Statement of Basis

Permit to Construct No. P-2015.0007
Project ID 61473

Clearwater Paper Corp. – PPD & CPD
Lewiston, Idaho

Facility ID 069-00001

Final

September 3, 2015
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Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
ADTBP	Air dried ton of bleached pulp
ADTUBP	Air dried ton of unbleached pulp
ADTFP	Air dried ton of finished product
BSW	brownstock washer
Btu	British thermal units
CAS No.	Chemical Abstracts Service registry number
CEM	Continuous emission monitor
CFR	Code of Federal Regulations
cmpd	compound
CO	carbon monoxide
CO2	carbon dioxide
CO2e	CO2 equivalent emissions
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FRA	Federal requirements applicability
GHG	greenhouse gases
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HD	high density
hr/yr	hours per consecutive 12 calendar month period
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
IPP	Idaho pulp and paperboard
km	kilometers
lb/hr	pounds per hour
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
MMCF/yr	million cubic feet per year
NAAQS	National Ambient Air Quality Standard
NCASI	National Council on Air and Stream Improvement
NCG	Non-condensable Gas
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO2	nitrogen dioxide
NOx	nitrogen oxides
NSPS	New Source Performance Standards
NSR	New Source Review
ODT	oven dry tons
PAE	projected actual emissions
PAH	polyaromatic hydrocarbons
PB	power boiler
PEI	projected emission increase
PM	particulate matter
PM2.5	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM10	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million

PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SCL	significant contribution limits
SF	scaling factor
SIP	State Implementation Plan
SM	synthetic minor
SO2	sulfur dioxide
TBD	to be determined
TCaO	Tons of lime
T/day	tons per calendar day
THAP	total hazardous air pollutants
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAPs	toxic air pollutants
TRS	total reduced sulfur
µg/m3	micrograms per cubic meter
VOC	volatile organic compounds
wt	weight

FACILITY INFORMATION

Description

Clearwater Paper Corporation is proposing to add a polysulfide generator to the existing Kraft pulping process to increase pulp yield from the same amount of raw material (wood chips and sawdust). Clearwater is also replacing the existing batch digester systems on the chip fiberline with a continuous digester system and modifying the pulp dryer to increase productivity. Miscellaneous other changes to the chip fiberline brownstock washing, oxygen delignification and bleaching systems will be made. The project will improve mill energy efficiency, decrease water consumption, increase production capability and reduce operating costs.

The change to polysulfide pulping will not increase the sulfur content in the digester liquor or result in associated increases of sulfur compound emissions from the pulping and recovery process on a pound per ton of pulp basis. The existing Kraft pulping process utilizes sodium sulfide (Na_2S). In the new polysulfide pulping process the existing sodium sulfide in the pulping liquor is converted to polysulfide (Na_2S_2) in the polysulfide generator. Polysulfide pulping produces more pulp from the same amount of raw material (wood chips and sawdust). The chip line is projected to realize an 8.5% production increase and the sawdust line is project to realize a 5.6% production increase. Pulp processing downstream from the digesters will realize a production increase.

Polysulfide will revert back to sodium sulfide within the digesters[1], and the existing chemical recovery systems of the plant will not be physically modified except for the addition of the polysulfide generator.

The new continuous digester and new polysulfide pulping process are more energy efficient than the existing batch digester and sodium sulfide pulping process. Therefore an overall reduction on energy demand from on-site combustion sources will be realized as certified by Clearwater Paper Corporation.

Permitting History

This permit is for a new process at an existing Tier I facility. The permit history is compiled in the statement of basis for the Tier I permit.

Application Scope

This PTC is for a minor modification at an existing major facility.

The applicant has proposed to:

- Replace the existing 12 batch digesters on the chip fiberline with a new continuous digester.
- Add a new polysulfide generator to the existing digester liquor processing system.
- Make miscellaneous changes to the chip fiberline brownstock washing, oxygen delignification and bleaching systems.

Application Chronology

January 28, 2015	DEQ received an application.
January 29, 2015	DEQ received the application fee.
February 27, 2015	DEQ determined that the application was complete.
February 5, 2015	DEQ received an Excel file on emission estimates
February 18, 2015	DEQ received VOC scaling (minor correction) Excel file and Modeling Parameters

1 February 17, 2015 Allnorth letter to John Deuser of Clearwater Paper Corporation (Stamped by a professional engineer)

February 18, 2015	DEQ received a Polysulfide discussion and Chip handling discussion addressing 24-hr PTE
February 19, 2015	DEQ received Recovery Boiler and Liquor Cycle Loading
February 23, 2015	DEQ received Power Boiler Steam Use Projections
February 25, 2015	DEQ received Updated Modeling results summary table - correction to stack diameters
February 26, 2015	DEQ received Letter from NCASI on emission factors
February 26, 2015	DEQ received Email addressing chip handling PTE - Including commitment to update current calculations
February 27, 2015	DEQ received Updated NCASI emission factor table (full column descriptions)
March 6, 2015	DEQ received information on Smelt tanks and Evaporators
March 13, 2015	DEQ received Updated Calculations including recovery boilers
March 20, 2015	DEQ received Form FRA for BBa
March 25, 2015	DEQ received Email on PB steam demand
March 27, 2015	DEQ received Lime Kiln, Recovery Boiler emissions data
March 29, 2015	DEQ received Source tests results on Recovery Boiler #5 (4 test reports)
April 1, 2015	DEQ received Clearwater Description of CEM data for lime kilns and recovery boilers
April 11, 2015	DEQ received 9 emails with attachments. They include emission data and emission factor derivation information and an updated emission inventory.
April 26, 2015	DEQ received an updated spreadsheet addressing VOC scaling
April 28, 2015	DEQ received information Chip Line production increases.
April 30, 2015	Clearwater requested the PTC be processed in accordance with 209.05.a
May 20, 2015	DEQ made available the draft permit and statement of basis for peer and regional office review.
May 28, 2015	DEQ made available the draft permit and statement of basis for applicant review.
June 30, 2015	DEQ received an updated application and emission inventory from the applicant.
July 21, 2015	DEQ received the permit to construct processing fee
July 21 – August 19, 2015	DEQ provided a public comment period on the proposed action.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 NEW EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Sources	Control Equipment
Polysulfide Generator Manufacturer: TBD Capacity: 1,200 gpm	Scrubber: Manufacturer: TBD (pressure drop and scrubbing media flowrate to be determined through source testing)
Bleached High Density Pulp Tank Manufacturer: TBD Capacity: 1,000 Tons	None
Continuous Chip Digester Capacity: 1,400 ADTUBP/Day	Various Existing Equipment – Lime Kiln, NCG Incinerator, Recovery Furnace

All of the other equipment affected by the modification is already permitted and the control devices are listed in underlying permits to construct and the existing Tier I Operating Permit. No changes to the underlying permits for these emission units are required. All of the equipment that is associated with the project is listed in Table 4 of this statement of basis.

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable.

For this permitting action the difference of the proposed potential to emit and the existing potential to emit is necessary to determine air pollution dispersion modeling applicability for both TAPs and criteria air pollutants.

Clearwater has provided a detailed emission inventory Excel spreadsheet that calculates changes to the potential to emit. The change in potential emissions is determined based on the production changes listed in Table 2. The recovery boilers potential to emit does not change; emission factors are based on tons of black liquor solids combusted and the amount of black liquor solids combusted does not increase. Additionally, Clearwater has certified that the recovery boilers are currently operating at maximum capacity during peak production cycles. The proposed pulp production increase is not achievable unless the demand on the recovery boilers remains unchanged. The capacity of the recovery boilers is dependent on heat release of the black liquor.

Table 2 CHANGES IN POTENTIAL PRODUCTION RATES

		Pre-project		Post-project	
EU Group Name	Units	Hourly	Annual	Hourly	Annual
Polysulfide Generator (New)	ADTUBP	0.00	0.00	84.2	737300
High Density Pulp Storage Tank (New)	Hours	0.00	0.00	24.0	8760
Chip Line Digester System	ADTUBP	53.8	470850	60.4	529250
Chip Handling	ODT	107	939346	110	966411
Pulping Process NCG Control	ADTUBP	76.3	667950	84.2	737300
No. 3 Lime Kiln	TCaO	10.5	91980	10.5	91980
No. 4 Lime Kiln	TCaO	10.5	91980	10.5	91980
Sawdust Line Brownstock Washer System	ADTUBP	22.5	197100	23.8	208050

Sawdust Line Decker System	ADTUBP	22.5	197100	23.8	208050
Oxygen Delignification System	ADTUBP	53.8	470850	60.4	529250
Chip Line Bleach Plant	ADTBP	50.5	442599	56.2	492203
Sawdust Line Bleach Plant	ADTBP	21.2	185274	22.3	195567
Pulp Dryer - Process	ADTFP	15.6	136875	22.5	196772
Pulp Dryer - Burners	MMCF	0.04	391	0.06	567
Wastewater Collection and Treatment System	ADTBP	71.7	627873	78.5	687770
PPD Roads	ADTBP	71.7	627873	78.5	687770

A summary of the criteria pollutant and total reduced sulfur (TRS) potential to emit emission increases as a result of the project are shown in Table 3. Emission calculations are included in the spreadsheet provided by Clearwater.

Table 3 CHANGES IN POTENTIAL EMISSION RATES

Source	PM (T/yr)	PM_{10} (T/yr)	$PM_{2.5}$ (T/yr)	SO_2 (T/yr)	CO (T/yr)	NO_x (T/yr)	VOC (T/yr)	TRS (T/yr)
Polysulfide Gen.							1.13	2.294E-3
Bleached Pulp Tank							0.623	0.347
Chip Handling	0.56	0.278	0.090					
Sawdust BSW[1]							3.32	1.08
Sawdust Decker							1.16	0.313
O_2 Delignification					4.67		5.68	1.55
Chip Bleach Plant					21.1		6.5	0.237
Sawdust Bleach Plant					4.37		1.35	4.92E-2
Pulp Dryer - Process	1.11[2]	2.88	2.55				4.84	0.296
Pulp Dryer -Burners	[3]	[3]	[3]	5.28E-2	7.39	8.8	0.484	
Wastewater Plant							8.26	1.56
Plant Roads	6.28	1.47	0.256					

1) Brownstock Washer
2) Excludes condensable consistent with EPA's 10/22/12 notice for publication in the Federal Register – "Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5): Amendment to the Definition of "Regulated NSR Pollutant Concerning Condensable Particulate Matter"
3) Emissions included in process emissions

Major Modification Test

Clearwater Paper Corporation is an existing PSD major source. All modifications to this source must be subjected to the PSD applicability test described at 40 CFR 52.21. The procedures for determining whether the modification is subject to PSD are detailed at 40 CFR 52.21(a)(2). In summary, the facility must calculate baseline actual emissions, projected actual emissions, and emissions that could have been accommodated during the baseline period. Following are tables that summarize those determinations for all units that are part of the project. The projects overall emission increase is determined by subtracting baseline actual emissions and emission that could have been accommodated from projected actual emissions. The facility must maintain records of all calculations, then monitor emissions of future operations and report if preconstruction projections are different than what was projected as specified at 40 CFR 52.21(r)(6).

Emissions calculations are detailed in Clearwater's application (within an Excel spreadsheet). DEQ conducted a random audit of Clearwater's calculations and did not find any errors.

Clearwater, in their initial application dated January 28, 2015 asserted that the recovery boilers are not part of the project because they were not being physically or operationally modified. Subsequent to the initial application submittal DEQ determined that the recovery boilers were in fact part of the project and requested that Clearwater amend the application to include them in the major modification determination. By definition "Project" means a physical change in, or change in the method of operation of, an existing major stationary source (40 CFR 52.21(b)(52)). A change in fuel shall not be considered a change in the method of operation provided the change is not prohibited by a permit and the change could be accommodated prior to January 6, 1975. The change in the fuel characteristics (black liquor) that is combusted in the recovery furnace was not able to be accommodated prior to January 6, 1975 (40 CFR 52.21(b)(2)(*e*)), therefore the recovery furnaces are part of the project.

Projected Actual Emissions

Projected actual emissions were calculated using the procedure set forth at 52.21(b)(41). Projected actual emissions are summarized in Table 4.

Table 4 PROJECTED ACTUAL EMISSION RATES

	Projected Actual Emissions (PAE, unadjusted) or Potential to Emit (PTE) (tons/year)										
Emissions Unit	PM	PM_{10}	$PM_{2.5}$	SO_2	CO	NO_x	VOC	TRS	H_2SO_4	Pb	GHGs*
Polysulfide Generator	0.00	0.00	0.00	0.00	0.00	0.00	1.13	0.00	0.00	0.00	0.00
Bleached Pulp HD Storage Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.35	0.00	0.00	0.00
Chip Line Digester System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Line Brownstock Washer System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Handling	19.89	9.84	3.26	0.00	0.00	0.00	3.49	0.00	0.00	0.00	0.00
No. 3 Lime Kiln	5.89	6.72	5.45	0.24	14.51	63.26	4.51	0.97	0.00	0.00	31,076.06
No. 4 Lime Kiln	2.02	5.52	5.08	0.56	1.76	52.91	4.53	0.71	0.00	0.00	31,218.61
Chip Line NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	4.05	2.37	0.00	0.00	0.00
Sawdust Line Digester System NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00
Sawdust Line Brownstock Washer System	0.00	0.00	0.00	0.00	0.00	0.00	62.11	20.11	0.00	0.00	0.00
Sawdust Line Decker System	0.00	0.00	0.00	0.00	0.00	0.00	21.62	5.86	0.00	0.00	0.00
Oxygen Delignification System	0.00	0.00	0.00	0.00	40.88	0.00	49.66	13.59	0.00	0.00	0.00
Chip Line Bleach Plant	0.00	0.00	0.00	0.00	201.93	0.00	62.24	2.27	0.00	0.00	0.00
Sawdust Line Bleach Plant	0.00	0.00	0.00	0.00	81.78	0.00	25.21	0.92	0.00	0.00	0.00
No. 4 Recovery Furnace	47.74	34.86	27.39	14.87	326.22	204.28	15.67	6.97	2.66	0.00	371,618.74
No. 5 Recovery Furnace	56.65	64.61	55.73	4.08	1,553.27	530.20	51.71	3.92	8.95	0.00	1,228,125.80
Pulp Dryer - Process	2.70	7.01	6.21	0.00	0.00	0.00	11.79	0.72	0.00	0.00	0.00
Pulp Dryer - Burners	0.00	0.00	0.00	0.13	18.04	21.47	1.18	0.00	0.00	0.00	25,825.89
No. 1 Paper Machine	5.34	12.24	10.76	0.00	0.00	0.00	20.52	1.26	0.00	0.00	0.00
No. 1 Paper Machine Coater Burners	0.11	0.46	0.46	0.04	5.07	6.03	0.33	0.00	0.00	0.00	7,257.85
No. 2 Paper Machine	5.87	13.48	11.84	0.00	0.00	0.00	22.59	1.38	0.00	0.00	0.00
No. 2 Paper Machine Coater Burners	0.01	0.04	0.04	0.00	0.46	0.55	0.03	0.00	0.00	0.00	657.52
Wastewater Collection and Treatment System	0.00	0.00	0.00	0.00	0.00	0.00	92.12	17.42	0.00	0.00	0.00
IPP Roads - Fugitives	70.01	16.43	2.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	216.23	171.21	129.07	19.92	2,243.92	878.71	455.15	78.84	11.62	0.01	1,695,780.48

In accordance with the definition of projected actual emissions set forth at 52.21(b)(41) the source shall exclude from projected actual emissions those emissions that are unrelated to the project and that could have been accommodated during the baseline period. The emissions that could have been accommodated, or excludable emissions, are summarized in Table 5. Consistent with EPA Policy[2] Clearwater determined excludable emissions by annualizing peak historical monthly productions for each existing emission unit that is part of the project.

2 Letter from Greg M. Worley – Chief Air Permits Section, EPA Region 4 to Georgia-Pacific Wood Product March 18, 2010 and Letter from Mark Smith - Chief Air Permitting and Compliance, EPA Region 7 to Kansas DHE, March 25, 2013.

Table 5 EXCLUDABLE EMISSION RATES

	Excludable Emissions (tons/year)										
Emissions Unit	PM	PM_{10}	$PM_{2.5}$	SO_2	CO	NO_x	VOC	TRS	H_2SO_4	Pb	GHGs*
Polysulfide Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bleached Pulp HD Storage Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chip Line Digester System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Line Brownstock Washer System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Handling	1.49	0.74	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 3 Lime Kiln	3.58	3.80	3.02	0.12	7.47	35.97	0.36	0.36	0.00	0.00	4,373.77
No. 4 Lime Kiln	0.96	2.67	2.46	0.40	0.65	28.81	0.46	0.15	0.00	0.00	3,587.98
Chip Line NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sawdust Line Digester System NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Sawdust Line Brownstock Washer System	0.00	0.00	0.00	0.00	0.00	0.00	9.30	1.78	0.00	0.00	0.00
Sawdust Line Decker System	0.00	0.00	0.00	0.00	0.00	0.00	3.24	0.52	0.00	0.00	0.00
Oxygen Delignification System	0.00	0.00	0.00	0.00	2.88	0.00	0.00	0.96	0.00	0.00	0.00
Chip Line Bleach Plant	0.00	0.00	0.00	0.00	13.89	0.00	4.58	0.16	0.00	0.00	0.00
Sawdust Line Bleach Plant	0.00	0.00	0.00	0.00	7.26	0.00	3.78	0.08	0.00	0.00	0.00
No. 4 Recovery Furnace	8.53	5.48	4.15	13.71	143.93	23.55	1.92	2.02	0.29	0.00	41,443.86
No. 5 Recovery Furnace	17.16	12.55	9.86	1.44	619.03	121.31	5.88	2.40	0.98	0.00	135,386.10
Pulp Dryer - Process	0.13	0.33	0.29	0.00	0.00	0.00	1.74	0.03	0.00	0.00	0.00
Pulp Dryer - Burners	0.00	0.00	0.00	0.01	2.09	2.49	0.20	0.00	0.00	0.00	2,997.57
No. 1 Paper Machine	0.64	1.46	1.28	0.00	0.00	0.00	3.97	0.15	0.00	0.00	0.00
No. 1 Paper Machine Coater Burners	0.04	0.14	0.14	0.01	1.55	1.85	0.11	0.00	0.00	0.00	2,219.70
No. 2 Paper Machine	0.77	1.76	1.55	0.00	0.00	0.00	3.18	0.18	0.00	0.00	0.00
No. 2 Paper Machine Coater Burners	0.00	0.02	0.02	0.00	0.18	0.22	0.01	0.00	0.00	0.00	263.15
Wastewater Collection and Treatment System	0.00	0.00	0.00	0.00	0.00	0.00	8.81	1.30	0.00	0.00	0.00
IPP Roads - Fugitives	5.22	1.22	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	38.50	30.17	23.22	15.70	798.95	214.19	47.54	10.10	1.27	0.00	190,272.13

Clearwater certified[3] that the production rates used to estimate excludable emission are rates that could have been accommodated on an annualized basis with sufficient product demand during the baseline period, and that these production rates are unrelated to the project.

Baseline Actual Emissions

Baseline Actual emissions were calculated using the procedure set forth at 52.21(b)(48). Baseline actual emissions are summarized in Table 6. The baseline period is March 2005 through February 2007 for VOC and for all other NSR regulated air pollutants January 2011 through December 2012.

Table 6 BASELINE ACTUAL EMISSION RATES

	Baseline Actual Emissions (tons/year)										
Emissions Unit	PM	PM_{10}	$PM_{2.5}$	SO_2	CO	NO_x	VOC	TRS	H_2SO_4	Pb	GHGs*
Polysulfide Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bleached Pulp HD Storage Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chip Line Digester System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Line Brownstock Washer System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Handling	16.78	8.30	2.76	0.00	0.00	0.00	3.49	0.00	0.00	0.00	0.00
No. 3 Lime Kiln	2.31	2.92	2.43	0.12	7.04	27.29	4.15	0.61	0.00	0.00	26,702.29
No. 4 Lime Kiln	1.06	2.85	2.62	0.16	1.11	24.10	4.07	0.56	0.00	0.00	27,630.63
Chip Line NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	29.99	3.16	0.00	0.00	0.00
Sawdust Line Digester System NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Sawdust Line Brownstock Washer System	0.00	0.00	0.00	0.00	0.00	0.00	49.93	17.39	0.00	0.00	0.00
Sawdust Line Decker System	0.00	0.00	0.00	0.00	0.00	0.00	17.38	5.07	0.00	0.00	0.00
Oxygen Delignification System	0.00	0.00	0.00	0.00	31.40	0.00	67.51	10.44	0.00	0.00	0.00
Chip Line Bleach Plant	0.00	0.00	0.00	0.00	155.93	0.00	47.76	1.75	0.00	0.00	0.00
Sawdust Line Bleach Plant	0.00	0.00	0.00	0.00	70.75	0.00	20.27	0.80	0.00	0.00	0.00
No. 4 Recovery Furnace	39.21	29.38	23.24	1.16	182.29	180.73	13.75	4.95	2.37	0.00	330,174.88
No. 5 Recovery Furnace	39.49	52.06	45.87	2.64	934.24	408.90	45.84	1.52	7.97	0.00	1,092,739.70
Pulp Dryer - Process	1.51	3.93	3.48	0.00	0.00	0.00	5.43	0.41	0.00	0.00	0.00
Pulp Dryer - Burners	0.00	0.00	0.00	0.06	8.86	10.55	0.52	0.00	0.00	0.00	12,690.06
No. 1 Paper Machine	4.40	10.10	8.87	0.00	0.00	0.00	15.40	1.04	0.00	0.00	0.00
No. 1 Paper Machine Coater Burners	0.07	0.29	0.29	0.02	3.23	3.85	0.20	0.00	0.00	0.00	4,630.97
No. 2 Paper Machine	4.81	11.03	9.69	0.00	0.00	0.00	18.26	1.13	0.00	0.00	0.00
No. 2 Paper Machine Coater Burners	0.01	0.02	0.02	0.00	0.25	0.30	0.02	0.00	0.00	0.00	360.85
Wastewater Collection and Treatment System	0.00	0.00	0.00	0.00	0.00	0.00	71.66	13.92	0.00	0.00	0.00
IPP Roads - Fugitives	55.93	13.12	2.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	165.59	134.01	101.56	4.17	1,395.10	655.72	415.63	62.76	10.34	0.01	1,494,929.40

Project Emissions Increase

The emission increase from the project is determined as follows:

Projected Actual Emissions – Could Have Accommodated Emissions – Baseline Actual Emissions

3 Page 3-10 of Clearwater's January 28, 2015 application.

Table 7 summarizes emissions increases from the project.

Table 7 PROJECT EMISSION INCREASES

	Project Emissions Increase (PEI) (tons/year)										
Emissions Unit	PM	PM_{10}	$PM_{2.5}$	SO_2	CO	NO_x	VOC	TRS	H_2SO_4	Pb	GHGs*
Polysulfide Generator	0.00	0.00	0.00	0.00	0.00	0.00	1.13	0.00	0.00	0.00	0.00
Bleached Pulp HD Storage Tank	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.35	0.00	0.00	0.00
Chip Line Digester System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Line Brownstock Washer System	See Nos. 3 & 4 Lime Kilns (NCG control devices) & Chip Line NCG Venting										
Chip Handling	1.62	0.80	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 3 Lime Kiln	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 4 Lime Kiln	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chip Line NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sawdust Line Digester System NCG Venting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sawdust Line Brownstock Washer System	0.00	0.00	0.00	0.00	0.00	0.00	2.88	0.93	0.00	0.00	0.00
Sawdust Line Decker System	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.27	0.00	0.00	0.00
Oxygen Delignification System	0.00	0.00	0.00	0.00	6.60	0.00	0.00	2.19	0.00	0.00	0.00
Chip Line Bleach Plant	0.00	0.00	0.00	0.00	32.10	0.00	9.90	0.36	0.00	0.00	0.00
Sawdust Line Bleach Plant	0.00	0.00	0.00	0.00	3.77	0.00	1.16	0.04	0.00	0.00	0.00
No. 4 Recovery Furnace	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
No. 5 Recovery Furnace	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pulp Dryer - Process	1.06	2.75	2.44	0.00	0.00	0.00	4.63	0.28	0.00	0.00	0.00
Pulp Dryer - Burners	0.00	0.00	0.00	0.05	7.08	8.43	0.46	0.00	0.00	0.00	10,138.25
No. 1 Paper Machine	0.30	0.69	0.60	0.00	0.00	0.00	1.15	0.07	0.00	0.00	0.00
No. 1 Paper Machine Coater Burners	0.01	0.03	0.03	0.00	0.28	0.34	0.02	0.00	0.00	0.00	407.18
No. 2 Paper Machine	0.30	0.69	0.60	0.00	0.00	0.00	1.15	0.07	0.00	0.00	0.00
No. 2 Paper Machine Coater Burners	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.00	0.00	0.00	33.52
Wastewater Collection and Treatment System	0.00	0.00	0.00	0.00	0.00	0.00	11.65	2.20	0.00	0.00	0.00
IPP Roads - Fugitives	8.85	2.08	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	12.14	7.03	4.29	0.05	49.87	8.79	35.76	6.78	0.00	0.00	10,578.95
PSD Significant Emission Rate*	25	15	10	40	100	40	40	10	7	0.6	75,000
Significant Increase?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

The project emission increases are below all PSD thresholds.

TAP Emissions

A summary of the estimated PTE for emissions increase of toxic air pollutants (TAP) that exceed the screening emissions level (EL) included in Clearwater's application is provided in Table 8.

Table 8 TAPS THAT EXCEED SCREENING EMISSIONS LEVELS

	Total		
Pollutant	**lb/hr**	**EL (lb/hr**	**> EL?**
1,1,2-Trichloroethane	1.30E-03	4.20E-04	Yes
1,3-Butadiene	3.75E-04	2.40E-05	Yes
Acetaldehyde	6.86E-01	3.00E-03	Yes
Arsenic	4.42E-06	1.50E-06	Yes
Benzene	8.58E-03	8.00E-04	Yes
Cadmium	2.21E-05	3.70E-06	Yes
Carbon Tetrachloride	2.43E-03	4.40E-04	Yes
Chloroform	3.50E-02	2.80E-04	Yes
Formaldehyde	2.96E-02	5.10E-04	Yes
Hydrochloric Acid	1.52E-01	5.00E-02	Yes
Methyl Mercaptan	1.47E-01	3.30E-02	Yes
Methylene Chloride	1.55E-02	1.60E-03	Yes
Nickel	4.22E-05	2.70E-05	Yes
Propionaldehyde	5.81E-02	2.87E-02	Yes
Sulfuric Acid (aerosol)	2.35E-01	6.70E-02	Yes

This screening review included TAPs that are regulated by a NSPS or NESHAP. This is a conservative screening review. These pollutants were modeled in the refined analysis; however those emissions that occur from NSPS or NESHAP regulated sources were not included in the refined modeling analysis as specified at IDAPA 58.01.01.210.20. Predicted ambient concentrations demonstrated preconstruction compliance (ambient impacts are less than TAP increments).

In the refined modeling analysis Clearwater asserted that carbon tetrachloride and hydrochloric acid emissions occur from emission units that are regulated by a NESHAP and that emission of those pollutants did not need to be modeled to demonstrate preconstruction compliance (IDAPA 58.01.01.210.20) because they are regulated by 40 CFR 63 Subpart S. That is true for hydrochloric acid, but emissions of carbon tetrachloride are not regulated from the lime kiln combustions source. Carbon tetrachloride emissions from the lime kiln are estimated to be 4.2E-4 pounds per hour which is below the screening emission level of 4.4E-4 pounds per hour and preconstruction compliance is demonstrated; emissions of carbon tetrachloride from the decker systems, oxygen delignification, and bleach plants are regulated as HAPs under 40 CFR 63 Subpart S and no further preconstruction compliance is required for those sources. Details of the refined modeling analysis may be seen in Appendix A.

Post Project HAP Emissions

Hazardous air pollutant emissions do increase as result of this project. However this emission increase is not summarized in this statement of basis because whatever the increases are they will not alter, or otherwise affect, any regulatory determination. The existing source's HAP emissions remain above the HAP major source threshold of 10 tons per year for any individual HAP and 25 tons per year for all HAPs combined. All HAP facility classifications and applicability determinations are based solely on whether HAP emissions exceed either the 10 or 25 ton per year major facility threshold.

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in A, the estimated emission rates of criteria air pollutants PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, and VOC from this project are below DEQ modeling thresholds established in the State of Idaho Air Quality Modeling Guideline[4]. Consequently air pollution dispersion modeling for criteria pollutants is not required. Refer to the Emissions Inventories section for additional information concerning the potential to emit inventories.

The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) increment for toxic air pollutants (TAP). A description of the Ambient Air Impact Analysis for TAPs is provided in Appendix A.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Nez Perce County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

A = Use when any one HAP has actual or potential emissions $\geq$ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions $\geq$ 25 T/yr.

SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits $\geq$ 8 T/yr of a single HAP or $\geq$ 20 T/yr of THAP.

SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are

[4] Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.

B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are ≥ 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.

B = Actual and potential emissions are < 100 T/yr without permit restrictions.

UNK = Class is unknown.

Table 9 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	> 100	> 800	100	A
$PM_{10}/PM_{2.5}$	> 100	>800	100	A
SO_2	>100	>1,500	100	A
NO_x	>100	>2,000	100	A
CO	>100	>5,500	100	A
VOC	>100	>600	100	A
CO_2e	>100,000	>100,000	100,000	A
HAP (single)	>10	>10	10	A
HAP (Total)	>25	>25	25	A

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ..... Permit to Construct Required

A permit to construct is required to be obtained in accordance with IDAPA 58.01.01.220; the project does not quality for an exemption. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 ..... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01)

The pulping optimization project proposed by Clearwater will not trigger any newly applicable State rule. The existing permits already include all applicable rules and there is not a need to repeat them in this permit to construct.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 .....Requirement to Obtain Tier I Operating Permit

The facility is an existing Tier I major facility and has been issued a Tier I permit and that permit is in the process of being renewed at this time. This permit action does not affect the Tier I permit applicability to this source; potential criteria air pollutant emissions remain above 100 tons per year and HAP emissions remain above the thresholds of 10 tons per year for any HAP and 25 tons per year for all HAPs combined.

Clearwater in their initial application dated January 28, 2015 requested that this permit to construct is processed in accordance with IDAPA 58.01.01.209.05.c, which is to administratively amend the existing Tier I to include the provisions of this permit. On April 30, 2015 Clearwater altered their initial submittal and requested that this permit to construct be included in the Tier I operating permit at the time of renewal in accordance with IDAPA 58.01.01.209.05.a. This permit to construct is processed in accordance the later request.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 .....Prevention of Significant Deterioration of Air Quality

The facility is classified as an existing major stationary source, because the estimated emissions of PM_{10}, SO_2, NO_x, CO, VOC have the potential to exceed major stationary source thresholds. The facility is a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a).

Since the facility is an existing PSD major facility the changes at the source are subject to the major modification test specified at 40 CFR 52.21(b)(2). In order to trigger PSD requirements the modification must result in both a significant emission increase and a significant net emission increase (a two-step process). As demonstrated in the emission inventory section of this statement of basis the emission increase from this project do not result in a significant emission increase and the PSD permitting requirements are not triggered.

The procedure for determining if there is a significant emission increase is detailed at 40 CFR 52.21(a)(2)(*f*). In summary, these procedures require determining actual emissions before the project and actual emissions after the project. If the change in emissions from the project is not significant then PSD is not triggered. As previously stated, the emissions increases as a result of the project are not significant.

NSPS Applicability (40 CFR 60)

As a result of this project the facility is subject to 40 CFR Part 60 Subpart BBa - Standards of Performance for Kraft Pulp Mill Affected Sources for Which Construction, Reconstruction, or Modification Commenced After May 23, 2013. A detailed regulatory review of this subpart is provided in Appendix C.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

The proposed source is not an affected source subject to NESHAP in 40 CFR 61, and this permitting action does not alter the applicability status.

MACT Applicability (40 CFR 63)

The proposed modification does not trigger the applicability of any MACT that is not already in the existing Tier I operating permit. Regulatory breakdowns of those MACT regulations are not repeated in this statement of basis.

Permit Conditions Review

This section describes the permit conditions for this initial permit.

Permit Condition 1.1 & 1.2

These conditions provide a project description, list new equipment and describe all of the existing equipment that is affected by the modification. The description section of this statement of basis also details the project.

Permit Condition 2.1

Provides a description of the digesters. In short, polysulfide liquor will be used to digest wood in continuous digesters to produce pulp that is further treated to ultimately produce paper products. The existing 12 batch digesters on the chip line will be replaced by a continuous digester.

Permit Condition 2.2

Daily pulp production is limited to the rates inherent to methods used to estimate emissions increases from the pulp dryer and paper machines and to substantiate that estimated emissions will not occur from other emission units (e.g. chip handling, sawdust handling). Clearwater estimated that emissions increases would be below all criteria air pollutant modeling thresholds. Therefore air pollution modeling was not required. If emissions were to exceed the modeling thresholds the facility would be required to conduct a model to demonstrate that the project will not cause or significantly contribute to a violation of the national ambient air quality standards. $PM_{2.5}$ emissions increases are estimated to be 96% of the modeling threshold. In short Clearwater demonstrated that they would not cause or significantly contribute to a violation of the national ambient air quality standards with the production rates included as limits in this permit condition; therefore it is a reasonable permit condition to limit Clearwater's production to those rates. The production limits serve to inherently limit all criteria pollutants and toxic air pollutants from all emission units at the source (e.g. chip handling, sawdust handling, No. 4 recovery furnace, dryer, and paper machines) consistent with emission estimates and assumptions provided in the application.

The chip digester system has its own production limit of 1,450 tons of air dried unbleached pulp per day and the facility shall comply with it at all times. The facility shall also continuously comply with the combined production limit included Permit Condition 2.3. Neither limit shall be violated.

Permit Condition 2.3

Pulp production from the chip and sawdust production lines combined shall not exceed 2,020 tons of air dried unbleached pulp per day. The 2,020 limit is the combined production of the chip line and sawdust line that was used to estimate emissions from the modification. The facility shall not exceed the chip line production line limit of Permit Condition 2.2 nor shall the facility violate the combined throughput restriction of 2,020 air dried tons of unbleached pulp on each fiberline combined.

Permit Condition 2.4

This permit condition requires monitoring daily pulp production on the chip line to assure compliance with the throughput limit on the chip line.

Permit Condition 2.5

This permit condition requires monitoring daily pulp production of the sawdust and the chip line combined to assure compliance with the combined throughput limit on the chip line and sawdust line.

Permit Condition 2.6

This permit condition incorporates by reference the requirements of 40 CFR 60, subpart BBa - Standards of Performance for Kraft Pulp Mills Which Construction Commenced After May 23, 2013. A detailed regulatory breakdown in provided in Appendix B. Clearwater's Tier I operating permit is currently being renewed and a detailed regulatory breakdown will be provided in that permit.

Permit Condition 2.7

This permit condition recites the odor requirements that are in the Rule for the Control of Air Pollution in Idaho.

Permit Condition 2.8

Includes DEQ's standard permit language for corrective action should the facility receive an odor complaint.

Permit Condition 3.1

This permit condition provides a description of the polysulfide generator. The existing sodium sulfide (Na_2S) in the pulping liquor is converted to polysulfide (Na_2S_2) in the polysulfide generator. Polysulfide pulping produces

more pulp from the same amount of raw material (wood chips and sawdust). Polysulfide is reverted back to sodium sulfide within the digesters. The spent cooking liquor is treated in the existing chemical recovery process.

Permit Condition 3.2

The permittee specified in the application that a wet scrubber will be used to control emissions from the polysulfide generator. This permit condition simply requires that type of scrubber is to be used to control emissions.

Permit Condition 3.3

The permittee shall propose scrubber operating parameters for pressure drop and scrubbing media flow rate for DEQ approval. The proposed operating parameters shall be based on measured values acquired during the required source test.

The permittee shall maintain the scrubber operating parameters in accordance with written DEQ approval.

Permit Condition 3.4

To assure VOC emissions remain consistent with those measured during the performance test the permittee shall monitor and record the scrubber operating parameters at least once each calendar day.

Permit Condition 3.5

Within 180 days of startup of the polysulfide generator the permittee shall conduct a VOC emissions test. A VOC source test is warranted:

- because Clearwater assumed methanol emissions are controlled with a 95% control efficiency, methanol is a VOC (VOC emissions are an indicator of methanol emissions);
- to establish critical scrubber operating parameters (for pressure drop and scrubbing media flow rate);
- to establish an emission factor for VOC emissions as compounds.

The permittee has a choice to measure VOC emissions as compounds or VOC emissions as carbon. Since the applicant estimated emissions as compounds it was required to convert that estimated emission rate to an equivalent VOC emission rate as carbon in order to grant the opportunity to test for VOC as carbon. The following procedure was used to make this conversion (the procedure is based on the Midwest Scaling Protocol and it was used by Clearwater to estimate emissions from the Sawdust Brownstock washer):

	Emission Factor	%of total of top 3			C	H	O	cmpd. wt. as	Scaling
Top 3 Compounds	lb/ADTUBP	compounds		mole. wt.>	12	1	16	fraction of C wt.	Factor*
Terpenes (as Pinene)	1.65E-03	61.51%		C10H16	10	16		1.13	0.70
Methonal	8.39E-04	31.35%		CH4O	1	4	1	2.67	0.84
Acetaldehyde	1.91E-04	7.14%		C2H4O	2	4	1	1.83	0.13
	2.68E-03	100.00%						SF =	1.66

* Sample Calculation for Pinene. Scaling Factor = 61.51%*1.13 = 0.7

Top 3 compounds = 87% of all identified compounds

VOC as compounds = (VOC as C) * (SF) ; (SF) = Scaling Factor

VOC as C = (VOC as compounds)/(SF) = 0.001846 lb/ADTUBP

VOC as C emission rate = 0.15 lb/hr

VOC as compounds rate = 0.25 lb/hr

In order to convert VOC emissions as carbon to VOC emissions as compounds, the VOC as carbon emission rate would need to be multiplied by a scaling factor of 1.66.

VOC as compounds is the value used to be used in the major modification test as described in this statement of basis.

Permit Condition 4.1

This condition provides a description of the pulp dryer. Emissions from the drying process and the natural gas combustion source are combined and emitted unabated to the atmosphere. There is one dryer and that dryer has two stacks.

Permit Condition 4.2

Limits emissions to the estimated emission rate provided in the application. An emission rate limit is warranted because this is the single largest source contributing the change of $PM_{2.5}$ emissions. The emissions increase from this source accounts for 92% of the total emissions increase of $PM_{2.5}$. The emission limit is a restriction on the emissions from each of the two stacks combined.

Permit Condition 4.3

A source test for $PM_{2.5}$ is warranted because the dryer is being modified to increase production capability; the modification could result in changes to the predicted emission rate limit which based on an emission test conducted in 2002. Also, the emissions increase from this source accounts for 92% of the total emissions increase of $PM_{2.5}$. Changes in the predicted emission rate may result in the source exceeding the modeling threshold for $PM_{2.5}$. The permittee shall conduct a source test on each dryer stack to determine compliance with the combined emission rate limit.

The source tests do not need to be conducted simultaneously, but each test must be conducted under worst case normal conditions.

Permit Condition 5.1

The purpose of Section 5 of the permit is to recite the source obligation requirements that appear at 40 CFR 52.21(r)(6) and the record keeping requirements of 40 CFR 52.21(r)(7). Should there be any conflict between the requirements of Section 4 of this permit and the requirements of 40 CFR 52.21(r)(6), the requirements of 40 CFR 52.21(r)(6) shall govern, including any amendments to that regulation.

Permit Condition 5.2

This permit condition includes the requirements of 40CFR 52.21(r)(6)(i). The emissions units identified as part of the project are listed as well. Clearwater, in their initial application dated January 28, 2015, asserted that the recovery boilers are not part of the project because they were not being physically or operationally modified. Subsequent to the initial application submittal DEQ determined that the recovery boilers were in fact part of the project and requested that Clearwater amend the application to include them in the major modification determination. By definition "Project" means a physical change in, or change in the method of operation of, an existing major stationary source (40 CFR 52.21(b)(52). The change in the fuel characteristics (black liquor) that is combusted in the recovery furnace was not able to be accommodated prior to January 6, 1975 (40 CFR 52.21(b)(2)(*e*)), therefore the furnaces are part of the project because emissions could increase.

The Btu content of the fuel is reduced due to the addition of the polysulfide process. This Btu reduction could impact the recovery boilers operating balance between reducing and oxidizing conditions and result in emission increases. The recovery furnaces have total reduced sulfur (TRS) emission limits in existing permits and require continuous emission monitoring for TRS to determine compliance with emission standards.

The permittee shall document:

(*a*) A description of the project;

(*b*) Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project; and

(*c*) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under paragraph (b)(41)(ii)(*c*) of this section and an explanation for why such amount was excluded, and any netting calculations, if applicable.

Permit Condition 5.3

In accordance with 40 CFR 52.21(r)(6), the source obligation requirements apply in circumstances where there is a reasonable possibility that a project may result in a significant emissions increase. A reasonable possibility exists if projected actual emissions minus baseline emissions are equal to or greater than 50% of the significant emissions rate for that that pollutant.

In accordance with 40 CFR 52.21(r)(6)(iii) the permittee shall monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any emissions unit identified in paragraph (r)(6)(i)(b) of this section (i.e. Permit Condition 5.2); and calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity or potential to emit that regulated NSR pollutant at such emissions unit.

DEQ has determined that the proposed project results in an increase of the design capacity and that the permittee shall calculate and maintain a record of the annual emissions for a period of 10 years following resumption of regular operations after the change. DEQ has determined that VOC and TRS have a reasonable possibility of resulting in a significant emissions increase - these are the pollutants which the permittee shall calculate and maintain a record of the annual emissions.

Permit Condition 5.4

In accordance with 40 CFR 52.21(r)(6)(v), the owner or operator shall submit a report to DEQ and the EPA Administrator if the annual emissions, in tons per year, from the project identified under Permit Condition 5.2, if such emissions differ from the preconstruction projection as documented and maintained pursuant to Permit Condition 5.2 (*c*).

Table 5.2 includes the preconstruction emissions projections for the project.

Permit Condition 5.5

Requires that the "source obligation" records be maintained and made available to the public, DEQ or EPA.

Permit Condition 5.6

This permit condition is DEQ's standard language for incorporating federal regulations in permits to construct. Should there be a conflict between the permit and the regulation, the regulation shall govern.

Permit Condition 5.7

Requires the permittee to conduct a VOC source test on the chip line bleach plant. This is a reasonable permit condition because VOC emissions are estimated to be the closest to exceeding the major modification threshold of 40 tons per year (Clearwater estimated an emission increase of 35.76 tons per year or 89.4% of the PSD threshold). The chip line bleach plant itself is predicted to have an emission increase of 14.48[5] tons per year, and a source test is warranted. An increase of emission greater than those estimated from the chip line bleach plant may result in triggering a more detailed regulatory assessment of the project to assure more stringent permitting requirements are not triggered. Clearwater based the emission estimate for the chip line bleach plant on a summary of National Council on Air and Stream Improvement (NCASI) emission factors developed from source tests on bleach plants. These emission factors are sufficient enough for DEQ to issue a permit but not sufficient enough to conclude that source testing is not warranted. Source testing is warranted because the summary of NCASI emission factors for other bleach plants indicated significant variability in the emission data. These factors provide that the highest VOC (as Carbon) emissions rate is 4.7 times greater than the mean of the 34 measured values. If Clearwater's actual emissions vary by a factor of 1.5 from the estimated emission rate a more detailed regulatory assessment will be required to assess whether Prevention of Significant Deterioration requirements have been triggered or not.

5 Difference of Projected Actual Emissions and Baseline Actual Emissions.

The permittee has a choice to measure VOC emissions as compounds or VOC emissions as carbon. Since the applicant estimated emissions as compounds it was required to convert that estimated emission rate to an equivalent VOC emission rate as carbon in order to grant the opportunity to test for VOC as carbon. The following procedure was used to make this conversion (the procedure is based on the Midwest Scaling Protocol and it was used by Clearwater to estimate emissions from the Sawdust Brownstock washer):

VOC as compounds emission factor calculation				C	H	O	S	cmpd. wt. as	**Weighted**
			Mol. Wt. ->	12.01	1.01	16.00	32.06	fraction of C wt.	**Scaling**
Compound	**lb/ADTBP**	**% of Total**	**Formula**						**Factor**
Methanol	1.62E-01	79%	CH4O	1	4	1	0	2.67	2.12E+00
Terpenes (Pinene assumed)	2.40E-02	12%	C10H16	10	16	0	0	1.13	1.34E-01
Cresols (mixed isomers)	6.85E-03	3.4%	C7H8O	7	8	1	0	1.29	4.32E-02
Methyl Mercaptan	6.39E-03	3.1%	CH4S	1	4	0	1	4.00	1.26E-01
Phenol	4.96E-03	2.4%	C6H6O	6	6	1	0	1.31	3.18E-02
		100%						VOC-to-carbon scaling factor:	2.4
Top 5 compounds % of total =		92.7%							

In order to convert VOC emissions as carbon to VOC emissions as compounds, the VOC as carbon emission rate would need to be multiplied by a scaling factor of 2.4.

VOC as compounds is the value used to be used in the major modification test as described in this statement of basis.

Permit Condition 6.1

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Permit Condition 6.2

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Permit Condition 6.3

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Permit Condition 6.4

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Permit Condition 6.5

The permit expiration construction and operation provision specifies that the permit expires if construction has not begun within two years of permit issuance or if construction has been suspended for a year in accordance with IDAPA 58.01.01.211.02.

Permit Condition 6.6

The notification of construction and operation provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.03.

Permit Condition 6.7

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Permit Condition 6.8

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Permit Condition 6.9

The performance test report provision requires that the permittee report any performance test results to DEQ within 60 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Permit Condition 6.10

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Permit Condition 6.11

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136.

Permit Condition 6.12

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Permit Condition 6.13

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Permit Condition 6.14

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Permit Condition 6.15

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Permit Condition 6.16

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

Public Comment Period

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

A response to public comments document has been crafted by DEQ based on comments submitted during the public comment period. That document is part of the final permit package for this permitting action.

APPENDIX A – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM

DATE: **July** 6, 2015

TO: Daniel Pitman, Permit Writer, Air Program

FROM: Thomas Swain, Air Quality Modeler, Analyst 3, Air Program

PROJECT: P-2014.0019 PROJ 61356, Clearwater Paper Corporation, Digester Permit to Construct (PTC)

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) as it relates to air quality impact analyses.

Contents

1.0 Summary

Clearwater Paper Corporation (Clearwater) owns and operates the Idaho Pulp and Paperboard (IPP) and Consumer Products Lewiston (CPL) facilities in Lewiston, Idaho. Clearwater submitted a Permit to Construct (PTC) application for a project named the "Pulping Optimization Project". This project involves the replacement of the batch digester systems on the chip fiberline with a continuous digester system, installation of a polysulfide generator, and several other miscellaneous changes as discussed in the main body of the DEQ Statement of Basis supporting the issued proposed PTC. This modeling review memorandum provides a summary and approval of the ambient air impact analyses submitted with the permit application. It also describes DEQ's review of those analyses, DEQ's verification analyses, additional clarifications, and conclusions.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to DEQ to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard as required by (IDAPA 58.01.01.203.02 and 203.03 {Idaho Air Rules Section 203.02 and 203.03}).

RTP Environmental Associates, Inc., (RTP) on behalf of Clearwater, performed the ambient air impact analyses for this project to demonstrate compliance with air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that the estimated emissions increases at the facility associated with the proposed project will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. Evaluation of emissions estimates was the responsibility of the permit writer and is addressed in the main body of the Statement of Basis. Emissions estimates were not reviewed as part of the modeling review described in this modeling review memorandum.

The application was originally received by DEQ on January 26, 2015. DEQ determined the application was complete on February 27, 2015. RTP provided additional emissions information for TAPs on May 10, 2015. On June 29, 2015, RTP submitted a revised permit application reflecting a change in throughput limit from 1400 to 1450 air dry tons of unbleached pulp (ADTUBP) per day This submittal included revised applicable emissions of TAPs. The modeling analysis for this revision included assessment of 13 TAPs whose emissions exceeded the screening emissions level (EL) as listed in Idaho Air Rules Sections 585 and 586.

The submitted air quality impact analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable National Ambient Air Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments.

Table 1 presents key assumptions and results to be considered in the development of the permit.

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (*Guideline on Air Quality Models*). Appendix W requires that facilities be modeled

using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department that operation of the proposed facility or modification will not cause or significantly contribute to a violation of any ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
General Emissions Rates. Emissions rates used in the modeling analyses, as listed in this memorandum, represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emissions rates greater than those used in the modeling analyses.
Level II Modeling Thresholds for Criteria Pollutant Emissions. Maximum short-term and long-term emissions of $PM_{2.5}$, PM_{10}, oxides of nitrogen (NOx), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb) associated with the proposed project are below Level II modeling applicability thresholds as found in State of Idaho Guideline for Performing Air Quality Analyses; the project would be exempt from project-specific modeling requirements if it were not for emissions of TAPs.	Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are not required for pollutants having an emissions increase that is less than Level II level modeling applicability thresholds. These thresholds are set to assure that impacts are below significant impact levels (SILs).Compliance with NAAQS has not demonstrated for emissions increases that exceed Level II Modeling Applicability Thresholds.
TAPS Modeling : Maximum emission rates (as presented in June 2015 application) of several TAPS per Idaho Air Rules Sections 585 and 586 exceeded Emissions Screening Level (EL) rates.	Air impact analyses demonstrating compliance with TAPS, as required by Idaho Air Rules Section 203.03, is required for pollutants having an emissions rate greater than ELs.

2.0 Background Information

This section provides background information applicable to the project and the site where the facility is located. It also provides a brief description of the applicable air impact analyses requirements for the project.

2.1 Project Description

Clearwater owns and operates the Idaho Pulp and Paperboard (IPP) and Consumer Products Lewiston (CPL) facilities in Lewiston, Idaho. The IPP and CPL facilities comprise a common major facility as defined in Idaho Air Rules Section 008.10. Clearwater submitted a PTC application for a project named the "Pulping Optimization Project" which involves the replacement of the batch digester systems on the chip fiberline with a continuous digester system, installation of a polysulfide generator, and several other miscellaneous changes as discussed in the main body of the Statement of Basis.

2.2 Proposed Location and Area Classification

The Clearwater facility is located in Lewiston, Idaho. This area is designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$). The area is not classified as non-attainment for any criteria pollutants.

2.3 Air Impact Analyses Required for All Permits to Construct

Criteria Pollutant and TAP Impact Analyses for a PTC are addressed in Idaho Air Rules Sections 203.02 and 203.03:

> *No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:*
>
> ***02. NAAQS.*** *The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.*
>
> ***03. Toxic Air Pollutants.*** *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Atmospheric dispersion modeling, using computerized simulations, is used to demonstrate compliance with both NAAQS and TAPs. Idaho Air Rules Section 202.02 states:

> ***Estimates of Ambient Concentrations.*** *All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models).*

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in Idaho Air Rules Section 006 (referred to as a significant contribution in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b. Table 2 lists the applicable SILs.

If modeled maximum pollutant impacts to ambient air from the emissions sources associated with a new facility or modification exceed the SILs, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02.

DEQ has developed modeling applicability thresholds that effectively assure that project-related emissions increases below stated values will result in ambient air impacts below the applicable SILs. The threshold levels and dispersion modeling analyses supporting those levels are presented in the *State of Idaho Guideline for Performing Air Quality Impact Analyses*[1] (*Idaho Air Modeling Guideline*). Use of a modeling threshold represents the use of conservative modeling, performed in support of the threshold, as a project SIL analysis. Project-specific modeling applicability for this project is addressed in Section 3.1.1. of this memorandum.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from facility-wide emissions, and emissions from any nearby co-contributing sources, and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. If the SIL analysis indicates the facility/modification has an impact exceeding the SIL, the facility might not have a significant contribution to a violation if impacts are below the SIL at the specific receptor showing the violation during the time periods when a modeled violation occurred.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Impact Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Design Value Used[d]
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.3	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 $\mu g/m^3$)	75 ppb[p] (196 $\mu g/m^3$)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 $\mu g/m^3$)	100 ppb[s] (188 $\mu g/m^3$)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	75 ppb[w]	Not typically modeled

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
k. 3-year mean of annual concentration.
l. 5-year mean of annual averages at the modeled receptor.
m. Not to be exceeded more than once per year.
n. Concentration at any modeled receptor.
o. Interim SIL established by EPA policy memorandum.
p. 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
q. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
r. Not to be exceeded in any calendar year.
s. 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
t. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
u. 3-month rolling average.
v. An annual emissions rate of 40 ton/year of VOCs is considered significant for O_3.
w. Annual 4th highest daily maximum 8-hour concentration averaged over three years.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or b) modeled design values of the cumulative NAAQS impact analysis (modeling all emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or c) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

2.5 *Toxic Air Pollutant Analyses*

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.

Per Idaho Air Rules Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP.

3.0 Analytical Methods and Data

This section describes the methods and data used in analyses to demonstrate compliance with applicable air quality impact requirements.

3.1 Emission Source Data

Emissions rates of criteria pollutants and TAPs for the proposed project at the Clearwater facility were provided by RTP for various applicable averaging periods. Review and approval of estimated emissions was the responsibility of the DEQ permit writer, and is not addressed in this modeling memorandum. DEQ modeling review included verification that the application's potential emissions rates were properly used in the model. The rates listed represent the maximum allowable rate as averaged over the specified period.

Emissions rates used in the dispersion modeling analyses submitted by RTP should be reviewed by the DEQ permit writer against those in the emissions inventory of the permit application. All modeled criteria air pollutant and TAP emissions rates should be equal to or greater than the facility's potential emissions calculated in other sections of the PTC application or requested permit allowable emission rates.

3.1.1 Criteria Pollutant Emissions Rates and Modeling Applicability

Table 3 provides the emissions-based modeling applicability summary. Modeling thresholds are provided in the *Idaho Air Modeling Guideline*. Modeling applicability emissions thresholds published in the *Idaho Air Modeling Guideline* were based on assuring an ambient impact of less than established SIL for that specific pollutant and averaging period.

If project-specific total emissions rates are below Level I thresholds, project-specific air impact analyses are not necessary for permitting. Use of Level II Modeling Thresholds are conditional, requiring DEQ approval. DEQ determined Level II Thresholds were appropriate for the proposed project for all criteria pollutants because of the following: 1) emissions primarily occur from elevated stacks having an uninterrupted vertical

release and are released at an elevated temperature; 2) the ambient air boundary of the site is at a considerable distance from the sources; 3) there are no identified sensitive receptors in the immediate area. Approval for the use of Level II Thresholds was issued by DEQ during the modeling protocol approval phase of the project. Facility-wide project emissions of criteria pollutants were below all Level II Level Thresholds , as listed in Table 3.

Table 3. Modeling Applicability Analysis Results

Pollutant	Averaging Period	Emissions	Level I Modeling Thresholds	Level II Modeling Thresholds	Modeling Required
$PM_{2.5}$	24-hour	0.602 lb/hr	0.054	0.63	No[a]
	Annual	2.64 ton/yr	0.35	4.1	No[a]
PM_{10}	24-hour	0.72 lb/hr	0.22	2.6	No[a]
NOx	1-hour	2.01 lb/hr	0.20	2.4	No[a]
	Annual	8.80 ton/yr	1.2	14	No[a]
SO_2	1-hour, 3-hour	0.01 lb/hr	0.21	2.5	No[a]
	24-hour	0.01 lb/hr	0.21	2.5	No[a]
	Annual	0.5 ton/yr	1.2	14	No[a]
CO	1-hour, 8-hour	8.57 lb/hr	15	175	No[a]
Pb	monthly	0.007 TPY	14		No[a]

[a] DEQ determined Level II Modeling Thresholds were appropriate for sources of this pollutant.

Ozone (O_3) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O_3 is formed in the atmosphere through reactions of VOCs, NOx, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses (see Section 3.3.3) cannot be used to estimate O_3 impacts resulting from VOC and NOx emissions from an industrial facility. O_3 concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting.

Addressing secondary formation of O_3 has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

> *. . . footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."*
>
> *The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."*

Allowable emissions estimates of VOCs and NOx are below the 100 tons/year threshold, and DEQ determined it was not appropriate or necessary to require a quantitative source specific O_3 impact analysis.

Secondary Particulate Formation

The impact from secondary particulate formation resulting from emissions of NOx, SO_2, and/or VOCs was assumed by DEQ to be negligible on the basis of the magnitude of emissions and the short distance from emissions sources to modeled receptors where maximum PM_{10} and $PM_{2.5}$ impacts would be anticipated.

3.1.2 Toxic Air Pollutant Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 220 are only applicable for new or modified sources constructed after July 1, 1995. The submitted emissions inventory in the June 2015 application identified 13 TAPs having potential emission increases that could exceed screening emissions levels (ELs) of Idaho Air Rules Section 586. Potential increases in emissions of other TAPs were all less than applicable ELs. Table 4 lists emission increases for these TAPs and compares them to the EL, and Tables 5 and 6 provide source-specific TAP emission rates used in the air impact analyses. These modeled rates excluded those emissions governed by a federal New Source Performance Standard (NSPS) or National Emissions Standard for Hazardous Air Pollutants (NESHAP) as indicated by Idaho Air Rules Section 210.20.

Table 4. MODELED TAP EMISSIONS RATES

Pollutant	CAS No.	Total Emissions Increase lbs/hr	EL lbs/hr [a]
1,1,2-Trichloroethane	79-00-5	1.30E-03	4.20E-04
1,3-Butadiene	106-99-0	3.75E-04	2.40E-05
Acetaldehyde	75-07-0	6.86E-01	3.00E-03
Arsenic	7440-38-2	4.42E-06	1.50E-06
Benzene	71-43-2	8.58E-03	8.00E-04
Cadmium	7440-43-9	2.21E-05	3.70E-06
Carbon Tetrachloride*	56-23-5	2.43E-03	4.40E-04
Chloroform	67-66-3	3.52E-02	2.80E-04
Formaldehyde	50-00-0	2.96E-02	5.10E-04
Hydrochloric Acid*	7647-01-0	1.52E-01	5.00E-02
Methyl Mercaptan	74-93-1	1.47E-01	3.30E-02
Methylene Chloride	75-09-2	1.55E-02	1.60E-03
Nickel	7440-02-0	4.22E-05	2.70E-05
Proprianaldehyde	123-38-6	5.81E-02	2.87E-02
Sulfuric Acid (aersol)	7664-93-9	2.35E-01	6.70E-02

* These emissions are from NESHAP regulated sources, and are not included in modeling analyses

Table 5. TAP Modeled Emission Rates (lb/hr)						
Source Description	**112TCE[1]**	**13BUTD[2]**	**ACET[3]**	**AS[4]**	**BZ[5]**	**CD[6]**
Polysulfide Reactor (scrubber)			1.61E-02		1.08E-03	
Bleached Pulp HD Tank	6.20E-05		8.65E-04		1.75E-06	
No. 3 Lime Kiln (NCG control)						
No. 4 Lime Kiln (NCG control)						
Sawdust Line BS Washer Vent North						
Sawdust Line BS Washer Vent Middle						
Sawdust Line BS Washer Vent South						
No. 2 FiltrateTank						
No. 3 FiltrateTank						
Soap Tank						
Foam Tank						
Sawdust Line Decker						
Oxygen Delignification Reactor Vent						
MEOH Scrubber						
Post Oxygen Hi Density Tower						
No. 2 Post Oxygen Wash Press						
No. 2 Post Oxygen Level Tank						
No. 2 Post Oxygen Filtrate Tank						
No. 2 Post Oxygen Dilution Conveyor						
No. 3 Post Oxygen Level Tank						
Chip Line Bleach Plant Scrubber		2.80E-04	9.29E-03		3.25E-04	
Sawdust Line Bleach Plant Scrubber		5.80E-05	1.93E-03		6.74E-05	
Pulp Dryer Vacuum Pump Exhaust			2.77E-03		3.36E-04	
Pulp Dryer Gas-fired Dryer, East			1.25E-02	2.21E-06	1.53E-03	1.11E-05
Pulp Dryer Gas-fired Dryer, West			1.25E-02	2.21E-06	1.53E-04	1.11E-05

[1] 112TCE = 1,1,2-Trichloroethane
[2] 13BUTD =1,3-Butadiene
[3] ACET = Acetaldehyde
[4] AS = Arsenic
[5] BZ = Benzene
[6] CD = Cadmium

Table 6. TAP Modeled Emission Rates (lb/hr)							
Source Description	**CHLOR[1]**	**FORM[2]**	**MM[3]**	**MECL[4]**	**NI[5]**	**PROP[6]**	**H2SO4[7]**
Polysulfide Reactor (scrubber)		4.07E-03	6.10E-05				
Bleached Pulp HD Tank	4.83E-03		1.61E-03			2.30E-04	
No. 3 Lime Kiln (NCG control)			1.81E-03				2.35E-01
No. 4 Lime Kiln (NCG control)			1.81E-03				2.35E-01
Sawdust Line BS Washer Vent North			7.22E-03				
Sawdust Line BS Washer Vent Middle			3.76E-03				
Sawdust Line BS Washer Vent South			3.76E-04				
No. 2 Filtrate Tank			1.12E-03				
No. 3 Filtrate Tank			5.60E-04				
Soap Tank			8.00E-04				
Foam Tank			3.04E-03				
Sawdust Line Decker			1.25E-03				
Oxygen Delignification Reactor Vent			4.25E-03				
MEOH Scrubber			2.44E-04				
Post Oxygen Hi Density Tower			3.82E-03				
No. 2 Post Oxygen Wash Press			8.50E-04				
No. 2 Post Oxygen Level Tank			2.97E-03				
No. 2 Post Oxygen Filtrate Tank			1.27E-03				
No. 2 Post Oxygen Dilution Conveyor			4.25E-04				
No. 3 Post Oxygen Level Tank			4.25E-04				
Chip Line Bleach Plant Scrubber		3.52E-03	3.62E-02			2.15E-03	
Sawdust Line Bleach Plant Scrubber		7.30E-04	7.51E-03			4.46E-04	
Pulp Dryer Vacuum Pump Exhaust	1.38E-04	1.57E-03	6.77E-03	1.24E-03		5.09E-03	
Pulp Dryer Gas-fired Dryer, East	6.22E-04	7.83E-03	3.05E-02	5.57E-03	2.11E-05	2.29E-02	
Pulp Dryer Gas-fired Dryer, West	6.22E-04	7.83E-03	3.05E-02	5.57E-03	2.11E-05	2.29E-02	

[1] CHLOR = Chloroform
[2] FORM = Formaldehyde
[3] MM = Methyl Mercaptan
[4] MECL = Methylene Chloride
[5] NI = Nickel
[6] PROP = Proprianaldehyde
[7] H2SO4 = Sulfuric Acid

3.1.3 Emissions Release Parameters

Table 7 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for point sources.

Stack parameters used in the modeling analyses were not documented/justified in the originally submitted application, as was requested in the DEQ-issued protocol approval notification. A description of release parameters was later provided with the submitted revised analyses. Release parameters appeared within the range of expected values for the type of source modeled. Two sources (paper machines #1 and #2) were modeled as a single volume source.

TABLE 7. Stack Parameters used in Modeling

Emissions Point	Description	UTM Coordinates		Stack Height (m)	Stack Gas Flow Temp. (K)[c]	Stack Flow Velocity (m/sec)	Stack Dia. (m)
		Easting (m)	Northing (m)				
P1176	Polysulfide Reactor (scrubber)	502145.2	5141752.9	15.85	352.6	15.24	0.76
P1178	Bleached Pulp HD Tank	502065.8	5141621.7	38.10	349.8	3.05	0.61
PU14	No. 3 Lime Kiln (NCG control)	502127.4	5141803.8	46.94	509.3	19.85	1.12
PU15	No. 4 Lime Kiln (NCG control)	502106.1	5141798.4	46.94	555.4	26.38	1.12
P009	Sawdust Line BS Washer Vent North	501865.4	5141801.7	14.02	302.0	17.47	1.07
P010	Sawdust Line BS Washer Vent Middle	501869.9	5141792.7	14.33	305.4	11.96	1.07
P011	Sawdust Line BS Washer Vent South	501873.2	5141787.4	14.02	299.3	11.57	1.07
P49	No. 2 FiltrateTank	501881.9	5141810.6	9.45	318.7	10.67	0.23
P50	No. 3 FiltrateTank	501877.4	5141801.6	8.53	318.7	7.62	0.30
P1171	Soap Tank	501871.2	5141808.8	0.61	318.7	0.00	0.30
P002	Foam Tank	501871.4	5141808.6	0.61	318.7	0.00	0.30
P109	Sawdust Line Decker	501933.0	5141815.1	28.96	310.9	9.14	0.46
P766	Oxygen Delignification Reactor Vent	502052.4	5141656.3	49.07	322.0	3.12	0.21
P791	MEOH Scrubber	502059.8	5141637.3	12.19	308.2	6.42	0.27
P078	Post Oxygen Hi Density Tower	502077.5	5141603.2	21.34	308.2	5.95	0.30
P080	No. 2 Post Oxygen Wash Press	502036.0	5141597.7	4.88	330.4	14.52	0.15
P1173	No. 2 Post Oxygen Level Tank	502052.0	5141618.8	7.62	327.6	0.00	0.30
P079	No. 2 Post Oxygen Filtrate Tank	502051.7	5141620.7	4.88	282.0	0.25	0.56
P1174	No. 2 Post Oxygen Dilution Conveyor	502044.3	5141613.7	4.88	334.3	0.00	0.15
P1175	No. 3 Post Oxygen Level Tank	502061.5	5141593.8	9.75	322.0	0.00	0.30
P048	Chip Line Bleach Plant Scrubber	502001.7	5141595.6	50.29	335.7	16.76	0.61
P107	Sawdust Line Bleach Plant Scrubber	501924.3	5141830.2	39.32	320.0	5.63	0.91
P621	Pulp Dryer Vacuum Pump	501770.7	5141723.1	19.99	310.9	0.00	0.30

	Exhaust						
P513	Pulp Dryer Gas-fired Dryer, East	501725.8	5141701.5	19.99	444.3	17.23	1.07
P514	Pulp Dryer Gas-fired Dryer, West	501742.1	5141708.7	19.99	443.7	16.82	1.07
	VOLUME Source			**Release Height (m)**		**Initial Dispersion Coefficients**	
						Horiz (m)	**Vert (m)**
NO1&2 PM	Paper Machines	501802	5141742	17.5		22.13	8.14

3.2 Background Concentrations

Background concentrations were not needed because project-specific modeling of NAAQS was not required. Project-specific NAAQS compliance demonstrations were not required because applicable emissions of criteria pollutants resulting from the project were less than the Level 2 Modeling Thresholds.

3.3 Impact Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate preconstruction compliance with applicable air quality standards.

3.3.1 General Overview of Analyses

RTP performed project-specific air impact analyses for TAPS that were determined by DEQ to be reasonably representative of the proposed facility and proposed modification as described in the application. Results of the submitted analyses demonstrate compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 8 provides a brief description of parameters used in the modeling analyses.

3.3.2 Modeling protocol and Methodology

RTP submitted a modeling protocol to DEQ on October 17, 2014. DEQ provided a conditional protocol approval notice on November 11, 2014. Project-specific modeling and other required impact analyses were generally conducted using data and methods discussed in pre-application correspondence and in the *Idaho Air Quality Modeling Guideline*[1].

Table 8. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Lewiston, Idaho	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 14134.
Meteorological Data	Clearwater Onsite Lewiston surface data, Spokane upper air data	See Section 3.3.4 of this memorandum for additional details of the meteorological data.
Terrain	Considered	3-dimensional receptor coordinates were obtained from USGS National Elevation Dataset (NED) files and were used to establish elevation of ground level receptors. AERMAP was used to determine each receptor elevation and hill height scale.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility.

		BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
Receptors	Grid 1	25-meter spacing along the ambient air boundary and out to 150 meters.
	Grid 2	100-meter spacing out to 2.5 kms.
	Grid 3	500-meter spacing out to 15 kms.

3.3.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 14134 was used by RTP for the modeling analyses to evaluate impacts of the facility. This version was the current version at the time the application was received by DEQ.

3.3.4 Meteorological Data

RTP acquired onsite data from the Clearwater facility for the years 2007-2011 (the latest five years of available data from the 100 meter tall tower at the monitoring site). Wind data was collected at 10, 50, and 100 meter levels, and data from all three levels were used in the modeling analyses. Acceptable data validation records were reviewed by DEQ for the onsite data collection. Included in the onsite data set were solar radiation and delta T, and these parameters were utilized in the calculations by AERMET for dispersion characterization. RTP augmented the onsite data with surface data from the nearby airport NWS data at Lewiston, Idaho. Upper air station data from Spokane, Washington were selected. Spokane is the closest upper air station to the site, and upper air data from this locale is adequately representative for use in dispersion modeling analyses at the Clearwater site.

Raw meteorological data were processed by RTP using AERMET version 14134 and AERSURFACE version 13016. The AERSURFACE processing incorporated land use data in a seamless format that included portions of both Idaho and Washington, due to close proximity to the state of Washington. AERSURFACE was correctly run for both surface station sites, (the onsite tower and the Lewiston NWS airport location). DEQ determined these data were reasonably representative for the Clearwater site.

3.3.5 Effects of Terrain on Modeled Impacts

Terrain data were extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) files in the WGS84 datum (approximately equal to the NAD83 datum). RTP used 1 second data files (about 30-meter resolution), which is considered acceptable by DEQ.

The terrain preprocessor AERMAP Version 11103 was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

DEQ reviewed the area surrounding the facility by using the web-based mapping program Google Earth, which uses the WGS84 datum. DEQ also overlaid modeling files with a digital photograph background

images acquired from the 2013 ARCGIS NAIP (National Agriculture Imagery Program) data base. The immediate area is effectively flat with regard to dispersion modeling affects, but terrain elevations do increase to the north of the facility on the other side of the river. Elevations in the modeling domain generally matched those indicated by the background images

3.3.6 Facility Layout

DEQ verified proper identification of buildings on the site by comparing a graphical representation of the modeling input file to aerial photographs on Google Earth. The modeled layout matched well with aerial photographs in Google Earth as well as from those in the ARCGIS 2013 NAIP database.

3.3.7 Effects of Building Downwash on Modeled Impacts

Potential downwash effects on emissions plumes were accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Dimensions and orientation of proposed buildings were used as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME) to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information for input to AERMOD.

3.3.8 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." The adjacent Idaho Forest Group (IFG) facility was treated as ambient air because Clearwater does not control access to that facility.

3.3.9 Receptor Network

Table 8 describes the receptor grid used in the submitted analyses. The receptor grid met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[1]. DEQ determined this grid assured maximum impacts were reasonably resolved by the model considering: 1) types of sources modeled; 2) modeled impacts, and the modeled concentration gradient; 3) conservatism of the methods and data used as inputs to the analyses; 4) potential for continual exposures or exposure to sensitive receptors.

3.3.10 Good Engineering Practice Stack Height

An allowable good engineering practice (GEP) stack height may be established using the following equation in accordance with Idaho Air Rules Section 512.03.b:

$H = S + 1.5L$, where:

H = good engineering practice stack height measured from the ground-level elevation at the base of the stack.

S = height of the nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of the nearby structure.

All point sources were below GEP stack height. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 Impact Modeling Results

4.1 Results for NAAQS Significant Impact Level Analyses

All criteria pollutant emission increases associated with the proposed project are below Level II Modeling Applicability Thresholds. These thresholds, based on modeling of a single emissions stack with specified release parameters, were established to assure that impacts of projects with emissions equal to or less than these levels will not cause impacts exceeding the SILs. Since the emission increases associated with the proposed project are below these threshold values, a project-specific air impact analysis is not required to demonstrate NAAQS compliance for issuance of the PTC.

4.2 Results for TAPs Impact Analyses

Dispersion modeling is required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with project-specific emission increases exceeding emissions screening levels (ELs). The revised June 2015 application identified 13 TAPS that required modeling analysis. The results of the TAPs analyses are listed in Table 9. The predicted ambient TAPs impacts were considerably below any TAPs increments. The TAP emission rates as modeled are listed in Tables 5 and 6. DEQ therefore determined that compliance with the TAPS regulations has been demonstrated.

Table 9. TAP MODELING RESULTS					
Pollutant	**CAS No.**	**Average**	**Modeled Conc. ($\mu g/m^3$)[a]**	**AAC/AAAC ($\mu g/m^3$)[a]**	**%AAC/AAAC**
1,1,2-Trichloroethane	79-00-5	Annual	4.00E-05	6.2E-02	0%
1,3-Butadiene	106-99-0	Annual	6.00E-05	3.6E-03	22%
Acetaldehyde	75-07-0	Annual	3.31E-02	4.5E-01	7%
Arsenic	7440-38-2	Annual	0.00E+00	2.3E-04	0%
Benzene	71-43-2	Annual	3.48E-03	1.2E-01	3%
Cadmium	7440-43-9	Annual	1.00E-05	5.6E-04	2%
Chloroform	67-66-3	Annual	3.43E-03	4.3E02	8%
Formaldehyde	50-00-0	Annual	1.69E-02	7.7E-02	22%
Methyl Mercaptan	74-93-1	24-Hour	8.60E-01	25	3%
Methylene Chloride	75-09-2	Annual	1.08E-02	2.4E-01	4%
Nickel	7440-02-0	Annual	2.00E-05	4.2E-03	0%
Proprianaldehyde	123-38-6	24-Hour	1.66E-01	21.5	1%
Sulfuric Acid (aersol)	7664-93-9	24-Hour	5.24E-01	50	1%

5.0 Conclusions

The ambient air impact analyses and other air quality analyses submitted with the PTC application demonstrated to DEQ's satisfaction that emissions from the proposed Clearwater project will not cause or significantly contribute to a violation of any ambient air quality standard.

References:

1. *State of Idaho Guideline for Performing Air Quality Impact Analyses.* Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf.

APPENDIX B – 40 CFR 60 SUBPART BBa

Subpart BBa—Standards of Performance for Kraft Pulp Mill Affected Sources for Which Construction, Reconstruction, or Modification Commenced After May 23, 2013

SOURCE: 79 FR 18966, Apr. 4, 2014, unless otherwise noted.

§60.280a Applicability and designation of affected facility.

(a) The provisions of this subpart are applicable to the following affected facilities in kraft pulp mills: digester system, brown stock washer system, multiple-effect evaporator system, recovery furnace, smelt dissolving tank, lime kiln and condensate stripper system. In pulp mills where kraft pulping is combined with neutral sulfite semichemical pulping, the provisions of this subpart are applicable when any portion of the material charged to an affected facility is produced by the kraft pulping operation.

(b) Except as noted in §60.283a(a)(1)(iv), any facility under paragraph (a) of this section that commences construction, reconstruction or modification after May 23, 2013, is subject to the requirements of this subpart. Any facility under paragraph (a) of this section that commenced construction, reconstruction, or modification after September 24, 1976, and on or before May 23, 2013 is subject to the requirements of subpart BB of this part.

Clearwater proposes to construct, after May 23, 2013, a new continuous digester system on the chip fiberline. The new continuous digester system will replace the existing batch digester systems and will be subject to NSPS subpart BBa.

Clearwater proposes to add a new diffusion washer to the chip fiberline brownstock washer system. As noted in the definition of brownstock washer system below, diffusion washers are specifically excluded from the affected facility under NSPS. Therefore, the chip fiberline brownstock washer system will not be modified as that term (modification) is defined in 40 CFR 60.14.

§60.281a Definitions.

As used in this subpart, all terms not defined herein must have the same meaning given them in the Act and in subpart A.

Affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

Black liquor solids (BLS) means the dry weight of the solids which enter the recovery furnace in the black liquor.

Brown stock washer system means brown stock washers and associated knotters, vacuum pumps, and filtrate tanks used to wash the pulp following the digester system. Diffusion washers are excluded from this definition.

Closed-vent system means a system that is not open to the atmosphere and is composed of piping, ductwork, connections, and, if necessary, flow-inducing devices that transport gas or vapor from an emission point to a control device.

Condensable particulate matter, for purposes of this subpart, means particulate matter (PM) measured by EPA Method 202 of Appendix M of 40 CFR part 51 that is vapor phase at stack conditions, but condenses and/or reacts upon cooling and dilution in the ambient air to form solid or liquid PM immediately after discharge from the stack.

Condensate stripper system means a column, and associated condensers, used to strip, with air or steam, total reduced sulfur (TRS) compounds from condensate streams from various processes within a kraft pulp mill.

Cross recovery furnace means a furnace used to recover chemicals consisting primarily of sodium and sulfur compounds by burning black liquor which on a quarterly basis contains more than 7 weight percent of the total pulp solids from the neutral sulfite semichemical process and has a green liquor sulfidity of more than 28 percent.

Digester system means each continuous digester or each batch digester used for the cooking of wood in white liquor, and associated flash tank(s), blow tank(s), chip steamer(s) including chip bins using live steam, and condenser(s).

Filterable particulate matter, for purposes of this subpart, means particulate matter measured by EPA Method 5 of Appendix A-3 of this part.

Green liquor sulfidity means the sulfidity of the liquor which leaves the smelt dissolving tank.

High volume, low concentration (HVLC) closed-vent system means the gas collection and transport system used to convey gases from the brown stock washer system to a control device.

Kraft pulp mill means any stationary source which produces pulp from wood by cooking (digesting) wood chips in a water solution of sodium hydroxide and sodium sulfide (white liquor) at high temperature and pressure. Regeneration of the cooking chemicals through a recovery process is also considered part of the kraft pulp mill.

Lime kiln means a unit used to calcine lime mud, which consists primarily of calcium carbonate, into quicklime, which is calcium oxide.

Low volume, high concentration (LVHC) closed-vent system means the gas collection and transport system used to convey gases from the digester system, condensate stripper system, and multiple-effect evaporator system to a control device.

Monitoring system malfunction means a sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. The owner or operator is required to implement monitoring system repairs in response to monitoring system malfunctions or out-of-control periods, and to return the monitoring system to operation as expeditiously as practicable.

Multiple-effect evaporator system means the multiple-effect evaporators and associated condenser(s) and hotwell(s) used to concentrate the spent cooking liquid that is separated from the pulp (black liquor).

Neutral sulfite semichemical pulping operation means any operation in which pulp is produced from wood by cooking (digesting) wood chips in a solution of sodium sulfite and sodium bicarbonate, followed by mechanical defibrating (grinding).

Recovery furnace means either a straight kraft recovery furnace or a cross recovery furnace, and includes the direct-contact evaporator for a direct-contact furnace.

Smelt dissolving tank means a vessel used for dissolving the smelt collected from the recovery furnace.

Straight kraft recovery furnace means a furnace used to recover chemicals consisting primarily of sodium and sulfur compounds by burning black liquor which on a quarterly basis contains 7 weight percent or less of the total pulp solids from the neutral sulfite semichemical process or has green liquor sulfidity of 28 percent or less.

Total reduced sulfur (TRS) means the sum of the sulfur compounds hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide that are released during the kraft pulping operation and measured by Method 16 of Appendix A-6 of this part.

Clearwater has read and understands these definitions and used them in providing this regulatory analysis.

§60.282a Standard for filterable particulate matter.

(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere:

(1) From any modified recovery furnace any gases which:

(i) Contain filterable particulate matter in excess of 0.10 gram per dry standard cubic meter (g/dscm) (0.044 grain per dry standard cubic foot (gr/dscf)) corrected to 8-percent oxygen.

(ii) Exhibit 20-percent opacity or greater, where an electrostatic precipitator (ESP) emission control device is used, except where it is used in combination with a wet scrubber.

(2) From any new or reconstructed recovery furnace any gases which:

(i) Contain filterable particulate matter in excess of 0.034 g/dscm (0.015 gr/dscf) corrected to 8-percent oxygen.

(ii) Exhibit 20-percent opacity or greater, where an ESP emission control device is used, except where it is used in combination with a wet scrubber.

(3) From any modified or reconstructed smelt dissolving tank, or from any new smelt dissolving tank that is not associated with a new or reconstructed recovery furnace subject to the provisions of paragraph (a)(2) of this section, any gases which contain filterable particulate matter in excess of 0.1 gram per kilogram (g/kg) (0.2 pound per ton (lb/ton)) of black liquor solids (dry weight).

(4) From any new smelt dissolving tank associated with a new or reconstructed recovery furnace subject to the provisions of paragraph (a)(2) of this section, any gases which contain filterable particulate matter in excess of 0.060 g/kg (0.12 lb/ton) black liquor solids (dry weight).

(5) From any modified lime kiln any gases which:

(i) Contain filterable particulate matter in excess of 0.15 g/dscm (0.064 gr/dscf) corrected to 10-percent oxygen.

(ii) Exhibit 20-percent opacity or greater, where an ESP emission control device is used, except where it is used in combination with a wet scrubber.

(6) From any new or reconstructed lime kiln any gases which:

(i) Contain filterable particulate matter in excess of 0.023 g/dscm (0.010 gr/dscf) corrected to 10-percent oxygen.

(ii) Exhibit 20-percent opacity or greater, where an ESP emission control device is used, except where it is used in combination with a wet scrubber.

(b) These standards apply at all times as specified in §§60.284a and 60.285a.

(c) The exemptions to opacity standards under 40 CFR 60.11(c) do not apply to subpart BBa.

Not applicable. There are no PM standards applicable to digester systems.

§60.283a Standard for total reduced sulfur (TRS).

(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart must cause to be discharged into the atmosphere:

(1) From any digester system, brown stock washer system, multiple-effect evaporator system, or condensate stripper system any gases which contain TRS in excess of 5 parts per million (ppm) by volume on a dry basis, corrected to 10-percent oxygen, unless one of the following conditions are met:

(i) The gases are collected in an LVHC or HVLC closed-vent system meeting the requirements of §63.450 and combusted in a lime kiln subject to the provisions of either paragraph (a)(5) of this section or §60.283(a)(5); or

(ii) The gases are collected in an LVHC or HVLC closed-vent system meeting the requirements of §63.450 and combusted in a recovery furnace subject to the provisions of either paragraphs (a)(2) or (3) of this section or §60.283(a)(2) or (3); or

(iii) The gases are collected in an LVHC or HVLC closed-vent system meeting the requirements of §63.450 and combusted with other waste gases in an incinerator or other device, or combusted in a lime kiln or recovery furnace not subject to the provisions of this subpart (or subpart BB of this part), and are subjected to a minimum temperature of 650 °C (1200 14 °F) for at least 0.5 second; or

(iv) It has been demonstrated to the Administrator's satisfaction by the owner or operator that incinerating the exhaust gases from a new, modified, or reconstructed brown stock washer system is technologically or economically unfeasible. Any exempt system will become subject to the provisions of this subpart if the facility is changed so that the gases can be incinerated.

(v) The gases from the digester system, brown stock washer system, or condensate stripper system are collected in an LVHC or HVLC closed-vent system meeting the requirements of §63.450 and controlled by a means other than combustion. In this case, this system must not discharge any gases to the atmosphere which contain TRS in excess of 5 ppm by volume on a dry basis, uncorrected for oxygen content.

(vi) The uncontrolled exhaust gases from a new, modified, or reconstructed digester system contain TRS less than 0.005 g/kg (0.01 lb/ton) air dried pulp (ADP).

(2) From any straight kraft recovery furnace any gases which contain TRS in excess of 5 ppm by volume on a dry basis, corrected to 8-percent oxygen.

(3) From any cross recovery furnace any gases which contain TRS in excess of 25 ppm by volume on a dry basis, corrected to 8-percent oxygen.

(4) From any smelt dissolving tank any gases which contain TRS in excess of 0.016 g/kg (0.033 lb/ton) of black liquor solids as hydrogen sulfide (H_2S).

(5) From any lime kiln any gases which contain TRS in excess of 8 ppm by volume on a dry basis, corrected to 10-percent oxygen.

(b) These standards apply at all times as specified in §§60.284a and 60.285a.

Clearwater plans to collect gases from the new continuous digester system in the mill LVHC or HVLC closed-vent systems meeting the requirements of §63.450 and route the gases to NCG Incinerator or Nos.

3 & 4 Lime Kilns in accordance with 60.283a(1)(iii). NCGs from the continuous digester will be predominately HVLCs, which will be controlled in the lime kilns.

§60.284a Monitoring of emissions and operations.

(a) Any owner or operator subject to the provisions of this subpart must install, calibrate, maintain, and operate the continuous monitoring systems specified in paragraphs (a)(1) and (2) of this section:

(1) A continuous monitoring system to monitor and record the opacity of the gases discharged into the atmosphere from any recovery furnace or lime kiln using an ESP emission control device, except as specified in paragraph (b)(4) of this section. The span of this system must be set at 70-percent opacity. You must install, certify, and operate the continuous opacity monitoring system in accordance with Performance Specification (PS) 1 in Appendix B to 40 CFR part 60.

(2) Continuous monitoring systems to monitor and record the concentration of TRS emissions on a dry basis and the percent of oxygen by volume on a dry basis in the gases discharged into the atmosphere from any lime kiln, recovery furnace, digester system, brown stock washer system, multiple-effect evaporator system, or condensate stripper system, except where the provisions of §60.283a(a)(1)(iii) or (iv) apply. You must install, certify, and operate the continuous TRS monitoring system in accordance with Performance Specification (PS) 5 in Appendix B to 40 CFR part 60. You must install, certify, and operate the continuous oxygen monitoring system in accordance with Performance Specification (PS) 3 in Appendix B to 40 CFR part 60. These systems must be located downstream of the control device(s). The range of the continuous monitoring system must encompass all expected concentration values, including the zero and span values used for calibration. The spans of these continuous monitoring system(s) must be set:

(i) At a TRS concentration of 30 ppm for the TRS continuous monitoring system, except that for any cross recovery furnace the span must be set at 50 ppm.

(ii) At 21-percent oxygen for the continuous oxygen monitoring system.

(b) Any owner or operator subject to the provisions of this subpart must install, calibrate, maintain, and operate the following continuous parameter monitoring devices specified in paragraphs (b)(1) through (4) of this section.

(1) For any incinerator, a monitoring device for the continuous measurement of the combustion temperature at the point of incineration of effluent gases which are emitted from any digester system, brown stock washer system, multiple effect evaporator system, or condensate stripper system where the provisions of §60.283a(a)(1)(iii) apply. The monitoring device is to be certified by the manufacturer to be accurate within ±1 percent of the temperature being measured.

(2) For any recovery furnace, lime kiln, or smelt dissolving tank using a wet scrubber emission control device:

(i) A monitoring device for the continuous measurement of the pressure drop of the gas stream through the control equipment. The monitoring device is to be certified by the manufacturer to be accurate to within a gage pressure of ±500 Pascals (±2 inches water gage pressure).

(ii) A monitoring device for the continuous measurement of the scrubbing liquid flow rate. The monitoring device used for continuous measurement of the scrubbing liquid flow rate must be certified by the manufacturer to be accurate within ±5 percent of the design scrubbing liquid flow rate.

(iii) As an alternative to pressure drop measurement under paragraph (b)(2)(i) of this section, a monitoring device for measurement of fan amperage may be used for smelt dissolving tank dynamic scrubbers that operate at ambient pressure or for low-energy entrainment scrubbers where the fan speed does not vary.

(iv) As an alternative to scrubbing liquid flow rate measurement under paragraph (b)(2)(ii) of this section, a monitoring device for measurement of scrubbing liquid supply pressure may be used. The monitoring device is to be certified by the manufacturer to be accurate within ±15 percent of design scrubbing liquid supply pressure. The pressure sensor or tap is to be located close to the scrubber liquid discharge point. The Administrator may be consulted for approval of alternative locations.

(3) For any recovery furnace or lime kiln using an ESP emission control device, the owner or operator must use the continuous parameter monitoring devices specified in paragraphs (b)(3)(i) and (ii) of this section.

(i) A monitoring device for the continuous measurement of the secondary voltage of each ESP collection field.

(ii) A monitoring device for the continuous measurement of the secondary current of each ESP collection field.

(iii) Total secondary power may be calculated as the product of the secondary voltage and secondary current measurements for each ESP collection field and used to demonstrate compliance as an alternative to the secondary voltage and secondary current measurements.

(4) For any recovery furnace or lime kiln using an ESP followed by a wet scrubber, the owner or operator must use the continuous parameter monitoring devices specified in paragraphs (b)(2) and (3) of this section. The opacity monitoring system specified in paragraph (a)(1) of this section is not required for combination ESP/wet scrubber control device systems.

(c) *Monitor operation and calculations.* Any owner or operator subject to the provisions of this subpart must follow the procedures for collecting and reducing monitoring data and setting operating limits in paragraphs (c)(1) through (6) of this section. Subpart A of this part specifies methods for reducing continuous opacity monitoring system data.

(1) Any owner or operator subject to the provisions of this subpart must, except where the provisions of §60.283a(a)(1)(iii) or (iv) apply, perform the following:

(i) Calculate and record on a daily basis 12-hour average TRS concentrations for the two consecutive periods of each operating day. Each 12-hour average must be determined as the arithmetic mean of the appropriate 12 contiguous 1-hour average TRS concentrations provided by each continuous monitoring system installed under paragraph (a)(2) of this section.

(ii) Calculate and record on a daily basis 12-hour average oxygen concentrations for the two consecutive periods of each operating day for the recovery furnace and lime kiln. These 12- hour averages must correspond to the 12-hour average TRS concentrations under paragraph (c)(1)(i) of this section and must be determined as an arithmetic mean of the appropriate 12 contiguous 1-hour average oxygen concentrations provided by each continuous monitoring system installed under paragraph (a)(2) of this section.

(iii) Using the following equation, correct all 12-hour average TRS concentrations to 10 volume percent oxygen, except that all 12-hour average TRS concentrations from a recovery furnace must be corrected to 8 volume percent oxygen instead of 10 percent, and all 12-hour average TRS concentrations from a facility to which the provisions of §60.283a(a)(1)(v) apply must not be corrected for oxygen content:

$$C_{corr} = C_{meas} \times (21-X/21-Y)$$

Where:

C_{corr} = the concentration corrected for oxygen.

C_{meas} = the 12-hour average of the measured concentrations uncorrected for oxygen.

X = the volumetric oxygen concentration in percentage to be corrected to (8 percent for recovery furnaces and 10 percent for lime kilns, incinerators, or other devices).

Y = the 12-hour average of the measured volumetric oxygen concentration.

(2) Record at least once each successive 5-minute period all measurements obtained from the continuous monitoring devices installed under paragraph (b)(1) of this section. Calculate 3-hour block averages from the recorded measurements of incinerator temperature. Temperature measurements recorded when no TRS emissions are fired in the incinerator (e.g., during incinerator warm-up and cool-down periods when no TRS emissions are generated or an alternative control device is used) may be omitted from the block average calculation.

(3) Record at least once each successive 15-minute period all measurements obtained from the continuous monitoring devices installed under paragraph (b)(2) through (4) of this section and reduce the data as follows:

(i) Calculate 12-hour block averages from the recorded measurements of wet scrubber pressure drop (or smelt dissolving tank scrubber fan amperage) and liquid flow rate (or liquid supply pressure), as applicable.

(ii) Calculate semiannual averages from the recorded measurements of ESP parameters (secondary voltage and secondary current, or total secondary power) for ESP-controlled recovery furnaces or lime kilns that measure opacity in addition to ESP parameters.

(iii) Calculate 12-hour block averages from the recorded measurements of ESP parameters (secondary voltage and secondary current, or total secondary power) for recovery furnaces or lime kilns with combination ESP/wet scrubber controls.

(4) During the initial performance test required in §60.285a, the owner or operator must establish site-specific operating limits for the monitoring parameters in paragraphs (b)(2) through (4) of this section by continuously monitoring the parameters and determining the arithmetic average value of each parameter during the performance test. The arithmetic average of the measured values for the three test runs establishes your minimum site-specific operating limit for each wet scrubber or ESP parameter. Multiple performance tests may be conducted to establish a range of parameter values. The owner or operator may establish replacement operating limits for the monitoring parameters during subsequent performance tests using the test methods in §60.285a.

(5) You must operate the continuous monitoring systems required in paragraphs (a) and (b) of this section to collect data at all required intervals at all times the affected facility is operating except for periods of monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, and required monitoring system quality assurance or quality control activities including, as applicable, calibration checks and required zero and span adjustments.

(6) You may not use data recorded during monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, or required monitoring system quality assurance or control activities in calculations used to report emissions or operating limits. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(7) Except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required quality monitoring system quality assurance or quality control activities (including, as applicable, system accuracy audits and required zero and span adjustments), failure to collect required data is a deviation of the monitoring requirements.

(d) Excess emissions are defined for this subpart as follows:

(1) For emissions from any recovery furnace, periods of excess emissions are:

(i) All 12-hour averages of TRS concentrations above 5 ppm by volume at 8-percent oxygen for straight kraft recovery furnaces and above 25 ppm by volume at 8-percent oxygen for cross recovery furnaces during times when BLS is fired.

(ii) All 6-minute average opacities that exceed 20 percent during times when BLS is fired.

(2) For emissions from any lime kiln, periods of excess emissions are:

(i) All 12-hour average TRS concentrations above 8 ppm by volume at 10-percent oxygen during times when lime mud is fired.

(ii) All 6-minute average opacities that exceed 20 percent during times when lime mud is fired.

(3) For emissions from any digester system, brown stock washer system, multiple-effect evaporator system, or condensate stripper system, periods of excess emissions are:

(i) All 12-hour average TRS concentrations above 5 ppm by volume at 10-percent oxygen unless the provisions of §60.283a(a)(1)(i), (ii), or (iv) apply; or

(ii) All 3-hour block averages during which the combustion temperature at the point of incineration is less than 650 °C (1200 14 °F), where the provisions of §60.283a(a)(1)(iii) apply and an incinerator is used as the combustion device.

(iii) All times when gases are not routed through the closed-vent system to one of the control devices specified in §60.283a(a)(1)(i) through (iii) and (v).

(4) For any recovery furnace, lime kiln, or smelt dissolving tank controlled with a wet scrubber emission control device that complies with the parameter monitoring requirements specified in §60.284a(b)(2), periods of excess emissions are:

(i) All 12-hour block average scrubbing liquid flow rate (or scrubbing liquid supply pressure) measurements below the minimum site-specific limit established during performance testing during times when BLS or lime mud is fired (as applicable), and

(ii) All 12-hour block average scrubber pressure drop (or fan amperage, if used as an alternative under paragraph (b)(2)(iii) of this section) measurements below the minimum site-specific limit established during performance testing during times when BLS or lime mud is fired (as applicable), except during startup and shutdown.

(5) For any recovery furnace or lime kiln controlled with an ESP followed by a wet scrubber that complies with the parameter monitoring requirements specified in §60.284a(b)(4), periods of excess emissions are:

(i) All 12-hour block average scrubbing liquid flow rate (or scrubbing liquid supply pressure) measurements below the minimum site-specific limit established during performance testing during times when BLS or lime mud is fired (as applicable), and

(ii) All 12-hour block average scrubber pressure drop measurements below the minimum site-specific limit established during performance testing during times when BLS or lime mud is fired (as applicable) except during startup and shutdown,

(iii) All 12-hour block average ESP secondary voltage measurements below the minimum site-specific limit established during performance testing during times when BLS or lime mud is fired (as applicable) including startup and shutdown.

(iv) All 12-hour block average ESP secondary current measurements (or total secondary power values) below the minimum site-specific limit established during performance testing during times when BLS or lime mud is fired (as applicable) except during startup and shutdown.

(e) The Administrator will not consider periods of excess emissions reported under §60.288a(a) to be indicative of a violation of the standards provided the criteria in paragraphs (e)(1) and (2) of this section are met.

(1) The percent of the total number of possible contiguous periods of excess emissions in the semiannual reporting period does not exceed:

(i) One percent for TRS emissions from straight recovery furnaces, provided that the 12-hour average TRS concentration does not exceed 30 ppm corrected to 8-percent oxygen.

(ii) Two percent for average opacities from recovery furnaces, provided that the ESP secondary voltage and secondary current (or total secondary power) averaged over the semiannual period remained above the minimum operating limits established during the performance test.

(iii) One percent for TRS emissions from lime kilns, provided that the 12-hour average TRS concentration does not exceed 22 ppm corrected to 10-percent oxygen.

(iv) One percent for average opacities from lime kilns, provided that the ESP secondary voltage and secondary current (or total secondary power) averaged over the semiannual period remained above the minimum operating limits established during the performance test.

(v) One percent for TRS emissions from cross recovery furnaces, provided that the 12-hour average TRS concentration does not exceed 50 ppm corrected to 8-percent oxygen.

(vi) For closed-vent systems delivering gases to one of the control devices specified in §60.283a(a)(1)(i) through (iii) and (v), the time of excess emissions divided by the total process operating time in the semiannual reporting period does not exceed:

(A) One percent for LVHC closed-vent systems; or

(B) Four percent for HVLC closed-vent systems or for HVLC and LVHC closed-vent systems combined.

(2) The Administrator determines that the affected facility, including air pollution control equipment, is maintained and operated in a manner which is consistent with good air pollution control practice for minimizing emissions during periods of excess emissions.

(3) The 12-hour average TRS concentration uncorrected for oxygen may be considered when determining compliance with the excess emission provisions in paragraphs (e)(1)(i) and (iii) of this section during periods of startup or shutdown when the 12-hour average stack oxygen percentage approaches ambient conditions. If the 12-hour average TRS concentration uncorrected for oxygen is less than the applicable limit (5 ppm for recovery furnaces or 8 ppm for lime kilns) during periods of startup or shutdown when the 12-hour average stack oxygen concentration is 15 percent or greater, then the Administrator will consider the TRS average to be in compliance. This provision only applies during periods of affected facility startup and shutdown.

(f) The procedures under §60.13 must be followed for installation, evaluation, and operation of the continuous monitoring systems required under this section. All continuous monitoring systems must be operated in accordance with the applicable procedures under Performance Specifications 1, 3, and 5 of appendix B of this part.

Clearwater will monitor and record the combustion temperature of the NCG incinerator per the requirements highlighted (underlined) cited above. Clearwater understands the applicable excess emissions definitions and exceptions. The NCG incinerator is currently subject to NSPS subpart BB monitoring requirements (60.284) which are substantially consistent with the requirements of 60.284a.

NSPS subpart BBa. Subpart BBa specifies a 5-minute data recording frequency and 3-hour block averaging time for incinerator temperature measurements.

§60.285a Test methods and procedures.

(a) In conducting the performance tests required by this subpart and §60.8, the owner or operator must use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures in this section, except as provided in §60.8(b). Acceptable alternative methods and procedures are given in paragraph (f) of this section. Section 60.8(c) must be read as follows for purposes of this subpart: Performance tests shall be conducted under such conditions as the Administrator shall specify to the plant operator based on representative performance of the affected facility. The owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown and malfunction shall not constitute representative conditions for the purpose of a performance test.

(b) The owner or operator must determine compliance with the filterable particulate matter standards in §60.282a(a)(1), (2), (5) and (6) as follows:

(1) Method 5 of Appendix A-3 of this part must be used to determine the filterable particulate matter concentration. The sampling time and sample volume for each run must be at least 60 minutes and 0.90 dscm (31.8 dscf). Water must be used as the cleanup solvent instead of acetone in the sample recovery procedure. The particulate concentration must be corrected to the appropriate oxygen concentration according to §60.284a(c)(3).

(2) The emission rate correction factor, integrated sampling and analysis procedure of Method 3B of Appendix A-2 of this part must be used to determine the oxygen concentration. The gas sample must be taken at the same time and at the same traverse points as the particulate sample.

(3) Method 9 of Appendix A-4 of this part and the procedures in §60.11 must be used to determine opacity. Opacity measurement is not required for recovery furnaces or lime kilns operating with a wet scrubber alone or a wet scrubber in combination with an ESP.

(4) In addition to the initial performance test required by this subpart and §60.8(a), you must conduct repeat performance tests for filterable particulate matter at intervals no longer than 5 years following the previous performance test using the procedures in paragraphs (b)(1) and (2) of this section.

(5) When the initial and repeat performance tests are conducted for filterable particulate matter, the owner or operator must also measure condensable particulate matter using Method 202 of Appendix M of 40 CFR part 51.

(c) The owner or operator must determine compliance with the filterable particular matter standards in §60.282a(a)(3) and (4) as follows:

(1) The emission rate (E) of filterable particulate matter must be computed for each run using the following equation:

$E = c_s Q_{sd}/BLS$

Where:

E = emission rate of filterable particulate matter, g/kg (lb/ton) of BLS.

c_s = Concentration of filterable particulate matter, g/dscm (lb/dscf).

Q_{sd} = volumetric flow rate of effluent gas, dry standard cubic meter per hour (dscm/hr) (dry standard cubic feet per hour (dscf/hr)).

BLS = black liquor solids (dry weight) feed rate, kg/hr (ton/hr).

(2) Method 5 of Appendix A-3 of this part must be used to determine the filterable particulate matter concentration (c_s) and the volumetric flow rate (Q_{sd}) of the effluent gas. The sampling time and sample volume must be at least 60 minutes and 0.90 dscm (31.8 dscf). Water must be used instead of acetone in the sample recovery.

(3) Process data must be used to determine the black liquor solids (BLS) feed rate on a dry weight basis.

(4) In addition to the initial performance test required by this subpart and §60.8(a), you must conduct repeat performance tests for filterable particulate matter at intervals no longer than 5 years following the previous performance test using the procedures in paragraphs (c)(1) through (3) of this section.

(5) When the initial and repeat performance tests are conducted for filterable particulate matter, the owner or operator must also measure condensable particulate matter using Method 202 of Appendix M of 40 CFR part 51.

(d) The owner or operator must determine compliance with the TRS standards in §60.283a, except §60.283a(a)(1)(vi) and (4), as follows:

(1) Method 16 of Appendix A-6 of this part must be used to determine the TRS concentration. The TRS concentration must be corrected to the appropriate oxygen concentration using the procedure in §60.284a(c)(3). The sampling time must be at least 3 hours, but no longer than 6 hours.

(2) The emission rate correction factor, integrated sampling and analysis procedure of Method 3B of Appendix A-2 of this part must be used to determine the oxygen concentration. The sample must be taken over the same time period as the TRS samples.

(3) When determining whether a furnace is a straight kraft recovery furnace or a cross recovery furnace, TAPPI Method T 624 (incorporated by reference—see §60.17) must be used to determine sodium sulfide, sodium hydroxide, and sodium carbonate. These determinations must be made 3 times daily from the green liquor, and the daily average values must be converted to sodium oxide (Na_2O) and substituted into the following equation to determine the green liquor sulfidity:

$$GLS=100C_{Na_2S}/(C_{Na_2S}C_{NaOH}C_{Na_2CO_3})$$

Where:

GLS = green liquor sulfidity, percent.

C_{Na_2S} = concentration of Na_2S as Na_2O, milligrams per liter (mg/L) (grains per gallon (gr/gal)).

C_{NaOH} = concentration of NaOH as Na_2O, mg/L (gr/gal).

$C_{Na_2CO_3}$ = concentration of Na_2CO_3 as Na_2O, mg/L (gr/gal).

(4) For recovery furnaces and lime kilns, in addition to the initial performance test required in this subpart and §60.8(a), you must conduct repeat TRS performance tests at intervals no longer than 5 years following the previous performance test using the procedures in paragraphs (d)(1) and (2) of this section.

(e) The owner or operator must determine compliance with the TRS standards in §60.283a(a)(1)(vi) and (4) as follows:

(1) The emission rate (E) of TRS must be computed for each run using the following equation:

$$E=C_{TRS}\ F\ Q_{sd}/P$$

Where:

E = emission rate of TRS, g/kg (lb/ton) of BLS or ADP.

CTRS = average combined concentration of TRS, ppm.

F = conversion factor, 0.001417 g H_2S/cubic meter (m^3)-ppm (8.846 × 10^{-8} lb H_2S/cubic foot (ft^3)-ppm).

Q_{sd} = volumetric flow rate of stack gas, dscm/hr (dscf/hr).

P = black liquor solids feed or pulp production rate, kg/hr (ton/hr).

(2) Method 16 of Appendix A-6 of this part must be used to determine the TRS concentration (C_{TRS}).

(3) Method 2 of Appendix A-1 of this part must be used to determine the volumetric flow rate (Q_{sd}) of the effluent gas.

(4) Process data must be used to determine the black liquor feed rate or the pulp production rate (P).

(5) For smelt dissolving tanks, in addition to the initial performance test required in this subpart and §60.8(a), you must conduct repeat TRS performance tests at intervals no longer than 5 years following the previous performance test using the procedures in paragraphs (e)(1) through (4) of this section.

(f) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) In place of Method 5 of Appendix A-3 of this part, Method 17 of Appendix A-6 of this part may be used if a constant value of 0.009 g/dscm (0.004 gr/dscf) is added to the results of Method 17 and the stack temperature is no greater than 204 °C (400 °F).

(2) In place of Method 16 of Appendix A-6 of this part, Method 16A, 16B, or 16C of Appendix A-6 of this part may be used.

(3) In place of Method 3B of Appendix A-2 of this part, ASME PTC 19.10-1981 (incorporated by reference—see §60.17) may be used.

No testing requirements are applicable to the proposed continuous digester system and associated NCG control systems.

§60.286a Affirmative defense for violations of emission standards during malfunction.

In response to an action to enforce the standards set forth in §§60.282a and 60.283a, you may assert an affirmative defense to a claim for civil penalties for violations of such standards that are caused by malfunction, as defined at §60.2. Appropriate penalties may be assessed if you fail to meet your burden of proving all of the requirements in the affirmative defense. The affirmative defense must not be available for claims for injunctive relief.

(a) *Assertion of affirmative defense.* To establish the affirmative defense in any action to enforce such a standard, you must timely meet the reporting requirements in paragraph (b) of this section, and must prove by a preponderance of evidence that:

(1) The violation:

(i) Was caused by a sudden, infrequent, and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner; and

(ii) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(iii) Did not stem from any activity or event that could have been foreseen and avoided, or planned for; and

(iv) Was not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(2) Repairs were made as expeditiously as possible when a violation occurred; and

(3) The frequency, amount, and duration of the violation (including any bypass) were minimized to the maximum extent practicable; and

(4) If the violation resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and

(5) All possible steps were taken to minimize the impact of the violation on ambient air quality, the environment, and human health; and

(6) All emission monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(7) All of the actions in response to the violation were documented by properly signed, contemporaneous operating logs; and

(8) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and

(9) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the violation resulting from the malfunction event at issue. The analysis must also specify, using best monitoring methods and engineering judgment, the amount of any emissions that were the result of the malfunction.

(b) *Report.* The owner or operator seeking to assert an affirmative defense must submit a written report to the Administrator with all necessary supporting documentation that explains how it has met the requirements set forth in paragraph (a) of this section. This affirmative defense report must be included in the first periodic compliance, deviation report or excess emission report otherwise required after the initial occurrence of the violation of the relevant standard (which may be the end of any applicable averaging period). If such compliance, deviation report or excess emission report is due less than 45 days after the initial occurrence of the violation, the affirmative defense report may be included in the second compliance, deviation report or excess emission report due after the initial occurrence of the violation of the relevant standard.

The affirmative defense provisions are potentially applicable.

§60.287a Recordkeeping.

(a) The owner or operator must maintain records of the performance evaluations of the continuous monitoring systems.

(b) For each continuous monitoring system, the owner or operator must maintain records of the following information, as applicable:

(1) Records of the opacity of the gases discharged into the atmosphere from any recovery furnace or lime kiln using an ESP emission control device, except as specified in paragraph (b)(6) of this section, and records of the ESP secondary voltage and secondary current (or total secondary power) averaged over the reporting period for the opacity allowances specified in §60.284a(e)(1)(ii) and (iv).

(2) Records of the concentration of TRS emissions on a dry basis and the percent of oxygen by volume on a dry basis in the gases discharged into the atmosphere from any lime kiln, recovery furnace, digester system, brown stock washer system, multiple-effect evaporator system, or condensate stripper system, except where the provisions of §60.283a(a)(1)(iii) or (iv) apply.

(3) Records of the incinerator combustion temperature at the point of incineration of effluent gases which are emitted from any digester system, brown stock washer system, multiple effect evaporator system, or condensate stripper system where the provisions of §60.283a(a)(1)(iii) apply and an incinerator is used as the combustion device.

(4) For any recovery furnace, lime kiln, or smelt dissolving tank using a wet scrubber emission control device:

(i) Records of the pressure drop of the gas stream through the control equipment (or smelt dissolving tank scrubber fan amperage), and

(ii) Records of the scrubbing liquid flow rate (or scrubbing liquid supply pressure).

(5) For any recovery furnace or lime kiln using an ESP control device:

(i) Records of the secondary voltage of each ESP collection field, and

(ii) Records of the secondary current of each ESP collection field, and

(iii) If used as an alternative to secondary voltage and current, records of the total secondary power of each ESP collection field.

(6) For any recovery furnace or lime kiln using an ESP followed by a wet scrubber, the records specified under paragraphs (b)(4) and (5) of this section.

(7) Records of excess emissions as defined in §60.284a(d).

(c) For each malfunction, the owner or operator must maintain records of the following information:

(1) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.

(2) Records of actions taken during periods of malfunction to minimize emissions in accordance with §60.11(d), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

Clearwater will comply with the applicable recordkeeping requirements highlighted (underlined) above

§60.288a Reporting.

(a) For the purpose of reports required under §60.7(c), any owner or operator subject to the provisions of this subpart must report semiannually periods of excess emissions defined in §60.284a(d).

(b) Within 60 days after the date of completing each performance test (defined in §60.8) as required by this subpart you must submit the results of the performance tests, including any associated fuel analyses, required by this subpart to the EPA as follows. You must use the latest version of the EPA's Electronic Reporting Tool (ERT) (see *http://www.epa.gov/ttn/chief/ert/index.html*) existing at the time of the performance test to generate a submission package file, which documents performance test data. You must then submit the file generated by the ERT through the EPA's Compliance and Emissions Data Reporting Interface (CEDRI), which can be accessed by logging in to the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). Only data collected using test methods supported by the ERT as listed on the ERT Web site are subject to the requirement to submit the

performance test data electronically. Owners or operators who claim that some of the information being submitted for performance tests is confidential business information (CBI) must submit a complete ERT file including information claimed to be CBI on a compact disk, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAPQS/CORE CBI Office, Attention: WebFIRE Administrator, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT file with the CBI omitted must be submitted to the EPA via CDX as described earlier in this paragraph (b). At the discretion of the delegated authority, you must also submit these reports, including the CBI, to the delegated authority in the format specified by the delegated authority. For any performance test conducted using test methods that are not listed on the ERT Web site, the owner or operator must submit the results of the performance test to the Administrator at the appropriate address listed in §60.4.

(c) Within 60 days after the date of completing each CEMS performance evaluation test as defined in §60.13, you must submit relative accuracy test audit (RATA) data to the EPA's Central Data Exchange (CDX) by using CEDRI in accordance with paragraph (b) of this section. Only RATA pollutants that can be documented with the ERT (as listed on the ERT Web site) are subject to this requirement. For any performance evaluations with no corresponding RATA pollutants listed on the ERT Web site, the owner or operator must submit the results of the performance evaluation to the Administrator at the appropriate address listed in §60.4.

(d) If a malfunction occurred during the reporting period, you must submit a report that contains the following:

(1) The number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded.

(2) A description of actions taken by an owner or operator during a malfunction of an affected facility to minimize emissions in accordance with §60.11(d), including actions taken to correct a malfunction.

Clearwater will comply with the applicable reporting requirements highlighted (underlined) above.

APPENDIX C – PROCESSING FEE

PTC Fee Calculation

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company: **Clearwater Paper Corp - PPD & CPD**
Address: **803 Mill Road**
City: **Lewiston Idaho**
State: **Idaho**
Zip Code: **83501**
Facility Contact: **ClaytonSteele**
Title: **Env. Manager**
AIRS No.: **069-00001**

N Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

Y Did this permit require engineering analysis? Y/N

N Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	7.5	0	7.5
SO_2	0.0	0	0.0
CO	26.9	0	26.9
PM10	3.3	0	3.3
VOC	30.4	0	30.4
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**68.1**
Fee Due	**$ 5,000.00**		

Comments: TAP/HAP increases are included in the VOC value