MMBtu/hr Heat Input Design Capacity
Acetaldehyde	Stack Test	0.21 lb/hr	N/A		
Acrolein	NCASI ²	9.36E-05 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Benzene	NCASI ²	3.30E-03 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Formaldehyde	NCASI ²	1.56E-03 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Hydrogen Chloride	NCASI ²	8.04E-04 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Hexane	NCASI ⁵	1.8 lb/MMscf	N/A		790 MMBtu/hr Heat Input Design Capacity
Naphthalene	Stack Test	0.50 lb/hr	N/A		
Phenol	NCASI ²	1.4E-05 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Toluene	NCASI ²	3.48E-05 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity, No SF
Antimony	NCASI ²	5.04E-07 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Arsenic	NCASI ²	4.80E-07 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Beryllium	NCASI ²	4.80E-07 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Cadmium	NCASI ²	7.08E-07 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Chromium VI	NCASI ²	5.88E-07 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Chromium	NCASI ²	6.24E-07 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Cobalt	NCASI ²	2.28E-07 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Manganese	NCASI ²	6.84E-05 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Mercury	Stack Test	1.92E-3 lb/hr	N/A		
Nickel	NCASI ²	4.20E-06 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
Selenium	NCASI ²	3.96E-06 lb/MMBtu	N/A		790 MMBtu/hr Heat Input Design Capacity
SN-02 No. 3 Lime Kiln					
PM ₁₀ /PM	NSPS BB	0.066 gr/dscf	ESP	98	Stack Test 8.6 lb PM ₁₀ /hr
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= lb/hr tpy *8760

Constituent	Emission Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
VOC	PSD	0.795 lb/ton of CaO			287-AR-7 cites AP-42, 4th 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.
CO	PSD	3.0 lb/ton CaO			PSD limit applied to unit with 440 tons per day of lime (Permit 946-A) $(3.0 \times 440) / 24 = \text{lb/hr tpy} \times 8760$
NO _x	PSD	3.63 lb/ton CaO			PSD limit applied to unit with 440 tons per day of lime (Permit 946-A) $(3.63 \times 440) / 24 = \text{lb/hr tpy} \times 8760$
TRS	NSPS BB	8 ppm			1.34 lb/hr CEMS
Acetaldehyde	NCASI ³	5.1E-03 lb/ton CaO			
Benzene	Stack Test	0.24 lb/hr			
Formaldehyde	NCASI ³	6.12E-03 lb/ton CaO			
Methanol	Stack Test	1.31 lb/hr			
Toluene	NCASI ⁵	9.96E-03 lb/ton CaO			
Source SN-03 No. 1 Power Boiler					
PM ₁₀ /PM	Stack Test	340.6lb/hr	WESP	98%	Stack test 20% SF
SO ₂	Fuel Reporting	214 lb/hr			
VOC	Stack Test	43 lb/hr			
CO	Stack Test	164 lb/hr			Stack test 20% SF
NO _x	Stack Test	247.5 lb/hr			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Lead	Stack Test	0.059 lb/hr	WESP		
Acetaldehyde	NCASI Factor	0.84 lb/hr	N/A		
Acrolein	NCASI ²	9.36E-05 lb/MMBtu	N/A		580 MMBtu/hr Design Heat Input Capacity
Benzene	NCASI ²	3.30E-03 lb/MMBtu	N/A		580 MMBtu/hr Design Heat Input Capacity
Formaldehyde	NCASI ²	1.56E-03 lb/MMBtu	N/A		580 MMBtu/hr Design Heat Input Capacity
Hydrogen Chloride	Stack Test	52.2 lb/hr			
Hexane	NCASI ⁵	1.8 lb/MMscf	N/A		580 MMBtu/hr Design Heat Input Capacity
Phenol	NCASI ²	1.4E-05 lb/MMBtu	N/A		580 MMBtu/hr Design Heat Input Capacity
Toluene	NCASI ²	3.48E-05 lb/MMBtu	N/A		580 MMBtu/hr Design Heat Input Capacity
Antimony	NCASI ²	5.04E-07 lb/MMBtu	N/A		580 MMBtu/hr Design Heat Input Capacity
Arsenic	Stack Test	9.28E-03 lb/hr	N/A		
Beryllium	Stack Test	2.02E-03 lb/hr	N/A		
Cadmium	Stack Test	0.0746 lb/hr	N/A		
Chromium VI	NCASI ²	5.88E-07 lb/MMBtu	N/A		580 MMBtu/hr Design Heat Input Capacity
Chromium	NCASI ²	0.0242 lb/hr	N/A		580 MMBtu/hr Design Heat Input Capacity
Cobalt	NCASI ²	2.28E-07 lb/MMBtu	N/A		580 MMBtu/hr Design Heat Input Capacity
Manganese	Stack Test	4.76 lb/hr	N/A		
Mercury	NCASI ²	7.44E-07 lb/MMBtu			580 MMBtu/hr Design Heat Input Capacity
Nickel	Stack Test	0.0204			
Selenium	NCASI ²	3.96E-06 lb/MMBtu			580 MMBtu/hr Design Heat Input Capacity

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Source SN-05 No. 2 Power Boiler					
PM ₁₀	BART	0.1 lb/MMBtu	Venturi Scrubber	98	820 MMBtu/hr Design Heat Input Capacity
SO ₂	BART	1.2 lb/MMBtu	Venturi Scrubber	98	820 MMBtu/hr Design Heat Input Capacity
VOC	Stack Test	92 lb/hr			
CO	AP-42	0.324 lb/MMBtu			820 MMBtu/hr Design Heat Input Capacity
NO _x	NSPS	0.7 lb/MMBtu			820 MMBtu/hr Design Heat Input Capacity
Lead	EPA Toxic Air Pollutant Factors, October 1988	0.03 lb/hr			
Acetaldehyde	Stack Test	0.21 lb/hr	N/A		
Acrolein	NCASI ²	7.8E-05 lb/MMBtu	N/A		820 MMBtu/hr Design Heat Input Capacity
Benzene	NCASI ²	3.3E-03 lb/MMBtu	N/A		820 MMBtu/hr Design Heat Input Capacity
HCl	Stack Test	5.75 lb/hr	N/A		
Hexane	NCASI ⁵	1.8 lb/MMscf	N/A		820 MMBtu/hr Design Heat Input Capacity
Naphthalene	Stack Test	0.50 lb/hr	N/A		
Phenol	NCASI ²	1.4E-05 lb/MMBtu	N/A		
Toluene	NCASI ²	2.9E-05 lb/MMBtu	N/A		
Antimony	NCASI ¹	1.8E-05 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Arsenic	NCASI ¹	4.1E-04 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Beryllium	NCASI ¹	2.1E-05 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Cadmium	NCASI ¹	5.1E-05 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Chromium VI	NCASI ¹	6.1E-6 lb/MMBtu	Venturi Scrubber	98	820 MMBtu/hr Design Heat Input Capacity

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Chromium	NCASI ¹	2.6E-04 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Cobalt	NCASI ¹	1.0E-04 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Manganese	NCASI ¹	4.0E-05 lb/MMBtu	Venturi Scrubber	98	820 MMBtu/hr Design Heat Input Capacity
Mercury	NCASI ¹	8.3E-05 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Nickel	NCASI ¹	2.8E-04 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Selenium	NCASI ¹	1.3E-03 lb/ton coal	Venturi Scrubber	98	800 tons coal/day
Source SN-06 No. 2 Recovery Boiler					
PM ₁₀	Stack Test	84.4	ESP	98	
SO ₂	PSD	286 lb/hr			PSD limit from 287-AR-3
VOC	Stack Test	46.7 lb/hr			
CO	PSD	980 lb/hr 16.8 lb/ADTP			
NO _x	PSD	309.2 lb/hr 5.3 lb/ADTP			
Acetaldehyde	NCASI ⁶	4.2E-04 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
Benzene	NCASI ⁶	6.4E-04 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
Formaldehyde	Stack Test	0.72 lb/hr			
Hydrogen Chloride	Stack Test	51.20 lb/hr			
Methanol	NCASI ⁶	0.045 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
Styrene	Stack Test	3.22 lb/hr			
Sulfuric Acid	NCASI ⁶	3.024 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
TRS	CEMS	7.4 lb/hr			NSPS BB 5PPMV

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/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 2160 tons BLS/day 788,400 tons BLS/yr
SO ₂	PSD	10.6 lb/hr	Scrubber	80	SO ₂ is a PSD limit from 287-AR-3
VOC	NCASI ⁷	0.066 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
Acetaldehyde	NCASI ⁷	1.6E-03 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
Ammonia	NCASI ⁷	0.41E-03 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
Formaldehyde	NCASI ⁸	3.5E-03 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
Methanol	NCASI ⁷	0.023 lb/ton BLS			2160 tons BLS/day 788,400 tons BLS/yr
TRS	NSPS BB	0.033 lb/ton BLS	Scrubber	60	2160 tons BLS/day 788,400 tons BLS/yr
Source SN-09 No. 2 Lime Kiln					
PM/PM ₁₀	Stack Test NSPS	51.0 lb/hr 0.064 gr/dscf	Scrubber	85	PM is a PSD limit
SO ₂	Permit 946A	0.727 lb/ton CaO			Based on BACT for Lime Kiln No. 3 18.33 tons CaO/hr 160571 tons CaO/yr
VOC	AP-42 , 4th edition, 1985	0.9353 lb/ton CaO			18.33 tons CaO/hr 160571 tons CaO/yr
CO	AP-42 , 4th edition, 1985	3.0 lb/ton CaO			Based on BACT for Lime Kiln No. 3
NO _x	AP-42 , 4th edition, 1985	3.7411 lb/ton CaO			18.33 tons CaO/hr 160571 tons CaO/yr
Acetaldehyde	NCASI ³	5.1E-03 lb/ton CaO			18.33 tons CaO/hr 160571 tons CaO/yr
Benzene	Stack Test	0.23			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Methanol	Stack Test	1.18			
Formaldehyde	NCASI ³	8.5E-03 lb/ton CaO			
Toluene	NCASI ⁴	8.3E-03 lb/ton CaO			
TRS	NSPS BB	8.00 ppmvd @10% O ₂	Scrubber	25	CEMS
Source SN-14 No. 3 Recovery Boiler					
PM ₁₀ /PM	PSD NSPS	93.5 lb/hr 0.044 gr/dscf	ESP	98	controlled
SO ₂	PSD	425.0 lb/hr 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 , 4th edition, 1985	0.8 lb/ADTP			INCOMPLETE Calculations
CO	CEMS	856 lb/hr			
NOx	CEMS	270 lb/hr			PSD Limit
Acetaldehyde	NCASI ⁶	4.2E-04 lb/ton BLS			2,800 tons/day 1,022,000 tons/yr
Benzene	NCASI ⁶	6.4E-04 lb/ton BLS			2,800 tons/day 1,022,000 tons/yr
Formaldehyde	NCASI ⁶	6.6E-03 lb/ton BLS			2,800 tons/day 1,022,000 tons/yr
Hydrogen Chloride	Stack Test	54.50 lb/hr			
Methanol	NCASI ⁶	0.045 lb/ton BLS			2,800 tons/day 1,022,000 tons/yr
Styrene	NCASI ⁹	8.8E-04 lb/ton BLS			2,800 tons/day 1,022,000 tons/yr
Sulfuric Acid	Stack Test	4.20 lb/hr			
TRS	CEMS	6.6 lb/hr			PSD Limit

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Source SN-15 - No. 3 Smelt Dissolving Tank					
PM ₁₀ /PM	PSD NSPS BB	18.7 lb/hr 0.1 g/kg BLS	Scrubber	90	
SO ₂	PSD		Scrubber	10	
VOC	NCASI ⁷	0.066 lb/ton BLS			2800 tons/day 1,022,000 tons/year
TRS	PSD NSPS BB	1.6 lb/hr 0.0168 g/kg BLS	Scrubber	25	
Acetaldehyde	NCASI ⁷	1.6E-04 lb/ton BLS			
Ammonia	NCASI ⁷	0.41 lb/ton BLS			
Formaldehyde	Stack Test	0.58 lb/hr			
Methanol	NCASI ⁷	0.023 lb/ton BLS			
Sources SN-16 – No. 1A Bleachplant Vents, SN-17 - No. 1B Bleachplant Vents and SN-18 - No. 2 Bleachplant Vents					
VOC	Stack Test	32.0 lb/hr			Bubbled Sources
CO	Stack Test	240.4 lb/hr			
Acetaldehyde	NCASI ¹⁰	2.3E-3 lb/ADTUBP			3,407 ADTUBP/day 1,234,555 ADTUBP/yr
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			
Formaldehyde	NCASI ¹⁰	4.2E-4 lb/ADTUBP			3,407 ADTUBP/day 1,234,555 ADTUBP/yr
HCl	NCASI ¹⁰	0.022 lb/ADTUBP			3,407 ADTUBP/day 1,234,555 ADTUBP/yr
Methanol	NCASI ¹⁰	0.15 lb/ADTUBP			3,407 ADTUBP/day 1,234,555 ADTUBP/yr
TRS	NCASI ¹⁰	2.8E-3 lb/ADTUBP			3,407 ADTUBP/day 1,234,555 ADTUBP/yr
Source SN-20 - ERCO ClO ₂ Generator					
Chlorine	Stack Test	0.30 lb/hr			
Chlorine Dioxide	Stack Test	3.00 lb/hr			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Source SN-21 - Effluent Treatment Lagoons					
VOC	NCASI	248.9 lb/hr			Sum of methanol, formaldehyde, and chloroform estimates 75 Mgal/day effluent
Chloroform	NCASI ¹¹	5E-03 lb/ADTUBP			3,770 ADTUBP/day 1,376,050 ADTUBP/yr
Formaldehyde	NCASI ¹¹	0.76 ppmw			3,770 ADTUBP/day 1,376,050 ADTUBP/yr
Methanol	NCASI ¹¹	4.9 ^A 21.4 ^B 0.25 ^C 0.25 ^D			3,770 ADTUBP/day 1,376,050 ADTUBP/yr Contributions from sources: A: Bleach Plant [lb/ADTUBP] B: Condensates [lb/ADTUBP] C: Clarifier Effluent [ppmw] D: Clarifier Fugitive [ppmw]
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			59.2 lb/hr 259.3 tpy
Acetone	stack test	8.80 lb/hr			
Formaldehyde	stack test	1A 0.0109 lb/ton pulp			
Methanol	stack test	1A 0.01731 lb/ton pulp and No. 1B .001593 lb/ton pulp			
TRS	NCASI ¹²	0.23 lb/ADTUBP			1,152 ADTUBP/day 420,480 ADTUBP/yr

Constituent	Emission Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Source SN-23 - Storage Tank - Methanol Tank					
VOC	AP-42 Sec. 7.1.3.1	39.81 lb/hr			
Methanol	AP-42 Sec. 7.1.3.1	39.81 lb/hr			
SN-28 - Storage Tank					
VOC	AP-42 Sec. 7.1.3.1	6.62 lb/hr			
Formic Acid	AP-42 Sec. 7.1.3.1	6.62 lb/hr			
Source SN-29 - Reausticizer Vents					
PM/PM ₁₀	NCASI ¹³	0.031 lb/ton CaO			1,152 tons CaO/day 420,500 tons CaO/yr
VOC	NCASI Factor	3.62 lb/hr			Sum of acetaldehyde and methanol
Acetaldehyde	NCASI Factor	2.1E-2 lb/ton CaO			Emission factor is from the previous permit. Permittee requested to keep existing emission limit of 0.51 lb/hr.
Ammonia	NCASI ¹⁴	0.46 lb/ton CaO			1,152 tons CaO/day 420,500 tons CaO/yr
Methanol	NCASI ¹⁴	0.054 lb/ton CaO			1,152 tons CaO/day 420,500 tons CaO/yr
Sources SN-30A, SN-30B, SN-30C, SN-30D, SN-30E and SN-30E – PCC Carbonators 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 (Tanks #1 through #9)					
VOC	Stack test	7.3 lb/hr			
Methanol	Stack test	6.30 lb/hr			
TRS	Stack test	0.1 lb/hr			PSD limit
Source SN-36 – Weak Black Liquor Tank #10					
VOC	NCASI Factor	0.68 lb/hr/tank			

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Methanol	NCASI Factor	0.62 lb/hr/tank			
TRS	NCASI Factor	0.84 lb/hr/tank			
Source SN-37 - Pulp Dryer Hood and Vacuum Exhausts					
VOC	Stack test	4.7 lb/hr			R0 Application: production rate 37.5 tph finished pulp @7% moisture which is 34.875 tph bone dry pulp 900 air dried tons per day finished product Permitted 8,760 hours (328,500 ADTFP/yr)
Acetaldehyde	NCASI ¹⁵	0.033 lb/ADTFP			See comment for VOC. Permit limit includes 20% safety factor
Methanol	NCASI ¹⁵	0.071 lb/ADTFP			See comment for VOC. Permit limit includes 20% safety factor
Source SN-38 - No. 2 and No. 3 Wood Yards					
PM	AP-42 Section 13.2.4	6.67E-5 lb/ton bark 4.05E-5 lb/ton chips			
PM ₁₀	AP-42 Section 13.2.4	3.15E-5 lb/ton bark 1.91E-5 lb/ton chips			
VOC	NCASI ¹⁶	0.27 lb/Tdw Hardwood 2.12 lb/Tdw Softwood			Assumes 50% moisture, 74% softwood, and 26% hardwood PSD Limit

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Source SN-39 – High Density Storage Tanks					
VOC	NCASI ¹⁴	0.151 lb/hr/tank			11 tanks Sum of acetaldehyde, chloroform, and methanol 20% SF
Acetaldehyde	NCASI ¹⁴	0.02 lb/hr/tank			11 tanks 20% SF
Chloroform	NCASI ¹⁴	0.011 lb/hr/tank			11 tanks 20% SF
Methanol	NCASI ¹⁴	0.12 lb/hr/tank			11 tanks 20% SF
TRS	NCASI ¹⁴	0.349 lb/hr/tank			11 tanks 20% SF
Acetone	NCASI ¹⁴	0.027 lb/hr/tank			11 tanks 20% SF
Source SN-40 - No. 1A and No. 1B Digester Chip Fill Exhausts					
VOC	Stack Test	10.0 lb/hr			Compliance demonstrated by limiting time between blows Sum of Methanol and Ethanol 2,304 ADTP/day 840,960 ADTP/yr
Methanol	Stack Test	0.33 lb/ADTP			Compliance demonstrated by limiting time between blows
TRS	NCASI ¹⁷	0.072 lb/ADTP			Compliance demonstrated by limiting time between blows 2,304 ADTP/day 840,960 ADTP/yr
Source SN-41 - Sludge Landfill					
PM	AP-42 Section 13.2.4	1.36E-3 lb/ton Sludge			344,000 yd ³ /yr 170 yd ³ /hr 947.7 lb/yd ³
PM ₁₀	AP-42 Section 13.2.4	6.5E-4 lb/ton Sludge			344,000 yd ³ /yr 170 yd ³ /hr 947.7 lb/yd ³

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
VOC (as NMOC)	LandGEM	63.15 lb/hr			
CO	LandGEM	4.8 lb/hr 1.8 tpy			
HAPS	LandGEM				See Permit For Emission Rates
Source SN-42 - No. 2 Decker					
VOC	Stack Test	5.6 lb/hr			Sum of acetaldehyde, formaldehyde, methanol, and terpenes (0.48 lb terpenes/ADTUBP)
Acetaldehyde	NCASI ¹⁸	5.9E-03 lb/ADTUBP			1,100 ADTUBP/day 401,500 ADTUBP/yr 20% SF
Acetone	Stack Test	7.52 lb/hr			
Formaldehyde	NCASI ¹⁸	3.3E-03 lb/ADTUBP			1,100 ADTUBP/day 401,500 ADTUBP/yr 20% SF
Methanol	Stack Test	3.3 lb/hr			
TRS	NCASI ¹⁸	0.044 lb/ADTUBP			1,100 ADTUBP/day 401,500 ADTUBP/yr 20% SF
Source SN-43 - Tub Grinder					
PM ₁₀ /PM	AP-42 Table 3.3-1	0.31 lb/MMBtu			4 MMBtu/hr 258,000 gallon/yr 0.13 MMBtu/gal
SO ₂	AP-42 Table 3.3-1	0.29 lb/MMBtu			4 MMBtu/hr 258,000 gallon/yr 0.13 MMBtu/gal
VOC	AP-42 Table 3.3-1	0.36 lb/MMBtu			4 MMBtu/hr 258,000 gallon/yr 0.13 MMBtu/gal
CO	AP-42 Table 3.3-1	0.95 lb/MMBtu			4 MMBtu/hr 258,000 gallon/yr 0.13 MMBtu/gal
NO _x	AP-42 Table 3.3-1	4.41 lb/MMBtu			4 MMBtu/hr 258,000 gallon/yr 0.13 MMBtu/gal

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
HAPs	AP-42 Table 3.3-2				4 MMBtu/hr 258,000 gallon/yr 0.13 MMBtu/gal
Sources SN-44a, SN-44b, SN-44c and SN-44d - Paper Machines					
VOC	Testing	44A: 2.0 44B: 4.7 44C: 5.6 44D: 6.8			Emission factors are in lb/hr by machine.
Acetaldehyde	NCASI ¹⁵	0.033 lb/ADTFP			<u>SN-44A</u> 19.1 ADTFP/hr 167,316 ADTFP/yr <u>SN-44B & C</u> 30.77 ADTFP/hr 269,553 ADTFP/yr <u>SN-44D</u> 53.06 ADTFP/hr 464,755 ADTFP/yr ADTFP – air dried tons of finished product 20% SF
Acrolein	NCASI ¹⁵	1.6E-3 lb/ADTFP			See Comments for Acetaldehyde 20% SF
Formaldehyde	NCASI ¹⁵	6.4E-3 lb/ADTFP			See Comments for Acetaldehyde 20% SF
Methanol	Testing	44A: 2.00 44B: 4.70 44C: 5.60 44D: 6.80			Limited by VOC and Methanol in shower water Emission factors are in lb/hr by machine.
Source SN-45 - Oxygen Delignification System					
VOC	Stack Test	9.1 lb/hr			1,100 ADTUBP/day
CO	Stack Test	16.5 lb/hr			1,100 ADTUBP/day
Acetaldehyde	NCASI ¹⁹	0.021 lb/ADTP			1,100 ADTUBP/day

Constituent	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lb/ton, lb/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
Formaldehyde	NCASI ¹⁹	0.0017 lb/ADTP			1,100 ADTUBP/day
Methanol	Stack Test	9.11 lb/hr			1,100 ADTUBP/day
TRS	Stack Test	2 lb/hr			1,144 ADTUBP/day
SN-46 – Haul roads					
PM/PM ₁₀	Estimate	0.16 lb/VMT		Subject to road maintenance plan	Overall lb/VMT for both paved/undpaved with controls included
SN-47 – No. 4 Package Boiler					
PM ₁₀	AP-42 Tables 1.3-1 & 2 Table 1.4-2	3.3lb/ 1000gal 7.6 lb/ MMscf			238.1 MMBtu/hr Natural Gas 220.5 MMBtu/hr No 2. Fuel Oil
SO ₂	AP-42 Table 1.3-1 Table 1.4-2	142 Slb/ 1000 gal 0.6 lb/ MMscf			
VOC	AP-42 Table 1.4-2 Table 1.3-3	5.5lb/ MMscf 0.252 lb/ 1000 gal			
CO	AP-42 Table 1.4-1 Table 1.3-1	84 lb/ MMscf 5lb/ 1000 gal			
NO _x	AP-42 Table 1.4-1 Table 1.3-1	140 lb/ MMscf 10 lb/ 1000 gal			
HAP	AP-42 Tables 1.3-9 1.3-10 1.4-3	See Application			

NCASI¹ 2008 NCASI Handbook – Wood Table 10.2.2-2

NCASI² 2008 NCASI Handbook – Natural Gas Table 10.2.2-1

NCASI³ 2008 NCASI Handbook – Table 6.5.6-1

NCASI⁴ Technical Bulletin 858, Table A-14

NCASI⁵ 2008 NCASI Handbook – Natural Gas Table 10.2.1.1-1

NCASI⁶ 2008 NCASI Handbook – Table 6.5.3.9-1

- NCASI⁷ 2008 NCASI Handbook – Table 6.5.4.3-1
 NCASI⁸ Technical Bulletin 858 Table A-15
 NCASI⁹ Technical Bulletin 858 Table A-12
 NCASI¹⁰ 2008 NCASI Handbook – Table 8.4.2.3-1
 NCASI¹¹ March 2009 NCASI SARA Handbook Table #2, #3, #4, #5, #6
 NCASI¹² 2008 NCASI Handbook – Table 5.3.1.2.1-1
 NCASI¹³ Technical Bulletin 884 Table 4.14
 NCASI¹⁴ Technical Bulletin 701 Table 7
 NCASI¹⁵ 2008 NCASI Handbook – Table 9.3.1.1-1
 NCASI¹⁶ Technical Bulletin 723 Table 4
 NCASI¹⁷ 2008 NCASI Handbook – Table 3.6.1.1.1-1
 NCASI¹⁸ 2008 NCASI Handbook – Table 5.3.1.3.1-1
 NCASI¹⁹ 2008 NCASI Handbook – Table 8.2.2.1-2

14. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
01	PM	5	Every 5 years	§19.702
01	PM ₁₀	201A or 5	Every 5 years	§19.702
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 or 5	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 or 5	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 or 5	Every five years	§19.705
05	VOC	25A	Every five years	§19.705
05	HCl	26A	Every five years	§18.1002

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
06	VOC	25A	Every five years	§19.705
06	PM	5 and 202	Every five years	§19.705
06	PM ₁₀	201A or 5	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
08	PM	5	Every five years	§19.705
08	PM ₁₀	201A or 5	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	Annually	§19.705
09	% solids in lime mud	Testing	Daily	N
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	COD	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)
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

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
30	PM/PM ₁₀	201A or 5	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

15. MONITORING OR CEMS

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN(s)	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
01	CO, NO _x	CEM	Every 15 minutes; Average once/ hour	N
01	Opacity	COM	Six-minute average	N
02	TRS	CEM	12-hour Average	N
02	CO, O ₂	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)**
02	Opacity	COM	Six-minute average	N
03	Pressure Drop across Multi-clones	CPMS	Once per 8-hr shift	N
05	SO ₂ , CO, NO _x , O ₂	CEM	Every 15 minutes; Average once/hour	N
05	Temperature Scrubbing Liquid Flow rate Pressure Drop of Gas Stream	CEM	Continuous	N
06	SO ₂ , CO, NO _x TRS, O ₂	CEM	Every 15 minutes; Average once/hour	N
06	Opacity	COM	Six-minute average	N
06	Floor Tube Temperature	CPMS	Continuous	N
08	Pressure Drop of gas stream Pressure of liquid supply Scrubbing liquor flow rate	CPMS	Continuous	Y
09	CO, TRS, O ₂	CEM	Every 15 minutes; Average once/hour	N
09	Scrubbing liquid flow rate Air pressure drop across scrubber Temperature of lime kiln	CPMS	Continuous	N
14	Opacity	COM	Six-minute average	N
14	CO, NO _x , TRS, O ₂	CEM	Every 15 minutes; Average once/hour	N
14	SO ₂	CEM	Every 15 minutes; Average once/hour	Y
14	Temperature	CPMS	Continuous	N

SN(s)	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
15	Scrubber gas pressure drop Scrubber Liquid Pressure	CPMS	Continuous	Y
15	Scrubbing liquid flow rate	CPMS	Every 8 hours – average the three daily readings	N
16	Inlet air flow rate Scrubbing liquid flow rate Inlet pH of Scrubber Liquid	CPMS	Continuous	N
17	Inlet air flow rate Scrubbing liquid flow rate Inlet pH of Scrubber Liquid	CPMS	Continuous	N
18	Inlet air flow rate Scrubbing liquid flow rate Inlet pH of Scrubber Liquid	CPMS	Continuous	N
20	Absorption Water Temperature	Thermocouple	Once per shift	N
36	Temperature	CPMS	Continuous	N
47	NO _x	CEMS	Continuous	Y

16. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

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	0.3 lb/MMBtu	30-day rolling average	Y
01	30-day average CO emission rates	0.35 lb/MMBtu	30-day rolling average	Y

SN	Recorded Item	Limit	Frequency	Report (Y/N)
01	BTU Loading	790 MMBTU/hr	Daily	Y
02	TRS Concentration		Twelve-hour Average	Y
02	O ₂		Twelve-hour Average	N
02	Period pre-coat filter isolated	75% feed capacity for kiln		N
02	CO and NO _x	240.9 tpy CO 291.3 tpy NO _x	30-day rolling averages	N
02	%Solids of lime mud feed	65%	30-day rolling average	Daily
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
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

SN	Recorded Item	Limit	Frequency	Report (Y/N)
09	Gas pressure drop	CEMs	Daily	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
16	Scrubber Liquid flow Rate	300 gallons/minute	Once per shift	
17	Scrubber Liquid flow Rate	300 gallons/minute	Once per shift	
17	Fan Amperage	50 -105 amperes	Once per shift	Y
18	Scrubber Liquid flow Rate	350 gallons/minute	Once per shift	
18	350 gallons/minute	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
36 Tank #10	Weak Black Liquor Throughput	2,018,304,000 gallon/12 months	Monthly	Y
37	Finished Product (Pulp)	328,000 tons of air dried pulp	Monthly	Y
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

SN	Recorded Item	Limit	Frequency	Report (Y/N)
42	Unbleached Pulp	401,500 tons of air dried unbleached pulp	Monthly	Y
43	Fuel Consumption	258,000 gallons/12 months	Monthly	Y
44A	Finished Product	167,316 tons air dried paper/12 months	Monthly	Y
44B	Finished Product	269,553 tons air dried paper/12 months	Monthly	Y
44C	Finished Product	269,553 tons air dried paper/12 months	Monthly	Y
44D	Finished Product	464,755 tons air dried paper/12 months	Monthly	Y
01,03,05	Tire derived fuel	220 tons/24-hours	Daily	Y
Rental	Fuel Consumption	5.76 MMgal No. 2 fuel oil 490.3 MMscf Natuarl Gas	Daily	Y
ALL	Units Operating at less than 25% capacity		Yearly	Y

17. 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.
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

SN	Opacity %	Justification	Compliance Mechanism
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
Rental	5	Department Guidance	Combust Natural Gas
Rental	20	Regulation §19.501	Weekly Observations

18. DELETED CONDITIONS:

Former SC	Justification for removal
#213 d,e,f	One time compliance requirement

19. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Diesel Fire Pumps (3)	A1	0.34	0.32	0.40	1.06	4.87	0.0013	0.0711
Emergency Generator 220 hp	A1	0.12	0.11	0.14	0.37	1.7	5E-04	0.0061
250 gal lubricating/hydraulic oil tanks (5,000 gal site wide)	A2			5E-05				

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
No 6. Fuel Oil Day Tank (10,000 gal)	A3			8E-05				
Woodyard Diesel Tank (9,425 gal)	A3			0.014				
Woodyard Hydraulic Oil Tank (9,425 gal)	A3			9E-05				
Medium Diesel Tanks (<10,000 gal site wide)	A3			0.014				
Small Diesel Tanks (<1,000 gal each)	A3			0.01				
Paper Machine Portable Tote Bins	A3			0.01				
Caustic Storage Tanks	A4							
Laboratory Hoods	A5							
Lime Kiln Backup Motors (#2 and #3)	A12	0.004	2E-04	0.04	0.11	1.43		
Two No.6 Fuel Oil Storage Tanks (130,000 gal)	A13			0.002				
Mill Services (storeroom) gasoline tank (130,000 gal)	A13			1.65				
Brock Services Gasoline Tank (552 gal)	A13			0.27				
Coal Pile	A13	0.03						
Turpentine Storage Tank (18,612 gal)	A13			0.546				

20. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
0287-AOP-R10

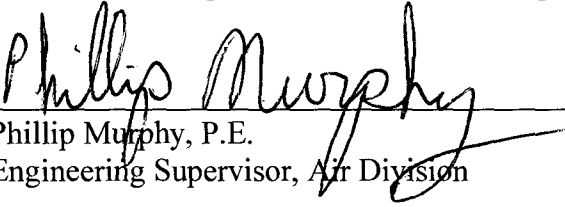
Permit #: 0287-AOP-R11

AFIN: 41-00002

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21. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.


Phillip Murphy, P.E.
Engineering Supervisor, Air Division

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 08-30-11

Facility Name: Domtar A.W. LLC
 Permit Number: 287-AOP-R11
 AFIN: 41-00002

\$/ton factor	22.65	Annual Chargeable Emissions (tpy)	16246.59
Permit Type	Modification	Permit Fee \$	1000

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	<input type="checkbox"/>
If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$	0
Total Permit Fee Chargeable Emissions (tpy)	8.76
Initial Title V Permit Fee Chargeable Emissions (tpy)	

HAPs not included in VOC or PM:

Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride

Air Contaminants:

All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensable PM, H2S in TRS, etc.)

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM	<input checked="" type="checkbox"/>	2600.3	2600.3	0	0	2600.3
PM ₁₀	<input type="checkbox"/>	2033	2033	0		
SO ₂	<input checked="" type="checkbox"/>	8101	8139.4	38.4	0	4000
VOC	<input checked="" type="checkbox"/>	5825.16	5825.16	0	0	4000
CO	<input type="checkbox"/>	12782.77	12782.77	0		
NO _x	<input checked="" type="checkbox"/>	7878.9	7883.5	4.6	0	4000
Lead	<input type="checkbox"/>	0.72739	0.72739	0		
1,1,1-Trichloroethane	<input checked="" type="checkbox"/>	0.03	0.03	0	0	0.03
1,1,2,2-Tetrachloroethane	<input type="checkbox"/>	0.08	0.08	0		
1,1-Dichloroethane	<input type="checkbox"/>	0.11	0.11	0		
1,1-Dichloroethene	<input type="checkbox"/>	0.00865	0.00865	0		
1,2-Dichloroethane	<input type="checkbox"/>	0.02	0.02	0		
1,2-Dichloropropane	<input type="checkbox"/>	0.00907	0.00907	0		
1,3-Butadiene	<input type="checkbox"/>	0.000706	0.000706	0		
Acetaldehyde	<input type="checkbox"/>	44.9139	50.3039	5.39		
Acrolein	<input type="checkbox"/>	2.03167	2.03167	0		
Acrylonitrile	<input type="checkbox"/>	0.15	0.15	0		
Ammonia	<input checked="" type="checkbox"/>	561.41	561.41	0	0	561.41
Antimony	<input type="checkbox"/>	0.161944	0.161944	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Arsenic	✓	0.116807	0.116807	0		
Benzene	✓	40.81742	40.81742	0		
Beryllium	✓	0.025546	0.025546	0		
Cadmium	✓	0.3634	0.3634	0		
Carbon Disulfide	✓	0.02	0.02	0		
Carbon Tetrachloride	✓	0.000275	0.000275	0		
Carbonyl Sulfide	✓	0.01	0.01	0		
Chlorine	✓	27.6	27.6	0	0	27.6
Chlorine Dioxide	✓	30.66	30.66	0	0	30.66
Chlorobenzene	✓	0.01	0.01	0		
Chloroethane	✓	0.04	0.04	0		
Chloroform	✓	74.8016	74.8016	0		
Chromium	✓	0.24231	0.24231	0		
Chromium VI	✓	0.046112	0.046112	0		
Cobalt	✓	0.186053	0.186053	0		
Dichlorobenzene	✓	0.01	0.01	0		
Dichloromethane	✓	0.53	0.53	0		
Ethylbenzene	✓	0.220183	0.220183	0		
Ethylene Dibromide	✓	0.000084	0.000084	0		
Formaldehyde	✓	34.9963	35.4363	0.44		
Formic Acid	✓	0.15	0.15	0		
HCl	✓	735.97	735.97	0	0	735.97
Hexane	✓	21.011	21.011	0		
Manganese	✓	21.53666	21.53666	0		
Mercury	✓	0.031203	0.031203	0		
Methanol	✓	1776.97	1776.97	0		
Methyl Isobutyl Ketone	✓	0.08	0.08	0		
Naphthalene	✓	4.38508	4.38508	0		
Nickel	✓	2.6579	2.6579	0		
PAH	✓	0.01253	0.01253	0		
Perchloroethylene	✓	0.27	0.27	0	0	0.27
Phenol	✓	0.16034	0.16034	0		
Selenium	✓	0.255684	0.255684	0		
Styrene	✓	0.96	0.96	0		
Sulfuric Acid	✓	31.65	31.65	0		
Toluene	✓	3.53529	3.53529	0		
Trichloroethylene	✓	0.16	0.16	0		
TRS	✓	207.75	216.51	8.76	8.76	216.51

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Vinyl Chloride	<input type="checkbox"/>	0.2	0.2	0		
Xylene	<input type="checkbox"/>	0.575464	0.575464	0		
Acetone	<input checked="" type="checkbox"/>	73.84	73.84	0	0	73.84