



State of Idaho
Department of Environmental Quality
Air Quality Division

**AIR QUALITY PERMIT
STATEMENT OF BASIS**

Permit to Construct No. P-2009.0025

Final

Clearwater Paper Corporation

Consumer Products Division

Lewiston, Idaho

Facility ID No. 069-00001

June 9, 2009


Dan Pitman, P.E.

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.

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Acronyms, Units, and Chemical Nomenclature

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
Btu	British thermal unit
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
gr	grain (1 lb = 7,000 grains)
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
HAP	hazardous air pollutant
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
m	meter(s)
MACT	Maximum Achievable Control Technology
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
MMBtu	million British thermal units
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
PC	permit condition
PM	particulate matter
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
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
SIC	Standard Industrial Classification
SM	Synthetic Minor
SO ₂	sulfur dioxide
SO _x	sulfur oxides
TAP	toxic air pollutant
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

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1. FACILITY INFORMATION

1.1 Facility Description

Clearwater Paper Corporation's Consumer Products Division (Clearwater) receives pulp from the Pulp and Paper Division. This pulp is processed into tissue products in the Consumer Products Division. Three tissue machines are used to convert the pulp into tissue; the Valmet Rewinder processes the large tissue rolls into dimensions suitable for final products.

1.2 Permitting Action and Facility Permitting History

This PTC is for a modification at an existing Tier I facility. See the current Tier I permit statement of basis for the permitting history. This permit will be the first Permit to Construct issued for the 1L tissue machine. The 1L tissue machine is an existing emissions unit which is proposed to be modified.

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

The 1L tissue machine Yankee dryer is currently equipped with two natural gas-fired hood burners rated at 6 million Btu (MMBtu) per hour each. These burners and associated ductwork have deteriorated and are in need of replacement to maintain reliable and efficient operation. Two new natural gas-fired burners rated at 10 MMBtu per hour each will be installed. The higher heat input rating on the new burners will provide an incremental increase in production capacity on the 1L Tissue machine. Maximum machine capacity following the hood burner replacement project has been conservatively estimated at 7 air dry tons of finished product (ADTFP) per hour, hourly average, and 5.5 ADTFP per hour, annual average. Production capacity prior to the modification was 4 ADTFP per hour¹.

2.2 Application Chronology

March 3, 2009	DEQ received a Permit Construct application and \$1,000 application fee
April 2, 2009	DEQ determined the application complete
June 2, 2009	DEQ received Permit to Construct Processing fee (\$2,500)

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

Emission Unit /ID No.	Emissions Unit Description	Control Device Description	Emissions Discharge Point ID No. and/or Description
29	1L Tissue Machine Hood Burners (2 @ 10 MMBtu)	none	1L Tissue Machine Hood Exhaust
28a	Tissue Machine Exhaust	Wet Scrubber	1L Tissue Machine Scrubber exhaust

¹ Clearwater Paper Corporation, Tier I permit renewal application, page B-1, June 19, 2007.

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3.2 Emissions Inventory

Tables 3.2, 3.3, and 3.4 summarize the emissions estimates provided by Clearwater in its March 3, 2009 permit to construct application. Emission estimates were obtained from source tests conducted at the facility, published emission factors from the National Council for Air and Stream Improvement, US EPA AP-42 emissions factors, and the facility's production records.

Table 3.2 UNCONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM ₁₀		SO ₂		NO _x		CO		VOC		LEAD
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/quarter
Point Sources Affected by this Permitting Action											
1L Tissue Machine (wet and dry end) Points 23-29 and fugitives		10.35		0.05		8.59		8.59		2.13	2.1E-2
Total		10.35		0.05		8.59		7.21		2.13	2.1E-2

Table 3.3 CONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM ₁₀		SO ₂		NO _x		CO		VOC		LEAD
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/quarter
Point Sources Affected by this Permitting Action											
1l Tissue Machine (wet and dry end)Points and fugitives 23-29		9.29		0.05		8.59		8.59		2.13	2.1E-2
Total		9.29		0.05		8.59		7.21		2.13	2.1E-2

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Table 3.4 UNCONTROLLED¹ TAP AND HAP EMISSIONS SUMMARY FOR THE PROJECT

TAPs	HAP (?)	24-hour & Annual Average ²	TAP Screening Emission Level	Modeling Required?
		Lb/hr	lb/hr	(yes/no)
Arsenic	yes	1.0E-6	1.5E-6	no
Barium	no	2.3E-5	0.033	no
Beryllium	yes	6.2E-8	2.8E-5	no
Cadmium	yes	5.6E-6	3.7E-6	yes
Chromium (II&III)	yes	6.9E-6	0.033	no
Chromium (VI)	yes	2.9E-7	5.6E-7	no
Cobalt	yes	4.3E-7	0.05	no
Copper	no	4.4E-6	0.2	no
Lead	yes	2.6E-6	NA	no
Manganese	yes	1.9E-6	0.067	no
Mercury	yes	1.3E-6	0.01	no
Molybdenum	no	5.6E-6	0.333	no
Nickel	no	1.1E-5	2.7E-5	no
Selenium	yes	1.2E-7	0.013	no
Zinc	no	1.5E-4	0.667	no
1,2,4-Trichlorobenzene	yes	3.5E-2	2.47	no
1,2, -Dichloroethylene	no	7.7E-3	52.7	no
3-Methylchloroanthrene	no	9.2E-9	2.5 E -6	no
Acetaldehyde	yes	9.8E-2	3.0E-3	yes
Acetone	no	3.5E-2	119	no
Acrolein	yes	4.7E-3	0.017	no
Benzene	no	1.9E-3	8.0E-4	yes
Benzo(a)pyrene	no	6.2E-9	2.0 E -6	no
Chlorobenzene	yes	3.5E-3	23.3	no
Dichlorobenzene	no	6.2E-6	NA	no
Formaldehyde	yes	1.9E-2	5.1 E -4	yes
Hexane	yes	9.2E-3	12	no
Methonal	yes	2.1E-1	17.3	no
Methyl Ethyl Ketone	yes	7.1E-3	39.3	no
Methyl Isobutyl Ketone	yes	5.9E-3	13.7	no
Methyl Mercaptan	no	2.9E-2	0.033	no
Naphthalene	yes	3.1E-5	3.33	no
Pentane	no	1.3E-2E-6	118	no
Styrene	yes	8.6E-3	6.67	no
Tetrachloroethylene	yes	1.2E-2	1.3E-2	no
Toluene	no	9.9E-4	25	no
Xylene	yes	6.8E-3	29	no

- 1) Uncontrolled emissions are equivalent to the change in permitted emissions for the project.
- 2) The 24-hour and Annual Average pound per hour values are the same. The unit is permitted to operate 8760 hours per year.

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3.3 Ambient Air Quality Impact Analysis

Emission of carbon monoxide, sulfur dioxide, and lead are below DEQ modeling thresholds. Emission increases of PM₁₀ and nitrogen dioxide were modeled to determine if a facility-wide model was required. The submitted application indicated that results for the significant impact analyses were below significant contribution levels for all criteria pollutants modeled; therefore, cumulative impact analyses were not required to demonstrate compliance with ambient air quality standards. Results of the cumulative NAAQS impact analyses are provided in Table 3.5.

Table 3.5 RESULTS FOR SIGNIFICANT IMPACT ANALYSES

Pollutant	Averaging Period	Maximum Modeled Concentration (µg/m ³) ^a	Significant Contribution Level ^b (µg/m ³)	Percent of Significant Contribution Level	Cumulative Impact Analysis Required ^c
PM ₁₀ ^d	24-hour	1.50 (1.51) ^e	5.0	30	No
	annual	0.34	1.0	34	No
Nitrogen Dioxide (NO ₂)	annual	0.22	1.0	22	No

^aMicrograms per cubic
^bIdaho Air Rules Section 006.102
^cCumulative impact analyses are required if maximum modeled concentrations exceed significant contribution levels
^dParticulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
^eResults from DEQ verification analysis (rerunning the model using meteorological data previously reviewed by DEQ)

RTP, Clearwater’s consultant, performed TAPs impact analyses to evaluate compliance with applicable increments for those TAPs having emissions above screening levels of Idaho Air Rules Section 585 and 586. Results of the TAPs impact analyses are provided in Table 3.6. All impacts were below applicable TAP increments.

Table 3.6 RESULTS FOR TAP IMPACT ANALYSES

Pollutant	Averaging Period	Modeled Impact (µg/m ³) ^a	AAC/AACC ^b (µg/m ³)
Acetaldehyde	Annual	4.01E-2	4.5E-1
Benzene	Annual	7.80E-4	1.2E-1
Cadmium	Annual	<1.0E-4	5.6E-4
formaldehyde	Annual	7.93E-3	7.7E-2

^aMicrograms per cubic meter.
^bDefined in Idaho Air Rules Section 585 and 586

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4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The facility is located in Lewiston, Nez Perce County, Idaho, which is designated as unclassifiable/attainment for all regulated criteria pollutants (i.e., PM₁₀, CO, NO_x, SO₂, lead, and ozone). There is not a Class I area within 10 kilometers of the facility. This facility is located in Air Quality Control Region (AQCR) 62 and Universal Transverse Mercator (UTM) Zone 11.

4.2 Permit to Construct (IDAPA 58.01.01.201)

The modification of the 1L tissue machine does not qualify for an exemption from the need to obtain a permit to construct in accordance with IDAPA 58.01.01.220-223. The project's PM₁₀ emissions increase is 2.96 tons per year which is greater than 10% of the significant value for PM₁₀ (15 T/yr).

4.3 Tier II Operating Permit (IDAPA 58.01.01.401)

This modification does not involve a Tier II operating permit.

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

The Clearwater facility is classified as a Tier I major facility and has a Tier I operating permit. DEQ is currently processing a Tier I permit renewal for the facility. This permit to construct will be issued per Section 209.05.a, and it will be included in the renewed Tier I permit.

This facility is a major facility as defined by IDAPA 58.01.01.008.10 because it emits or has the potential to emit regulated air pollutants (SO₂, NO_x, CO, PM₁₀, VOC, and HAPs) in amounts greater than or equal to major facility threshold(s) listed in Subsection 008.10. The facility's potential to emit is summarized in Table 4.1.

Table 4.1 CLEARWATER PAPER CORPORATION POTENTIAL TO EMIT SUMMARY

Source	PM ₁₀ (T/yr)	SO ₂ (T/yr)	CO (T/yr)	NO _x (T/yr)	VOC (T/yr)	TRS (T/yr)	Maximum Individual HAP (T/yr)
Facility Total	833	1536	5889	2191	605	214	230 ¹

1) Methanol

4.5 PSD Classification (40 CFR 52.21)

Clearwater is a designated facility (Kraft Pulp Mill) and is a PSD major facility because it has the potential to emit greater than 100 tons per year.

Clearwater performed a major modification emissions increase applicability analysis for the project. The project consists of replacing two existing 6 MMBtu natural gas fired hood burners with two new 10 MMBtu natural gas fired hood burners, an incremental increase of tissue production capacity of 3 air dry tons per hour (resulting in a final total of 5.5 air dry ton production capacity), and increase fugitive emissions from haul roads. Pulp production is not included as part of the project because pulp is purchased off-site, and pulp produced at the facility that is normally for sale off-site will be used to provide any necessary increase in demand for pulp in the tissue machines. The incremental increase in Tissue Production results solely from the increased drying capacity that the new hood burners provide. The facility is operating at maximum steam drying and printing; therefore, the steam drying and printing capacity does not change as a result of this project.

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Clearwater determined the project's emission increase using the applicability procedures specified by 40 CFR 52.21(a)(2). Projected actual emissions were compared to baseline actual emissions to determine the emissions increase associated with the project. In accordance with 40 CFR 52.21(b)(41)(ii)(d) Clearwater used the potential to emit for projected actual emissions. Baseline actual emissions were determined for the calendar years 2006 and 2007. Fugitive emissions were included in the analysis.

Table 4.2 summarizes the facility's project emissions increases, projected actual emissions, and baseline actual emissions.

Table 4.2 SUMMARY OF MAJOR MODIFICATION APPLICABILITY ANALYSIS

Pollutant	Potential to Emit/Projected Actual Emissions	Baseline Actual Emissions	Emission Increase	PSD Significant Emission Increase Rate	Significant?
PM	28.93	20.64	8.29	25	No
PM-10	10.35	7.39	2.96	15	No
PM-2.5	5.91	4.22	1.69	10	No
NOx	8.59	6.15	2.44	40	No
SO ₂	0.05	0.04	0.01	40	No
CO	7.21	5.17	2.05	100	No
VOC	2.13	1.52	0.61	40	No
TRS	0.24	0.17	0.07	10	No
Pb	4.3E-5	3.1E-5	1.2e-5	0.6	No

The project does not result in a significant emission increase; therefore, this project does not meet the definition of a major modification and PSD is not triggered.

The source's obligation under 40 CFR 52.21(r) requires that the facility keep records and documentation that the project does not trigger PSD if there is a reasonable possibility that the project will cause a significant emissions increase. A reasonable possibility that a project will trigger PSD exists if the emissions increase of that project is greater 50% of what is defined as significant for any regulated pollutant (40 CFR 52.21(r)(6)(vi)). Clearwater's project results in a maximum increase of a 33% of what is defined as significant for any regulated air pollutant; therefore, the facility is not required to keep records and documentation in accordance with 40 CFR 52.21(r)(6).

4.6 NSPS Applicability (40 CFR 60)

The only potentially applicable NSPS to the 1L tissue machine hood burners is Subpart Dc, "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units." Process dryers such as the 1L tissue machine Yankee dryer do not meet the definition of "steam Generating unit." Although the dryer does transfer heat to heat transfer medium (air), the heat is transferred by direct contact and intermixing rather than across a physical barrier². Therefore, the dryer hood burners are not NSPS Subpart Dc affected emissions units.

4.7 NESHAP Applicability (40 CFR 61 & 63)

The modification to the 1L tissue machine, including the addition of two new 10 MMBtu natural gas-fired hood burners, does not encompass a NESHAP regulated activity.

² See EPA Applicability Determination Index (ADI) Control Number PS36, available at <http://cfpub.epa.gov/adi>

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4.8 CAM Applicability (40 CFR 64)

Clearwater is currently renewing its Tier I operating permit. During the Tier I permit renewal process, Clearwater demonstrated that uncontrolled emissions from the 1L tissue machine do not exceed 100 tons per year. Therefore, CAM is not applicable.

4.9 Permit Conditions Review

Clearwater's major modification applicability analysis and ambient impact assessment relied on uncontrolled potential to emit for all points of emissions except for the 1L tissue machine stack 28a. Because the applicability determination and ambient impact analyses relied on controlled emissions from the 1L tissue machine, permit conditions are only required for this emission point to assure that emissions remain consistent with the analyses which were conducted.

Emission point 28a of the 1L tissue machine incorporates a wet scrubber to control emissions. Controlled emissions are estimated to be 0.28 pounds per hour. The tissue machine was tested on November 11, 1997, and a PM emission factor of 0.04 lb/ADTFP was measured. Using this emission factor and the production capability of the tissue machine after proposed modification, an estimated particulate matter emission rate of 0.28 pounds per hour or 1.2 T/yr is obtained. Even if actual emissions from this emissions point were to increase above estimated emissions by a factor of 3, it would not change the outcome of the regulatory analyses for either the major modification applicability determination or that for the ambient impact assessment requirements. Therefore, for emission point 28a, it is not necessary to include the 0.28 pound per hour emission estimate as a specific emission rate limit in the permit. However, it is necessary to assure that the facility operates a wet scrubber as efficiently as practicable to assure that the emissions remain consistent with the regulatory applicability determination and ambient impact assessment requirements. Requiring the permittee to operate and maintain a wet scrubber sufficiently limits emissions to levels consistent with the regulatory analyses that have been conducted without the need for a specific emission rate limit.

Permit Condition 2.3

Permit Condition 2.3 requires that a wet scrubber be used to control emissions from the 1L tissue machine.

Permit Condition 2.4

Permit Condition 2.4 is derived from DEQ's standard permit language for operation and maintenance manuals. It requires the permittee to establish specific enforceable pressure drop and scrubbing media flow rate limitations, periodic monitoring requirements, and periodic inspections to assure the scrubber operates as designed.

Generally Applicable Requirements

All generally applicable requirements, such as fugitive dust control and opacity limits, are already included in the facility's Tier I operating permit and are not repeated in this permit to construct.

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5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. In accordance with IDAPA 58.01.01.225 the facility is subject to a processing fee of \$2,500 because the increase of emissions due to the project is 8.49 tons per year. Refer to the chronology for fee receipt dates.

Table 5.1 PROCESSING FEE TABLE

Pollutant	Annual Emissions Change (T/yr)
NO _x	2.44
SO ₂	0.01
CO	2.05
PM ₁₀	2.96
VOC	0.61
HAPS	0.42
Total:	8.49
Fee Due	\$2,500

6. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided from March 9, 2009 to March 24, 2009 in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action.

Appendix A – AIRS Information

AIRS/AFS Facility-wide Classification Form

Facility Name: Clearwater Paper Corporation - Consumer Products Division
Facility Location: Lewiston
Facility ID: 069-00001 **Date:** May 21, 2009
Project/Permit No.: P-2009.0025 **Completed By:** Dan Pitman

- Check if there are no changes to the facilitywide classification resulting from this action. (compare to form with last permit)
- Yes, this facility is an SM80 source.

Identify the facility's area classification as A (attainment), N (nonattainment), or U (unclassified) for the following pollutants:

	SO2	PM10	VOC	
Area Classification:	A	U	U	DO NOT LEAVE ANY BLANK

Check one of the following:

- SIP [0]** - Yes, this facility is subject to SIP requirements. (do not use if facility is Title V)
- OR
- Title V [V]** - Yes, this facility is subject to Title V requirements. (If yes, do not also use SIP listed above.)

For SIP or TV, identify the classification (A, SM, B, C, or ND) for the pollutants listed below. Leave box blank if pollutant is not applicable to facility.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	A	A	A	A	A	A	A

- PSD [6]** - Yes, this facility has a PSD permit.

If yes, identify the pollutant(s) listed below that apply to PSD. Leave box blank if pollutant does not apply to PSD.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	<input checked="" type="checkbox"/>	<input type="checkbox"/>					

- NSR - NAA [7]** - Yes, this facility is subject to NSR nonattainment area (IDAPA 58.01.01.204) requirements.

Note: As of 9/12/08, Idaho has no facility in this category.

If yes, identify the pollutant(s) listed below that apply to NSR-NAA. Leave box blank if pollutant does not apply to NSR - NAA.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	<input type="checkbox"/>						

- NESHAP [8]** - Yes, this facility is subject to NESHAP (Part 61) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

- NSPS [9]** - Yes, this facility is subject to NSPS (Part 60) requirements.

If yes, what CFR Subpart(s) is applicable?

D, Dc, BB

If yes, identify the pollutant(s) regulated by the subpart(s) listed above. Leave box blank if pollutant does not apply to the NSPS.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	<input type="checkbox"/>						

- MACT [M]** - Yes, this facility is subject to MACT (Part 63) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

KK, S, MM, JJJJ, ZZZZ

Appendix B – Ambient Air Quality Impact Analysis

MEMORANDUM

DATE: June 3, 2009

TO: Dan Pitman, Air Quality Senior Engineer, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT NUMBER: P-2009.0025

SUBJECT: Modeling Review for the Clearwater Paper Corporation, Consumer Products Division Permit to Construct Application for Modifications to their facility in Lewiston, Idaho

1.0 SUMMARY

Clearwater Paper Corporation (Clearwater), Consumer Products Division (CPD) submitted a Permit to Construct (PTC) application for modifications to their facility located Lewiston, Idaho. The modification involves replacing the 1L Tissue Machine Yankee dryer hood burners and associated ductwork. Air quality analyses involving atmospheric dispersion modeling of increased emissions were performed to demonstrate the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 [Idaho Air Rules Section 203.02]). RTP Environmental Associates, Inc, CPD's consultant, performed the site-specific ambient air quality impact analyses.

A technical review of the submitted analyses was conducted by DEQ. The submitted analyses and information: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 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 proposed facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility and any potentially co-contributing sources, when appropriately combined with background concentrations, were below applicable air quality standards at all locations outside of the facility's property boundary. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Criteria/Assumption/Result	Explanation/Consideration
Modeling analyses demonstrated that impacts of criteria pollutants were below significant contribution levels.	An assessment of impacts from facility-wide emissions was not required because impacts from the emissions increase were below significant contribution levels, thereby demonstrating compliance with Idaho Air Rules Section 203.02
DEQ performed an abbreviated review of the submitted air impact analyses.	DEQ performed an abbreviated review of the modeling analyses because emissions rate increases were below levels of proposed secondary modeling thresholds and the modeled impacts presented in the application were well below significant contribution levels.

2.0 BACKGROUND INFORMATION

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The Clearwater facility is located north of Lewiston, Idaho. The area is designated as attainment or unclassifiable for all criteria pollutants.

2.1.2 Significant and Cumulative NAAQS Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the facility exceed the significant contribution levels (SCLs) of Idaho Air Rules Section 006.102, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

POLLUTANT	Averaging Period	Significant Contribution Levels ^a ($\mu\text{g}/\text{m}^3$) ^b	Regulatory Limit ^c ($\mu\text{g}/\text{m}^3$)	Modeled Value Used ^d
PM ₁₀ ^e	Annual ^f	1.0	50 ^g	Maximum 1 st highest ^h
	24-hour	5.0	150 ⁱ	Maximum 6 th highest ^h
PM _{2.5} ^k	Annual	Not established	15	Use PM ₁₀ as surrogate
	24-hour	Not established	35	Use PM ₁₀ as surrogate
Carbon monoxide (CO)	8-hour	500	10,000 ^l	Maximum 2 nd highest ^h
	1-hour	2,000	40,000 ^l	Maximum 2 nd highest ^h
Sulfur Dioxide (SO ₂)	Annual	1.0	80 ^g	Maximum 1 st highest ^h
	24-hour	5	365 ^l	Maximum 2 nd highest ^h
	3-hour	25	1,300 ^l	Maximum 2 nd highest ^h
Nitrogen Dioxide (NO ₂)	Annual	1.0	100 ^g	Maximum 1 st highest ^h
Lead (Pb)	3-month	NA	0.15 ^m	Maximum 1 st highest ^h
	Quarterly	NA	1.5 ⁱ	Maximum 1 st highest ^h

^aIdaho Air Rules Section 006.102

^bMicrograms per cubic meter

^cIdaho Air Rules Section 577 for criteria pollutants

^dThe maximum 1st highest modeled value is always used for the significant impact analysis

^eParticulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

^fThe annual PM₁₀ standard was revoked in 2006. The standard is still listed because compliance with the annual PM_{2.5} standard is demonstrated by a PM₁₀ analysis that demonstrates compliance with the revoked PM₁₀ standard.

^gNever expected to be exceeded in any calendar year

^hConcentration at any modeled receptor

ⁱNever expected to be exceeded more than once in any calendar year

^jConcentration at any modeled receptor when using five years of meteorological data

^kParticulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers

^lNot to be exceeded more than once per year

^m3-month rolling average

New source review requirements for assuring compliance with PM_{2.5} standards have not yet been completed and promulgated into regulation. EPA has asserted through a policy memorandum that compliance with PM_{2.5}

standards will be assured through an air quality analysis for the corresponding PM₁₀ standard. Although the PM₁₀ annual standard was revoked in 2006, compliance with the revoked PM₁₀ annual standard must be demonstrated as a surrogate to the annual PM_{2.5} standard.

2.1.3 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.

Permit requirements for toxic air pollutants 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 Section 210, if the emissions increase 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. If DEQ determines T-RACT is used to control emissions of carcinogenic TAPs, then modeled concentrations of 10 times the AACC are considered acceptable, as per Idaho Air Rules Section 210.12.

2.2 Background Concentrations

Background concentrations are used in the cumulative NAAQS impact analyses to account for impacts from sources not explicitly modeled. Since the ambient impacts associated with the emissions increase resulting from the proposed project is below significant contribution levels, cumulative NAAQS impact analyses were not necessary to demonstrate compliance with applicable ambient air quality standards.

3.0 MODELING IMPACT ASSESSMENT

3.1 Modeling Methodology

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

3.1.1 Overview of Analyses

Table 3 provides a brief description of parameters used in the submitted modeling analyses.

Parameter	Description/Values	Documentation/Addition Description^a
General Facility Location	Lewiston, Idaho	
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 07026
Meteorological Data	Lewiston	Site-specific meteorological data for 1992-1995 and 1997.
Terrain	Considered	Receptor, building, and emissions source elevations were determined using Digital Elevation Model (DEM) files
Building Downwash	Considered	Buildings present on the site that could reasonably cause plume downwash were included in the analyses through the use of the BPIP-PRIME program
Receptor Grid	Grid 1	50-meter spacing along the property boundary
	Grid 2	100-meter spacing out to 2,000 meters
	Grid 3	500-meter spacing out to 10,000 meters

3.1.2 Modeling protocol and Methodology

Refined air impact analyses were performed by RTP. A modeling protocol was not submitted to DEQ prior to the application. Modeling was generally conducted using data and methods described in the *State of Idaho Air Quality Modeling Guideline*.

3.1.3 Model Selection

Idaho Air Rules Section 202.02 require 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. EPA provided a 1-year transition period during which either ISCST3 or AERMOD could be used at the discretion of the permitting agency. AERMOD must be used for all air impact analyses, performed in support of air quality permitting, conducted after November 2006.

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 offers the following improvements over ISCST3:

- Improved dispersion in the convective boundary layer and the stable boundary layer
- Improved plume rise and buoyancy calculations
- Improved treatment of terrain effects on dispersion
- New vertical profiles of wind, turbulence, and temperature

AERMOD was used in the submitted analyses.

3.1.4 Meteorological Data

Meteorological data were obtained for the Clearwater site from a meteorological tower located about 1,400 feet northwest of the general offices. RTP used data from 1992 through 1995 and 1997 in the modeling analyses. These same years were used in previous permitting projects for the facility.

RTP processed the data using AERMET, the meteorological preprocessor for AERMOD. Surface characteristics were selected by using EPA's AERSURFACE program and USGS Land Cover data (NLCD92 data). The AERSURFACE analysis used eight 45 degree sectors for the area surrounding the meteorological station.

The meteorological data used in these analyses were reviewed by DEQ for a previous permitting project in December 2007 and were not reassessed for this project. DEQ performed verification analyses (consisting of rerunning the model) using the previously reviewed meteorological data as a quality assurance check.

3.1.5 Terrain Effects

Terrain effects on dispersion were considered in the analyses. Receptor elevations and hill heights were obtained by RTP using AERMAP and Digital Elevation Model (DEM) 7.5-minute files, based on North American Datum of 1927 (NAD 27).

DEQ reviewed receptor elevations for general accuracy, and elevations appeared to be reasonably accurate given the topography of the area.

3.1.6 Building Downwash

Downwash effects potentially caused by structures at the facility were accounted for in the dispersion modeling analyses. The Building Profile Input Program for the PRIME downwash algorithm (BPIP-PRIME) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emissions release parameters for AERMOD.

3.1.7 Ambient Air Boundary

The ambient air boundary of the Clearwater facility has been well documented in previous permitting projects. RTP used the property boundary as the ambient air boundary, and most of the boundary is fenced to prevent unauthorized access.

3.1.8 Receptor Network

Table 3 describes the receptor grid used in the submitted analyses. The receptor grid met the minimum recommendations specified in the *State of Idaho Air Quality Modeling Guideline*. DEQ determined this grid assured maximum impacts were reasonably resolved by the model.

3.2 Emission Rates

Emissions rates used in the modeling analyses for the proposed project were equal to those presented in other sections of the permit application or the DEQ Statement of Basis.

3.2.1 Criteria Pollutant Emissions Rates

Emissions increases of PM₁₀ and NO_x exceeded modeling threshold values established in the *State of Idaho Air Quality Modeling Guideline*. Table 4 provides emissions increases used in the modeling analyses. Since results of the significant impact analyses indicated impacts were below significant contribution levels, a cumulative NAAQS impact analysis, using facility-wide emissions, was not necessary to demonstrate compliance with NAAQS.

Table 4. CRITERIA POLLUTANT EMISSIONS RATES USED FOR MODELING ANALYSES

Emissions Point	Stack ID	Emissions Rates (lb/hr)	
		PM ₁₀	NO _x
1L Wet End Roof Exhaust	CPD23	0.0867	0.0
1L Wet End Roof Exhaust	CPD24	0.0867	0.0
1L Wet End Roof Exhaust	CPD25	0.0867	0.0
1L Wet End Roof Exhaust	CPD26	0.0867	0.0
1L Wet End Roof Exhaust	CPD27	0.0867	0.0
1L Wet End Roof Exhaust	CPD28	0.0867	0.0
1L Tissue Machine Dust Scrubber	CPD28a	0.0390	0.0
1L Tissue Machine Hood Burner & Dry End Exhaust	CPD29	0.216	0.556

3.2.2 TAP Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 220 are only applicable for new or modified sources constructed before July 1, 1995. Table 5 provides modeled TAP emissions for those TAPs having an emissions increase that exceeded the Screening Emissions Levels (ELs) of Idaho Air Rules Section 585 and 586.

Table 5. TAPS EMISSIONS RATES USED FOR MODELING ANALYSES

Emissions Point	Stack ID	Emissions Rates (lb/hr)			
		Acetaldehyde	benzene	formaldehyde	cadmium
1L Wet End Roof Exhaust	CPD23	8.13E-3	1.58E-4	1.58E-3	0.0
1L Wet End Roof Exhaust	CPD24	8.13E-3	1.58E-4	1.58E-3	0.0
1L Wet End Roof Exhaust	CPD25	8.13E-3	1.58E-4	1.58E-3	0.0
1L Wet End Roof Exhaust	CPD26	8.13E-3	1.58E-4	1.58E-3	0.0
1L Wet End Roof Exhaust	CPD27	8.13E-3	1.58E-4	1.58E-3	0.0
1L Wet End Roof Exhaust	CPD28	8.13E-3	1.58E-4	1.58E-3	0.0
1L Tissue Machine Dust Scrubber	CPD28a	0.0	0.0	0.0	0.0
1L Tissue Machine Hood Burner & Dry End Exhaust	CPD29	4.88E-2	9.57E-4	9.84E-3	5.64E-6

3.3 Emission Release Parameters

Table 6 provides emissions release parameters used in the modeling analyses, including stack height, stack diameter, exhaust temperature, and exhaust velocity. All parameters appear to be within reasonably expected ranges, considering the type of sources. DEQ did not verify the accuracy of release parameters used since modeled impacts were well below significant contribution levels.

Table 6. EMISSIONS RELEASE PARAMETERS

<i>Release Point /Location</i>	<i>Source Type</i>	<i>Stack Height (m)^a</i>	<i>Modeled Diameter (m)</i>	<i>Stack Gas Temp. (K)^b</i>	<i>Stack Gas Flow Velocity (m/sec)^c</i>
CPD23	point	10.3	1.2	305	16.6
CPD24	point	11.2	1.2	302	17.3
CPD25	point	11.7	1.4	312	21.0
CPD26	point	11.1	1.2	320	18.0
CPD27	point	11.4	1.2	310	13.7
CPD28	point	10.2	1.2	304	19.3
CPD28a	point	14.3	1.4	293	11.9
CPD29	point	11.4	1.2	349	8.56

^aMeters^bKelvin^cMeters per second

3.4 Results for Significant Impact Analyses

The submitted application indicated that results for the significant impact analyses were below significant contribution levels for all criteria pollutants modeled; therefore, cumulative impact analyses were not required to demonstrate compliance with ambient air quality standards. Results of the cumulative NAAQS impact analyses are provided in Table 7.

Table 7. RESULTS FOR SIGNIFICANT IMPACT ANALYSES

Pollutant	Averaging Period	Maximum Modeled Concentration (µg/m³)^a	Significant Contribution Level^b (µg/m³)	Percent of Significant Contribution Level	Cumulative Impact Analysis Required^c
PM ₁₀ ^d	24-hour	1.50 (1.51) ^e	5.0	30	No
	annual	0.34	1.0	34	No
Nitrogen Dioxide (NO ₂)	annual	0.22	1.0	22	No

^aMicrograms per cubic^bIdaho Air Rules Section 006.102^cCumulative impact analyses are required if maximum modeled concentrations exceed significant contribution levels^dParticulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers^eResults from DEQ verification analysis (rerunning the model using meteorological data previously reviewed by DEQ)

3.5 Results for TAPs Analyses

RTP performed TAPs impact analyses to evaluate compliance with applicable increments for those TAPs having emissions above screening levels of Idaho Air Rules Section 585 and 586. Results of the TAPs impact analyses are provided in Table 8. All impacts were below applicable TAP increments.

Table 8. RESULTS FOR TAP IMPACT ANALYSES

Pollutant	Averaging Period	Modeled Impact (µg/m³)^a	AAC/AACC^b (µg/m³)
Acetaldehyde	Annual	4.01E-2	4.5E-1
Benzene	Annual	7.80E-4	1.2E-1
Cadmium	Annual	<1.0E-4	5.6E-4
formaldehyde	Annual	7.93E-3	7.7E-2

^aMicrograms per cubic meter.^bDefined in Idaho Air Rules Section 585 and 586

4.0 CONCLUSIONS

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the proposed modification will not cause or significantly contribute to a violation of any air quality standard.