

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0271-AOP-R23 AFIN: 21-00036

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

Clearwater Paper Corporation
 5082 Highway 4 North
 Arkansas City, Arkansas 71630

3. PERMIT WRITER:

Bart Patton

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Paperboard Mills
 NAICS Code: 322130

5. ALL SUBMITTALS:

The following is a list of ALL permit applications included in this permit revision.

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
10/31/2019	Minor Mod	Replace turbine on induced draft (ID) fan at recovery boiler SN-02, to restore throughput to permitted capacity (affects Actual Emissions, not Max Permitted Emissions)
12/16/2019	Administrative Amendment	Replace Board Machine North Cooling Tower—East Side with higher flow model in I. A. Category A-13

6. REVIEWER'S NOTES:

Clearwater Paper Corporation, formerly Potlatch Forest Products Corporation, owns and operates the Cypress Bend Mill near McGehee, Arkansas. The facility includes a Kraft pulp mill with associated paper manufacturing operations and produces a variety of paper products. This facility is classified as a major stationary source pursuant to 40 C.F.R. 52.21 (Prevention of Significant Deterioration (PSD) regulations) since it has emissions of more than 100 tons per year (tpy) and appears on the list of 28 major source categories.

With this modification, Clearwater is making the following changes:

- Replace turbine on induced draft (ID) fan at recovery boiler SN-02
- Replace Board Machine North Cooling Tower—East Side with a higher flow model in Category A-13 of the Insignificant Activities List
- Correct a typographical error in Specific Condition #104 (Lime Kiln is SN-01, not SN-02)

The currently permitted processes will be debottlenecked by the turbine replacement project but will continue to operate within the currently permitted emission limits.

The new Board Machine North Cooling Tower—East Side has a water flow of 724 gallons per minute, compared to the previous model's flow of 176 gallons per minute.

There are no emission limit changes associated with this modification.

The Projected Actual Emissions increases for all affected sources are below the PSD SER level for each pollutant.

7. COMPLIANCE STATUS:

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

The facility was last inspected on August 6 and August 7, 2019. There were no areas of concerns left by the inspector. A review of ECHO indicates that the facility has had two informal enforcement actions and two formal enforcement actions brought against the facility in the last five years.

8. PSD/GHG APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? Y
If yes, were GHG emission increases significant? N

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

- *Single pollutant ≥ 100 tpy and on the list of 28*

If yes for 8(b), explain why this permit modification is not PSD.

The Projected Actual Emissions increases for all affected sources are below the PSD SER level for each pollutant.

Difference between Projected Actual and Baseline Actual Emissions (tpy)												
Process Unit	SN	PM	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO	NO _x	Lead	TRS	H ₂ S	GHG
Recovery Furnace	SN-02	6.17	3.86	3.48	4.48	1.80	7.92	21.57	0.0003	0.24	0.42	28,958
Smelt Dissolving Tank	SN-03	0.74	0.74	0.74	0.18	0.79	--	0.16	0.0000	0.18	--	--
Lime Kiln	SN-01	0.32	0.32	0.32	0.01	0.01	0.03	1.06	0.0000	0.04	--	1
NCG TO	SN-05	0.23	0.23	0.23	0.59	0.05	0.76	0.22	--	0.17	--	--
Bleach Plant Scrubber	SN-06	--	--	--	--	0.52	5.28	--	--	--	--	--
ClO ₂ Generator	SN-07	--	--	--	--	0.05	--	--	--	--	--	--
ASB	SN-08	--	--	--	--	2.07	--	--	--	--	--	--
Brownstock Washers	SN-10	--	--	--	--	2.83	--	--	--	0.74	--	--
Pulp Material Storage Piles	SN-14F	0.30	0.30	0.30	--	3.23	--	--	--	--	--	--
Batch Digesters	SN-15	--	--	--	--	0.19	--	--	--	0.04	--	--
Landfill	SN-17F	--	--	--	--	0.15	--	--	--	--	0.004	--
Methanol	SN-24	--	--	--	--	0.50	--	--	--	--	--	--
Multi-Use Tank	SN-28	--	--	--	--	0.44	--	--	--	--	--	--
Auxiliary Liquor Tank	SN-31	--	--	--	--	0.07	--	--	--	--	--	--
Intermediate Liquor Tank	SN-32	--	--	--	--	0.06	--	--	--	--	--	--
Unpaved Roads	SN-37	0.20	0.05	0.05	--	--	--	--	--	--	--	--
Green Liquor Clarifier	SN-38	--	--	--	--	0.00	--	--	--	--	--	--
White Liquor Clarifier	SN-39	--	--	--	--	0.02	--	--	--	--	--	--
Soap/Glycerin	SN-40	--	--	--	--	0.00	--	--	--	--	--	--
Step 1: Project Only Changes (tpy)		8.0	5.5	5.1	5.3	12.8	14.0	23.0	0.0003	1.4	0.4	28,959
PSD Threshold (tpy)		25	15	10	40	40	100	40	0.5	10	10	75,000
% of PSD Threshold		31.9%	36.7%	51.3%	13.1%	32.0%	14.0%	57.5%	0.1%	14.0%	4.2%	38.6%
Step 2 Netting Req'd?		No	No	No	No	No	No	No	No	No	No	No

A reasonable possibility, as defined under paragraph (r)(6) of 40 C.F.R. §52.21, exists for PM_{2.5} and NO_x emissions due to the Induced Draft (ID) Fan Turbine Replacement at recovery boiler SN-02, requested in the minor modification application received on October 31, 2019.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
SN-02	CO TRS VOC	PSD
SN-04	NO _x opacity SO ₂	NSPS D

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
SN-02	NO _x PM ₁₀ SO ₂	NSPS Db
SN-13 & SN-30a-f	NA (records only)	NSPS Dc
SN-24, 25, 26, 27F, 28, 31, and 32	VOC	NSPS Kb
SN-02, 03, 05, 10, & 15	TRS	NSPS BB
SN-01	TRS PM*	NSPS BBa
SN-44 & SN-45	CO VOC NO _x	NSPS JJJJ
SN-05, 06, 08 10, & 15	HAPs (methanol)	NESHAP S
SN-01, 02, & 03	HAPs (methanol)	NESHAP MM
SN-11a, 11b, & 34	Organic HAPs	NESHAP JJJJ
SN-41, SN-42, SN-43, & SN-45	There are no specific emission limits or pollutants identified, but the rules generally regulate HAPs	NESHAP ZZZZ
SN-04 & SN-13	There are no specific emission limits or pollutants identified, but the rules generally regulate HAPs	NESHAP DDDDD**

10. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? **N**

(Note - permit shields are not allowed to be added, but existing ones can remain, for minor modification applications or any Regulation 18 requirement.)

If yes, are applicable requirements included and specifically identified in the permit? **N/A**

If not, explain why.

11. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

12. AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

a) NAAQS

A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the ADEQ Air Permit Screening Modeling Instructions.

b) Non-Criteria Pollutants:

The non-criteria pollutants listed below were evaluated as part of a permitting action previous to Permit #0271-AOP-R23. Based on Department procedures for review of non-criteria pollutants, emissions of all other non-criteria pollutants were below thresholds of concern.

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	210	0.03	YES
1,1,2,2-Tetrachloroethane	6.86	0.75	0.04	YES
1,1,2-Trichloroethane	54	6	0.03	YES
1,1-Dichloroethane	404	44	0.05	YES
1,2,4-Trichlorobenzene	37	4.07	0.34	YES
1,2-Dichloroethane	40	4.4	0.02	YES
1,2-Dichloropropane	350	38.5	0.03	YES
1,3-Butadiene	4.42	0.486	0.04	YES
1,3-Dichloropropene	4.5	0.49	0.02	YES
Acetaldehyde	45.0	4.95	4.21	YES
Acrolein	0.229	0.0252	0.20	NO

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Acrylonitrile	4.3	0.47	0.04	YES
Antimony	0.5	0.055	0.04	YES
Arsenic	0.01	0.0011	0.05	NO
Benzene	1.6	0.175	0.21	NO
Beryllium	0.00005	5.5E-06	1.21E-04	NO
Cadmium	0.01	0.0011	0.05	NO
Carbon Disulfide	3.11	0.34	0.03	YES
Carbon Tetrachloride	31.0	3.41	0.09	YES
Carbonyl Sulfide	12	1.35	0.01	YES
Chlorine	1.5	0.165	2.00	NO
Chlorobenzene	46	5	0.05	YES
Chloroethane	263	29	0.01	YES
Chloroform	49.0	5.39	0.40	YES
Chloromethane	103	11	0.03	YES
Chromium	0.5	0.055	0.07	NO
Chromium VI	0.01	0.0011	0.02	NO
Cobalt	0.02	0.0022	0.06	NO
Dichlorobenzene	60	6.6	0.04	YES
Ethylbenzene	86	9.5	0.08	YES
Ethylene Dibromide**	153	16	0.03	YES
Formaldehyde	1.5	0.165	2.29	NO
Hexane	176	19.3	2.17	YES
HCl	7.46	0.821	15.73	NO
Lead	0.05	0.0055	0.13	NO
Manganese	0.2	0.022	0.07	NO
M-cresol	22.11	2.43	0.26	YES
Mercury	0.025	0.00275	6.27E-04	YES

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Methanol	262.0	28.82	193.10	NO
Methyl isobutyl ketone (MIBK)	93	10	0.15	YES
Methylene Chloride	173	19	0.22	YES
Molybdenum	0.5	0.055	0.02	YES
Naphthalene	52.4	5.76	0.17	YES
Nickel	0.1	0.011	0.34	NO
O-cresol	22.11	2.43	0.13	YES
Phenol	19.2	2.11	0.25	YES
Phosphorus	0.1	0.011	0.01	YES
Selenium	0.2	0.022	0.05	NO
Styrene	85.0	9.35	0.15	YES
Tetrachloroethylene	169.52	18.64	0.34	YES
Toluene	75.36	8.28	1.71	YES
Trichloroethylene	53	5.9	0.06	YES
Vinyl Acetate	35	3.8	0.01	YES
Vinyl Chloride	2.5	0.28	0.07	YES
Vinylidene Chloride	19	2.1	0.01	YES
Xylene	434	47.7	0.43	YES
Acetone	1187	130.57	2.84	YES
Ammonia	17.0	1.87	9.15	NO
Chlorine Dioxide	0.28	0.0308	1.49	NO
H ₂ SO ₄	0.2	0.022	2.20	NO
Total Reduced Sulfur (TRS)	See speciated compound list below.			
H ₂ S	1.39	0.153	2.29	NO
Methyl Mercaptan	0.98	0.108	3.39	NO
Dimethyl Sulfide	25.4	2.79	17.86	NO
Dimethyl Disulfide	1.92	0.211	4.38	NO

* The permitted values are higher due to rounding.

** TLV of 20 ppm was voided in 1978. Assume TLV of 20 ppm.

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?
Acrolein	2.29	0.72037	YES
Ammonia	170.0	127.75359	YES
Arsenic	0.1	0.04629	YES
Benzene	16	7.16237	YES
Beryllium	0.0005	0.00003	YES
Cadmium	0.1	0.04629	YES
Chlorine	15.0	0.44995	YES
Chlorine Dioxide	2.8	1.65979	YES
Chromium	5.0	0.05123	YES
Chromium VI	0.1	0.00769	YES
Cobalt	0.2	0.04614	YES
Formaldehyde	15.0	4.68169	YES
HCl	74.6	0.13641	YES
Lead	0.5	0.05375	YES
Manganese	2.0	0.04873	YES
Methanol	2620.0	4338	NO*
Nickel	1.0	0.0737	YES
Selenium	2.0	0.01661	YES
H ₂ SO ₄	2.0	0.06267	YES
H ₂ S	13.9	10.34859	YES

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
Methyl Mercaptan	9.8	10.82927	NO**
Dimethyl Sulfide	254	95.89365	YES
Dimethyl Disulfide	19.2	27.14407	NO**

* The resulting ambient concentrations of methanol that are above the PAIL limit all occur against the eastern boundary of the Clearwater facility. This boundary parallels a levee to the Mississippi River. The impact area is in the river basin, where there is no risk for significant human exposure. Therefore, the emissions of methanol will cause insignificant impact.

** The resulting ambient concentrations of Methyl Mercaptan and Dimethyl Disulfide that are above the PAIL limit all occur on a small area of agricultural land against the western boundary of the Clearwater facility. There is no risk for significant human exposure. The effects of Methyl Mercaptan and Dimethyl Disulfide will be reevaluated as necessary in future applications.

c) 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

If exempt, explain: This facility is subject to NESHAP BB and is therefore deemed compliant with H₂S standards mentioned above, see A.C.A. §8-3-03(d)(2)(b).

13. CALCULATIONS:

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
01	<p>Vendor data Vendor data Vendor data</p> <p>Test data NCASI NCASI Test data NCASI TB 973, Table 4.25</p> <p>NSPS BBa</p>	<p>lb/ton: 0.385 PM 0.385 PM₁₀ 0.296 PM_{2.5}</p> <p>lb/ton CaO: 0.356 SO₂ 0.24 VOC 1.1 CO 1.56 NO_x 6.17E-03 Lead Various HAPs</p> <p>8 ppm TRS</p>	None	--	<p>Filterable portion only: 0.36 lb/ton PM/PM₁₀ 0.276 lb/ton PM_{2.5}</p> <p>Lime Production: 11.54 ton CaO/hr 277 CaO/day</p> <p>SO₂ emission factor includes a 50% safety factor</p> <p>TRS based on maximum NSPS limit</p> <p>See permit for specific averaging times</p> <p>TB 884, Table 14.3 for CO and TB 646, Table 14 for VOC</p>
02	<p>BACT limit</p> <p>Test data</p> <p>BACT limit</p> <p>NCASI TB 973, Table 4.23</p>	<p>200 ppm_{dv} CO 3 ppm_{dv} TRS 9.5 lb/hr VOC</p> <p>gr/dscf: 0.0294 PM/PM₁₀</p> <p>86 ppm_{dv} SO₂ 110 ppm_{dv} NO_x</p> <p>Various HAPs and other non- criteria</p>	None	--	<p>Maximum firing rate: 62.5 tons BLS/hr 3 MM lb BLS/day (30- day average)</p> <p>520,125 tons BLS/yr</p> <p>See permit for specific averaging times</p>

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
03	<p>Test data</p> <p>BACT</p> <p>NCASI TB 973, Table 4.28</p>	<p>lb/hr:</p> <p>6.24 PM/PM₁₀</p> <p>1.5 SO₂</p> <p>3.4 VOC</p> <p>0.5 Methanol</p> <p>6.6 lb/hr NO_x</p> <p>1.1 lb/hr TRS</p> <p>Various HAPs and other non-criteria</p>			<p>PM/PM₁₀, SO₂, and VOC are permitted with an additional 20% safety factor</p> <p>TRS = 0.0168 g H₂S/kg BLS (12-hr average)</p>
04	<p>NSPS Subpart D (fuel oil)</p> <p>NSPS Subpart D (natural gas)</p> <p>AP-42 (fuel oil)</p> <p>AP-42 (natural gas)</p>	<p>lb/MMBtu:</p> <p>0.1 PM</p> <p>0.8 SO₂</p> <p>0.3 NO_x</p> <p>lb/MMBtu:</p> <p>0.1 PM</p> <p>0.2 NO_x</p> <p>lb/Mgal:</p> <p>0.2 VOC</p> <p>5 CO</p> <p>Various HAPs</p> <p>lb/MMscf:</p> <p>0.6 SO₂</p> <p>5.5 VOC</p> <p>84 CO</p> <p>Various HAPs and other non-criteria</p>			<p>479 MMBtu/hr</p> <p>Assumes PM₁₀ is equal to NSPS Subpart D limit</p> <p>CEMS used for SO₂ and NO_x compliance</p> <p>Periodic testing used for CO compliance</p> <p>All AP-42 based emissions are permitted with an additional 20% safety factor</p>

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
05	<p>NSPS Subpart BB</p> <p>Test data</p> <p>AP-42 Chapter 1.4, Tables 1.4-1 and 1.4-2</p> <p>NCASI TB 973, Table 4.18</p>	<p>5 ppm_{dv} TRS</p> <p>lb/hr: 3.2 PM/PM₁₀ 1.18 SO₂ 0.02 VOC 2.16 NO_x</p> <p>lb/MMscf: 7.6 PM/PM₁₀ 84 CO</p> <p>Various HAPs and other non-criteria</p>			<p>12.3 MMBtu/hr NCG Thermal Oxidizer</p> <p>Maximum throughput: 45 ADTP/hr 347,334 ADTP/yr</p>
06	<p>NCASI factor</p> <p>NCASI TB 701, Table 3 and TB 973, Table 4.1</p>	<p>lb/ODTP: 8.08E-02 VOC</p> <p>lb/ADTP 8.30E-01 CO Various HAPs and other non-criteria</p>			<p>Maximum throughput: 45 ADTP/hr 347,334 ADTP/yr Or 40.5 ODTP/hr 312,732 ODTP/yr</p> <p>VOC emission factor is based on the sum of all HAP emissions</p>
07	<p>Test data</p> <p>NCASI TB 677, Table VI.A.1</p>	<p>lb/ton ClO₂: 0.235 Cl₂ 0.894 ClO₂</p> <p>lb/ton ClO₂: 1.35E-02 VOC Various HAPs and other non-criteria</p>			<p>All emissions are permitted with an additional 20% safety factor</p> <p>VOC emission factor is based on the sum of all HAP emissions</p>

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
08	Mass balance	lb/ODTP: 23 Methanol (Pulp mill effluent)			Brownstock throughput: 355,875 ADTUBP Other in-house factors lb Methanol/ODTP: 0.09 Volatized from clarifier 2.23 Volatized from inorganic basin (IOB)
10	NCASI TB 973, Tables 4.6, 4.7, and 4.8	lb/ADTP: 4.99E-01 VOC 4.36E-01 TRS Various HAPs and other non-criteria			
11a & 11b	NCASI TB 701, Table 18 (Mill PMMK)	lb/ADTFP: 3.8E-02 VOC Various HAPs and other non-criteria			VOC=HAPs + terpenes Permitted VOC emissions include two chests located inside the board machine.
12	Vendor guarantee	0.01 gr/ascf PM/PM ₁₀			
13	BACT limit AP-42 Chapter 1.4, Tables 1.4-1 and 1.4-2	lb/MMBtu: 0.05 NO _x lb/MMscf: 7.6 PM/PM ₁₀ 0.6 SO ₂ 5.5 VOC 84 CO Various HAPs and other non-criteria			86 MMBtu/hr natural gas boiler

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
14F	NCASI TB 723 and mass balance Control of Open Fugitive Dust Sources (EPA-450/3-98-008), Equation 4-9	lb/Tdw: 0.05 TOC (hardwood) 2.16 TOC (softwood) lb/day-acre: 0.629 PM 0.315 PM ₁₀			177 tons/hr Maximum pulping material throughput: 1,425,500 tpy (wet) 75% Hardwood Chips 25% Softwood Chips Molecular weight ratio of 136 VOC to 120 Carbon It is assumed that 50% of PM is PM ₁₀ .
15	NCASI TB 973, Table 4.16	lb/ton: 1.20E-02 VOC 7.63E-03 TRS Various HAPs and other non-criteria			TRS emission factor is the sum of factors for Dimethyl Disulfide, Dimethyl Sulfide, Methyl Mercaptan, and H ₂ S
16F & 27F	NCASI TB 677, Table IX.A.1	lb/chest-hour: 0.86 VOC			VOC emissions are permitted with an additional 20% safety factor SN-16F = 9 chests SN-27F = 1 chest 2 additional chests located inside SN-11a and SN-11b
17F	EPA's LandGEM AP-42 Chapter 13.2.4, Equation 1	LandGEM output: VOC HAPs lb/ton: 0.00119 PM 0.00056 PM ₁₀			Annual Deposits = 102,700 short tons NMOC = 5,691 m ³ /yr in 2027 Based on NMOC as Hexane @ 600 ppm _v U = 7.55 M = 4.8%

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
21, 22, 28, & 31	NCASI TB 677, Table V.B.2	1,570 ppm _v Methanol			Assumes Methanol = VOC Calculations are based on 650,000,000 gal/yr throughput for SN-21 and SN-22, each, 1,000,000,000 gal/yr for SN-28, and 160,000,000 for SN-31
24	TANKS	Varies			Based on 500,000 gal/yr throughput
25	NCASI TB 676, Table IX.A.1 NCASI TB 676, Table IX.A.2	lb/ton: 1.4E-01 HAP mg/L: 90.3 Methanol			Per NCASI TB 676, p. 133, Methanol makes up over 99% of the total HAP emission rate. Therefore, it is assumed 100% of HAP is Methanol. Based on 5 mg/L weak wash methanol content. Based on 62,050 ton/yr lime production.
26	NCASI TB 676, Table IX.A.1	lb/ton: 1.49-02 HAP			Per NCASI TB 676, p. 140, Methanol makes up almost 80% and Formaldehyde makes up 12% of the total HAP emission rate. It is conservatively assumed that VOC equals total HAP, Methanol is 100% total HAP, and Formaldehyde is 20% total HAP. Based on 62,050 ton/yr lime production.
29	--	--	--	--	NCG Collection System emissions are accounted for in SN-01 and SN-05

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
30a-f	AP-42 Chapter 1.4, Tables 1.4-1 and 1.4-2	lb/MMscf: 7.6 PM/PM ₁₀ 0.6 SO ₂ 5.5 VOC 84 CO 100 NO _x Various HAPs and other non-criteria			Maximum number of boilers used = 6 Maximum heat input capacity per boiler = 100 MMBtu/hr
32	NCASI TB 677, Table V.B.2	300 ppm _v Methanol			Assumes Methanol = VOC 279 ppm _v is the highest listed Methanol concentration. Based on 240,000,000 gal/yr throughput
33	Vendor guarantee	0.01 gr/cf PM/PM ₁₀			
34	NCASI TB 701, Table 18	lb/hr: 2.6 VOC lb/ADTFP: 2.69E-01 Ammonia Various HAPs and other non-criteria			VOC emission factor is based on the sum of all HAP emissions. VOC emissions are permitted with an additional 20% safety factor.
36	AP-42 Chapter 13.2.1, Equations 1 and 2	lb/VMT: 0.1456 PM 0.0291 PM ₁₀	--	--	--
37	AP-42 Chapter 13.2.2, Equations 1a and 2	lb/VMT: 4.925 PM 1.2041 PM ₁₀	--	--	--
39	NCASI TB 676, Table X.A.1	lb/TCaO: 0.019 VOC 0.015 Methanol	--	--	101,105 TCaO per year maximum capacity

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
40	TANKS	lb/hr: 0.4 VOC 0.4 Methanol	--	--	Conservatively assumes black liquor used as surrogate for soap. Assumes methanol and VOC emissions are equal. Annual throughput: 8,942,500 gallons
41 & 42	AP-42 Chapter 3.3, Tables 3.3-1 and 3.3-2	lb/MMBtu: 0.31 PM/PM ₁₀ 0.29 SO ₂ 0.95 CO 0.36 VOC 4.41 NO _x Various HAPs	N/A	N/A	Emergency engine annual emissions based on 500 hours each
43	AP-42 Chapter 3.2, Table 3.2-3	lb/MMBtu: 9.91E-03 PM/PM ₁₀ 5.88E-04 SO ₂ 3.72 CO 2.96E-02 VOC 2.27 NO _x Various HAPs and other non-criteria			
44	AP-42 Chapter 3.2, Table 3.2-3 NSPS Subpart JJJJ	lb/MMBtu: 9.91E-03 PM 9.50E-03 PM ₁₀ 5.88E-04 SO ₂ g/hp-hr: 4.0 CO 1.0 VOC 2.0 NO _x			
45	AP-42 Chapter 3.2, Table 3.2-3 Vendor data	lb/MMBtu: 9.91E-03 PM 9.50E-03 PM ₁₀ 5.88E-04 SO ₂ g/kW-hr: 0.11 VOC 0.89 CO 0.13 NO _x			

SN	Emission Factor Source	Emission Factor	Control Equipment	Control Equipment Efficiency	Comments
46	AP-42 (1980 Edition) Section 10.3	lb/ton: 0.024 PM 0.0139 PM ₁₀	N/A	N/A	100 ton/hr short-term maximum capacity 364,000 ton/yr annual maximum capacity

14. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01	PM/PM ₁₀ PM _{2.5}	5, 201A 202	5-yr	Compliance mechanism; NESHAP MM
01	CO	10	5-yr	Compliance mechanism
01	NO _x	7E	5-yr	Compliance mechanism
01	SO ₂	6C	5-yr	Compliance mechanism
02	PM PM ₁₀ & PM _{2.5}	5 5 or 201A w/202	Annually until 2 passing tests then every 5 years	Compliance mechanism; NESHAP MM
03	PM/PM ₁₀	5, 201A	5-yr	Compliance mechanism; NESHAP MM
03	TRS	16B	Annually	§19.804(B)
04	CO	10	5-yr	Compliance mechanism
04	PM & PM ₁₀	PM: 5 & 202 PM ₁₀ : 201A & 202 or 5 & 202	One Time	Demonstrate compliance while burning used oil
05	SO ₂	6C	5-yr	Compliance mechanism
13	NO _x	7E	Within 180 days	Compliance mechanism

SN	Pollutants	Test Method	Test Interval	Justification
02	PM ₁₀ PM _{2.5}	201A & 202	Annually	A reasonable possibility exists under paragraph (r)(6) of 40 CFR §52.21 due to projected actual emissions increase of at least 50 percent of the amount that is a “significant emissions increase,” as defined under 40 CFR §52.21(b)(40).
03	SO ₂ NO _x H ₂ S PM ₁₀ PM _{2.5}	6C 7E 16 5 & 202	5-yr	A reasonable possibility exists under paragraph (r)(6) of 40 CFR §52.21 due to projected actual emissions increase of at least 50 percent of the amount that is a “significant emissions increase,” as defined under 40 CFR §52.21(b)(40).
05	SO ₂ NO _x	6C 7E	5-yr	A reasonable possibility exists under paragraph (r)(6) of 40 CFR §52.21 due to projected actual emissions increase of at least 50 percent of the amount that is a “significant emissions increase,” as defined under 40 CFR §52.21(b)(40).
10	H ₂ S	16	5-yr	

15. MONITORING OR CEMS:

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

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
04	NO _x	CEMS	Continuously	Y
	CO ₂	CEMS	Continuously	Y
	SO ₂	CEMS	Continuously	Y
	Opacity	COMS (during fuel oil)	Continuously	N
15	TRS	CEMS (Only when not routing to NCG)	Continuously	N

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
02	SO ₂	CEMS	Continuously	N
	CO	CEMS	Continuously	N
	NO _x	CEMS	Continuously	N
	TRS	CEMS	Continuously	N
	H ₂ S (59.4% of total TRS)	TRS CEMS	Continuously	N
02	Opacity	COMS	Continuously	N
01	TRS	CEMS	Continuously	N
01 & 03	Scrubber Pressure Drop (SN-01)	CPMS	Continuously	N
	Scrubber Liquid Flow Rate (SN-01)	CPMS	Continuously	N
	Scrubber Pressure Drop (SN-03)	CPMS	Continuously	N
	Scrubber Liquid Flow Rate (SN-03)	CPMS	Continuously	N
05	Temperature	Monitoring Device which measures and records the temperature at the point of incineration in the incinerator.	Continuously	N
06	pH of the oxidation/reduction potential of the gas scrubber effluent	CMS	Continuously	N
06	gas scrubber vent gas inlet flow rate	CMS	Continuously	N
06	gas scrubber liquid influent flow rate	CMS	Continuously	N
06	chlorine outlet concentration, in lieu of other monitored items for SN-06	CMS	Continuously	N
08	see Plantwide Condition 72 of the permit	testing grab samples	as required by 40 CFR Part 63, Subpart S	N

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
closed vent systems	see Plantwide Conditions 35 through 92	visual inspections and leak detection tests	as required by 40 CFR Part 63, Subpart S	N

16. RECORDKEEPING REQUIREMENTS:

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

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
13	Make, Model, Year of Construction, & Capacity	NSPS Subpart Dc applicability	When brought on site	Y
	Natural Gas Combusted (If boiler is subject to Dc)	Amount Combusted per Day	Daily	Y
14F	Pulping Material Processed	1,425,500 tons/12 months	Monthly	Y
02	Black liquor solids fired	520,125 tons/12 months	Monthly	Y
	Sulfur Content Certification	Low Sulfur Fuel Oil	Daily	Y
01	Quicklime production limit	101,105 tons/12 months	Monthly	Y
24	Methanol Throughput	500,000 gal/12 months	Monthly	Y
	volatile organic liquid (VOL) stored, the period of storage, and the maximum true vapor pressure of that VOL	Subpart Kb Requirement	Maintain records for 2 years	N
05	Scrubber flow	400 gal/min (min)	Daily	Y
	Scrubber pH	9.0 (max)	Daily	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
Facility	Air dried finished product	401,500 OMT from onsite virgin pulp, purchased pulp, and recycled paper & 365,000 tons/12 months (virgin pulp only)	Monthly	Y
30 a-f	Total annual fuel	520 million/12 months	Monthly	N
	Daily fuel	Subpart Dc Requirement	Daily	N
17F	Cubic Yards of waste per 12 months	230,000 yd ³ /12 months	Monthly	Y
01	Pet coke usage	13,505 tons per 12-month	Monthly	Y
	Pet coke Sulfur content	7% by weight (max)	Supplier Certification	N
34	Air dried finished product from Off Machine Coater	10,000 tons/12 months	Monthly	Y
Facility	Organic HAP emissions	4% of mass of coating materials applied	As Purchased	N
41 – 45	Hours of operation	500 hours annually (each)	Monthly	Y
	Hours of operation and documentation for emergency hours	100 hr/yr for maintenance and readiness testing; 50 hr/yr for non-emergency but counted as part of the 100 hr/yr above	As needed	Y
01, 02, 03, & 05	Annual NO _x Emissions (tpy on a calendar basis)	N/A	Annually	N
01, 02, 03, 05, 14F, & 37	Annual PM _{2.5} Emissions (tpy on a calendar basis)	N/A	Annually	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
02, 03, 04, & 05	Annual SO ₂ Emissions (tpy on a calendar basis)	N/A	Annually	N
	Annual NO _x Emissions (tpy on a calendar basis)	N/A	Annually	N
02, 03, 05, & 10	Annual H ₂ S Emissions (tpy on a calendar basis)	N/A	Annually	N
02, 03, 04, 05, 14F, 17F, 36, & 37	Annual PM Emissions (tpy on a calendar basis)	N/A	Annually	N
	Annual PM ₁₀ Emissions (tpy on a calendar basis)	N/A	Annually	N
	Annual PM _{2.5} Emissions (tpy on a calendar basis)	N/A	Annually	N
04 & IA-1	Annual NO _x emissions (tpy on a calendar basis)	212.1 tpy	Annually	N
46	Tons of logs processed	364,000 tons per 12-month rolling period	Monthly	Y

17. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
04	5 % 20 %	Natural gas fuel only NSPS Subpart D (fuel oil)	Daily observation
13	5 %	natural gas fired	Weekly observation
02	20 %	NSPS Subpart BB allows 35% but Reg. 19 allows only 20% after 1972	COMS
03	20 %	carried over from previous permit	Weekly observation
01	20 %	carried over from previous permit	Weekly observation
05	20 %	natural gas fired	Weekly observation
01	5 %	fabric filter department guidance	Weekly observation
12	5 %	fabric filter department guidance	Weekly observation
33	5 %	fabric filter department guidance	Weekly observation
41 & 42	20 %	§19.503	Daily observation when in operation
43 & 44	5 %	natural gas fired	Natural gas only
45		propane gas fired	Propane only
46	20 %	Reg.19.503 and 40 C.F.R. § 52 Subpart E	Weekly observation

18. DELETED CONDITIONS:

Former SC	Justification for removal
	None

19. GROUP A INSIGNIFICANT ACTIVITIES:

The following is a list of Insignificant Activities including revisions by this permit.

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
5.9 MMBtu/hr Extruder Treater Combustion	A-1	0.20	0.02	0.14	2.13	2.54		
Diesel Storage Tank (10,000 gal)	A-3			0.02			0.02	0.02
Caustic Storage Tanks	A-4			0			0	0
Laboratory Fume Hood	A-5			0.01			0.01	0.01
Truck and Railcar Loadouts	A-13	2.11 PM 1.00 PM ₁₀						
Knot Draining	A-13			0.12			0.06	0.12
Turpentine Tank (13,500 gal)	A-13			0.31				
Fuel Oil Day Tank (47,000 gal)	A-13			0.05				
Strong Liquor Tank	A-13			0.22			0.22	0.22
Heavy Liquor Tank	A-13			0.13			0.12	0.12
Gasoline Storage Tank (1,000 gal)	A-13			0.54			0.27	0.27
Green Liquor Stabilization Tank	A-13			0.05			0.04	0.04
Slaker	A-13			0.38			0.28	0.37
Extruder Winder Cyclone	A-13	0.003						

Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Board Machine South Cooling Tower – East Side (195 gpm)	A-13	0.06						
Board Machine Middle Cooling Tower – East Side (430 gpm)	A-13	0.05						
Board Machine North Cooling Tower – East Side (724 gpm)	A-13	0.02						
Board Machine North Cooling Tower – West Side (2000 gpm)	A-13	0.22						
Extruder Cooling Tower (585 gpm)	A-13	0.08						
Generator Cooling Tower (3,000 gpm)	A-13	0.30						
Pre-Evaporator Cooling Tower (3,600 gpm)	A-13	0.36						
Pulp-Mill HVAC Roof Cooling Tower (500 gpm)	A-13	0.06						
2 x Starch Storage Silos	A-13	0.6						
Polyethylene Silo	A-13	Due to the nature of the material (plastic beads), no emissions are expected from this silo.						
Chip Mill - Transfer Points	A-13	0.103						
Chip Mill - Bark Storage Pile	A-13	0.0055						
Chip Mill - Bark Hog	A-13	0.0031						
Chip Mill - Chipper	A-13	0.0158						

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Source Name	Group A Category	Emissions (tpy)						
		PM/PM ₁₀	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Chip Mill - Rechipper	A-13	0.0009						
Total	A-13	3.99 PM 2.99 PM ₁₀		1.77			0.98	1.14

20. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
0271-AOP-R22

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Clearwater Paper Corporation
 Permit Number: 0271-AOP-R23
 AFIN: 21-00036

\$/ton factor	23.93	Annual Chargeable Emissions (tpy)	3270.28
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

If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$ 0

Total Permit Fee Chargeable Emissions (tpy) 0

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 condensible 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		481.6	481.6	0	0	481.6
PM ₁₀		444.5	444.5	0		
PM _{2.5}		111	111	0		
SO ₂		218.6	218.6	0	0	218.6
VOC		1155.4	1155.4	0	0	1155.4
CO		1420.1	1420.1	0		
NO _x		1185.6	1185.6	0	0	1185.6
Lead	<input type="checkbox"/>	0.45	0.45	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
TRS	<input checked="" type="checkbox"/>	110.7	110.7	0	0	110.7
Acetaldehyde*	<input type="checkbox"/>	12.72	12.72	0		
Hydrogen Chloride	<input checked="" type="checkbox"/>	65.42	65.42	0	0	65.42
Methanol*	<input type="checkbox"/>	489.52	489.52	0		
Acetone**	<input checked="" type="checkbox"/>	10.99	10.99	0	0	10.99
Ammonia**	<input checked="" type="checkbox"/>	21.91	21.91	0	0	21.91
H ₂ S**	<input checked="" type="checkbox"/>	9.51	9.51	0	0	9.51
Total Other HAPs	<input type="checkbox"/>	33.92	33.92	0		
Other Chargeable HAPs and NCAPs	<input checked="" type="checkbox"/>	10.55	10.55	0	0	10.55
-----	<input type="checkbox"/>	0	0	0		
The PM _{2.5} and H ₂ S emissions are only listed for SN-02 due to the reasonable possibility that these pollutants could trigger PSD review based on the permit application for Permit 0271-AOP-R16.	<input type="checkbox"/>	0	0	0		
	<input type="checkbox"/>	0	0	0		
	<input type="checkbox"/>	0	0	0		
	<input type="checkbox"/>	0	0	0		
-----	<input type="checkbox"/>	0	0	0		
40 CFR Part 60, Subpart Bba requires the facility to test condensable particulate matter. Therefore, the PM _{2.5} emissions are also listed for SN-01.	<input type="checkbox"/>	0	0	0		
	<input type="checkbox"/>	0	0	0		
	<input type="checkbox"/>	0	0	0		