Air Quality Permitting

Statement of Basis

June 6, 2007

Tier II Operating Permit and Permit to Construct No. T2-050047

Tamarack Mill, LLC dba Evergreen Forest and Tamarack Energy Partnership, New Meadows

Facility ID No. 003-00001

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AIR QUALITY DIVISION

FINAL

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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
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
^{O}F	degree Fahrenheit
gpm	gallons per minute
HAPs	Hazardous Air Pollutants
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pound per hour
lb/ day	pound per day
MMBtu/hr	million British thermal units per hour
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	Particulate Matter
PM_{10}	Particulate Matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PTC	Permit to Construct
PTE	Potential to Emit
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/yr	Tons per year
ug/m^3	micro grams per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01 Sections 201 and 404.04, Rules for the Control of Air Pollution in Idaho (Rules) for Tier II operating permits and Permits to Construct. This Tier II operating permit and Permit to Construct is to fulfill the requirement of the compliance section of the Tier I operating permit issued on February 6, 2003.

2. FACILITY DESCRIPTION

Evergreen Forests is a sawmill facility in Adams County, Idaho. Tamarack Energy Partnership is a cogeneration facility associated with the sawmill.

The sawmill processes logs into dimensional lumber. All lumber produced is dried and finished in a planer at another facility.

The Tamarack Energy Partnership facility is a topping cycle cogeneration facility. The facility burns wood-waste produced by the Evergreen Forests sawmill to produce steam in a water wall boiler. Steam is piped to a turbine where it drives a generator. The Tamarack Energy facility sells electrical energy to Idaho Power Company.

Tamarack Mill, LLC will be used as the reference to Tamarack Mill, LLC dba Evergreen Forest and Tamarack Energy Partnership.

3. FACILITY / AREA CLASSIFICATION

Tamarack Mill, LLC is defined as a major facility as defined by IDAPA 58.01.01.008.10, because Tamarack Mill, LLC has the potential to emit CO and PM_{10} emissions in amounts greater than 100 tons per year. The AIRS classification is “A”, because the potential to emit of CO is greater than major source levels. The facility is not a major facility as defined by IDAPA 58.01.01.205 and is SM for PSD for PM and PM_{10}.

The facility is located within AQCR 63 and UTM zone 11. The facility is located in Adams County which is designated as unclassifiable for PM_{10} and all other criteria pollutants (CO, NO_X, SO_2, lead, and ozone).

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at Tamarack Mills, LLC. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

Tamarack Mill, LLC has submitted a Tier II/PTC application to fulfill the compliance requirements of their Tier I permit issued on February 6, 2003. These requirements stated that all emission units subject to IDAPA 58.01.01.200, but did not obtain a PTC shall submit a permit application. Tamarack Mill, LLC was required to submit a complete facility-wide permit application to comply with IDAPA 58.01.01.400 through 410. The emission units identified in the issued Tier I operating permit are the log de-barkers, sawmill saws and edger, chipper/hog, planer, kilns, cooling tower, bark and sawdust blow line, chip load-out blow line (now identified as sawdust target box and chip target box), and emergency generator. The planer and kilns were removed from the property after the Tier I operating permit was issued on February 6, 2003. After review of the submitted Tier I Renewal/Tier II application the boiler, sawdust target box, chip target box and the emergency generator were identified as requiring a permit. The log de-barkers, sawmill saws and edger, chipper/hog, cooling tower, and the bark and sawdust blow line are exempt in accordance with IDAPA 58.01.01.220-223.

4.1 Application Chronology

October 21, 2005	DEQ received a Tier II/PTC application.
October 27, 2005	Tier II/PTC application became inactive.
January 11, 2006	Tier II/PTC application became active.
February 10, 2006	DEQ declared the Tier II/PTC application incomplete.
March 18, 2006	DEQ received an updated Tier II/PTC application.
July 12, 2006	DEQ declared the Tier II/PTC application complete.
September 27, 2006	DEQ sent draft Tier II/PTC to regional office for review.
September 27, 2006	DEQ sent draft Tier II/PTC to facility for review.
April 13, 2007	DEQ sent the draft Tier II/PTC to Public Comment.
May 14, 2007	DEQ received comments on draft permit.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this Tier II/PTC permit.

5.1 Equipment Listing

Cogeneration Boiler
Manufacturer: Yanke Energy (Riley on nameplate SN-2772)
Steam Rated capacity: 72,000 lbs
Built: 1951
Remanufactured: 1983
Model: CG-1
Heat capacity: 102 MMBtu/hr
Burner type: Stoker
Stack diameter: 7.25 feet
Stack height: 75 feet
Exit temperature: 156°F
Flow rate: 46,439 acfm
Fuels: bark, sawdust, and chips

Multiclone
Manufacturer: Joy Manufacturing
Model: 9-inch Joy

<u>Wet Scrubber</u>
Manufacturer: Yanke Energy
Model: CG-1 W.S.

Sawdust and Chip Bins (ST 3 & 4)
Manufacturer: Not available
Model: Not available

Emergency Generator for the fire pump
150 Hp, diesel fired

5.2 Emissions Inventory

The following is the complete list of emissions from the permitted sources at Tamarack Mills, LLC.

Table 5.1 EMISSIONS LIMITS

Source Description	PM		PM_{10}		SO_2		NO_X		VOC		CO	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Riley Boiler Stack	18	26	18	26	2.4	10	20.9	88	1.6	6.8	57.6	242
Cooling Tower			0.07	0.29								
Sawdust/Chip Bins	1.33	5.6	0.8	3.2								
Blowpipe to outdoor fuel pile(1)	1.35	4.2	0.38	2.1								
Emergency Generator(2)	0.33	0.83	0.33	0.83	0.31	0.78	4.65	1.16	0.37	0.93	1.0	0.25

[1]Emission factors for this source were submitted by the facility but could not be verified.
[2]Generator emissions are only for the general maintenance program

The cooling tower's HAP emissions for Potassium Hydroxide are 0.014 tons per year and for HCl are 0.0003 tons per year while operating 8600 hours per year. The Potassium Hydroxide and HCl hourly emissions are two orders of magnitude lower than the screening emission level increment of IDAPA58.01.01.585-586.

5.3 Modeling

Modeling was submitted with the application. The modeling was reviewed by DEQ staff and determined to be complete. A full analysis report can be found in Appendix C.

Table 5.2. MODELING RESULTS (Max impact, 1987-1991 met data)

Pollutant	Averaging Period	Modeled Result[a] ($\mu g/m^3$)[b]	Background Concentration ($\mu g/m^3$)	Significant Contribution Levels($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS	Percentage of NAAQS (%)	Remarks for NAAQS & IDAPA 58.01.01.577
PM_{10}	Annual	18.4	9.6	1.0	28.3	50	56	Maximum 1st highest
	24 hour	92.2	43	5.0	135.3	150	90	Highest 2nd highest
NO_x	Annual	8.3	4.3	1.0	12.6	100	13	Maximum 1st highest
CO	1-hour	932		2000	*	40,000	*	Highest 2nd highest
	8-hour	251		500	*	10,000	*	Highest 2nd highest
SO_2	Annual	0.95	8	1	9.0	80	11	Maximum 1st highest
	24 hr	4.97	26	5	31.0	365	8.5	Highest 2nd highest
	3 hr	17.2	34	25	51.2	1300	4	Highest 2nd highest

a. These are highest predicted concentrations (1st highest) from 1987 to 1991, the second highest were not used. See remarks in the table. The modeling results obtained by CJ Environmental
b. Micrograms per cubic meter
* The predicted values of CO contribution is less than SCL, so it is not required to compare the total concentrations to the NAAQS or IDAPA

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this Tier II and PTC.

IDAPA 58.01.01.200-223 .....Procedures and Requirements for Permits to Construct

Tamarack Mills, LLC is a Tier I source. The Tier I operating permit issued to Tamarack Mills, LLC required application information to address the applicable PTC requirements in IDAPA 58.01.01.200 through 223 for those sources for which the permittee was required to, but did not obtain a PTC.

IDAPA 58.01.01.400 to 410……Procedures and Requirements for Tier II Operating Permits

Tamaracks Mills, LLC's Tier I operating permit condition 6.2 required a complete facility-wide permit that complied with IDAPA 58.01.01400-410.

5.5 Fee Review

The fees for a Tier II operating permit are determined subject to the amount of annual permitted emissions. IDAPA 58.01.01.407.01 indicates that stationary sources or facilities with permitted emissions of one hundred (100) tons or more per year required a fee of $10,000.

Table 5.2 TIER II PROCESSING FEE SUMMARY

Emissions Inventory	
Pollutant	**Permitted Emissions**
NO_X	88
SO_2	10
CO	242
PM_{10}	77.4
VOC	6.8
TAPS/HAPS	0.0
Total:	376
Fee Due	**$ 10,000.00**

Tamarack Mills, LLC is a Tier I source. Tamarack Mills, LLC produces CO emissions greater than 100 tons per year. The annual fees for Tamarack Mills, LLC will be determined in accordance with IDAPA 58.01.01.387 through 393.

6. PERMIT CONDITIONS

This section lists permit conditions that are written for the Tier II/PTC limits, operations, monitoring, recordkeeping, and testing.

6.1 Permit Conditions 3.3 and 3.4 limit the PM, PM_{10}, and CO emissions from the boiler exhaust stack. PM is limited to meet the fuel burning equipment grain loading standard contained in Section 676. PM_{10} is limited to protect the 24-hr and annual PM_{10} NAAQS. PM_{10} and CO are limited to retain the facility's minor source PSD status.

Compliance with the PM, PM_{10} and CO emissions limits of Permit Condition 3.3 and 3.4 shall be demonstrated through performance testing required by Permit Conditions 3.11 and 3.12.

6.2 Permit Condition 3.5 requires that only wood waste be fired by the boiler.

6.3 Permit Condition 3.6 restricts the boiler's production rate to 619.2 million pounds of steam per any consecutive 12-month period.

Compliance with Permit Condition 3.6 is demonstrated by Permit Condition 3.8, which requires the monitoring and recording of the boiler's steam production.

6.4 Permit Condition 3.7 requires that the permittee install equipment to continuously measure the pressure drop across the wet scrubber and the scrubbing media flow rate to the wet scrubber.

6.5 Permit Condition 3.9 requires the permittee to monitor and record the pressure drop and scrubbing media flow rate.

6.6 Permit Condition 3.10 requires the permittee to develop an O&M manual for the scrubber based on manufacturer's specifications and recommendations.

6.7 Permit Conditions 3.11 and 3.12 require that the permittee conduct PM, PM_{10} and CO performance tests to demonstrate compliance with Permit Conditions 3.3 and 3.4.

6.8 Permit Conditions 4.3 and 4.4 were determined by the throughput of the facility and the quantity of sawdust and chips usually generated from the amount of throughput. Compliance with these conditions is based on the recording of the annual amount of lumber (board feet) produced at the facility (Permit Condition 4.5) and the established limit of the throughput (Permit Condition 4.4). The recorded throughput will demonstrate compliance with Permit Condition 4.3.

6.9 Permit Condition 5.3 limits the sulfur content in the fuel oil used by the emergency generator. Compliance with Permit Condition 5.3 shall be demonstrated with Permit Condition 5.5.

6.10 Permit Condition 5.4 limits the hours per consecutive 12-month period to 500 hours. Compliance with Permit Condition 5.4 shall be demonstrated with Permit Condition 5.6.

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

A draft permit was sent to the Boise Regional Office on September 27, 2006. No comments were received.

7.2 Facility Review of Draft Permit

A draft permit was sent to the facility for review on September 27, 2006. Comment were received and addressed.

7.3 Public Comment

A public comment period on the proposed Tier II operating permit and application materials was provided from April 13, 2007 to May 14, 2007, in accordance with IDAPA 58.01.01.209.01.c. A copy of the comments and responses can be found in the Response to Public Comments for this Permit.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that DEQ issue final Tier II Operating Permit and Permit to Construct No. T2-050047 to Tamarack Mill, LLC dba Evergreen Forests and Tamarack Energy Partnership. The project does not involve PSD requirements.

REB/sd Permit No. T2-050047

APPENDIX A

AIRS INFORMATION

T2-050047

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Tamarack Mills
Facility Location: New Meadows
AIRS Number: 003-000001

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	B							U
NO_x	B							U
CO	A						A	U
PM_{10}	SM	SM					SM	U
PT (Particulate)	SM	SM					SM	U
VOC	B							U
THAP (Total HAPs)	B							U
			APPLICABLE SUBPART					

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, **or** each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

APPENDIX B

EMISSIONS INVENTORY

T2-050047

Table 5.1 EMISSIONS INVENTORY

Source Description	PM		PM_{10}		SO_2		NO_X		VOC		CO	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Riley Boiler Stack	18	77.4	18	77.4	2.4	10	20.9	88	1.6	6.8	57.6	242
Cooling Tower			0.07	0.29								
Sawdust/Chip Bins	1.33	5.6	0.8	3.2								
Blowpipe to outdoor fuel pile[(1)]	1.35	4.2	0.38	2.1								
Emergency Generator[(2)]	0.33	0.83	0.33	0.83	0.31	0.78	4.65	0.16	0.37	0.93	1.0	0.25

[1]Emission factors for this source were submitted by the facility but could not be verified.
[2]Generator emissions are only for the general maintenance program, based on maximum of 500 hours per year.

APPENDIX C

MODELING

T2-050047

M E M O R A N D U M

DATE: February 7, 2006

TO: Robert Baldwin, Air Program Division

FROM: Yayi Dong, Technical Services

PROJECT NUMBER: T2-050047

SUBJECT: Modeling Review for the air permit application for the concurrent PTC/Tier 2 and Tier 1 renewal, submitted by Tamarack Mill LLC, Dba Evergreen Forest, Tamarack, Idaho.

1.0 SUMMARY

Tamarack Mill LLC, Dba Evergreen submitted a application for the concurrent PTC/Tier 2 and Tier 1 renewal. The facility is a wood products industry dimensional lumber mill, located in Tamarack, Adam County, Idaho. This airshed is considered to be in attainment/unclassified for all federal and state criteria pollutants. The site contains three main parts: Evergreen Forest Facility, Tamarack Energy partnership (TEP) facility and Fueling Operations Facility. The products include green lumber from logs and electricity from burning wood waste. The emissions include PM_{10}, SO_2, NO_2 , CO and TAPs. This is an existing facility established before 1995, and TAP emissions have not increased since the original permit was issued, therefore a TAP analysis is not required for this renewal. More details are described in section 3.2.

The facility is classified as a major facility, in accordance with IDAPA 58.01.01.008.10, for Tier I permitting purpose (actual or potential emission over 100 tons/year). The facility is not a major facility (less 250 tons/year) as defined in IDAPA 58.01.01.006.55, and not subject to PSD permitting requirement. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the facility were submitted in support of a permit application to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02). CJ Environmental conducted the ambient air quality analyses.

A technical review of the submitted air quality analyses was conducted by DEQ. The submitted modeling analyses in combination with DEQ's staff analyses: 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 that predicted pollutant concentrations from emissions associated with the proposed facility, when appropriately combined with background concentrations, were below applicable air quality standards at all receptor locations. Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY ASSUMPTIONS/RESULTS FROM MODELING ANALYSES	
Assumption/Result	**Explanation/Consideration**
The site was determined to be in rural area	Auer's (1978) land-use classification method was applied. More than 50 percent of the land use within three kilometers around the proposed facility appears to be rural.
Criteria pollutants PM_{10}, SO_2, NO_2 and CO were analyzed. TAP modeling is not required because there is no increase.	The emissions of these pollutants are above the Significant Contribution levels (SCL). TAP modeling is not required because there is no emission increase.
Fugitive dust from site roadways and storage piles is not modeled	Emissions from roadways and storage piles are excluded from most DEQ modeling analyses because it is assumed reasonable control measures will be utilized, reducing emission to negligible level.
Facility-wide NAAQS compliance was demonstrated to the satisfaction of the Department.	The modeling results showed predicted criteria pollutant concentrations at all receptor locations, when appropriately combined with background concentrations, were below stated air quality standards.

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

Tamarack Mill LLC, Dba Evergreen is located on highway 95 in Adams County, ID, which is designated unclassifiable area for all federal and state criteria pollutants: sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), and particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}). There are no Class I areas within 10 kilometers of the facility.

2.1.2 Significant and Full Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the proposed modification exceed the "significant contribution" levels (SCLs) of IDAPA 58.01.01.006.93, then a full impact analysis is necessary to demonstrate compliance with IDAPA 58.01.01.203.02. A full impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location. The resulting maximum pollutant concentrations in ambient air are then compared to the National Ambient Air Quality Standards (NAAQS).

2.1.3 Toxic Air Pollutant Impact Analysis

Toxic Air Pollutant (TAP) requirements for PTCs are specified in IDAPA 58.01.01.210. If the net emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of IDAPA 58.01.01.585 and IDAPA 58.01.01.586, 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 IDAPA 58.01.01.585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of IDAPA 58.01.01.586, then compliance with TAP requirements has been demonstrated.

2.1.4 <u>Applicable Air Quality Impact Limits</u>

The applicable regulatory limits are presented in Table 2.

Table 2. APPLICABLE REGULATORY LIMITS				
POLLUTANT	**Averaging Period**	**Significant Contribution Levels[a] ($\mu g/m^3$) [b]**	**Regulatory Limit[c] ($\mu g/m^3$)**	**Modeled Value Used[d]**
Criteria Pollutants				
PM_{10}[e]	Annual	1	50[f]	Maximum 1st highest
	24-hour	5	150[g]	Highest 2nd highest
CO	8-hour	500	10,000[h]	Highest 2nd highest
	1-hour	2000	40,000[h]	Highest 2nd highest
SO_2	Annual	1	80[h]	Maximum 1st highest
	24-hour	5	365[h]	Highest 2nd highest
	3-hour	25	1,300[h]	Highest 2nd highest
NO_2	Annual	1	100[f]	Maximum 1st highest

[a]IDAPA 58.01.01.006.90
[b]Micrograms per cubic meter
[c]IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants
[d]The maximum 1st highest modeled value is always used for significant impact analysis and for all toxic air pollutants. Concentration at any modeled receptor.
[e]Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f]Never expected to be exceeded in any calendar year.
[g]Never expected to be exceeded more than once in any calendar year.
[h]Not to be exceeded more than once per year.

2.2 Background Concentrations

Ambient background concentrations were revised for all areas of Idaho by DEQ in March 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. Background concentrations used in these analyses are listed in Table 3. Background concentrations for this project were determined by DEQ.

Table 3. BACKGROUND CONCENTRATIONS		
Pollutant	**Averaging Period**	**Background Concentration ($\mu g/m^3$)[a]**
PM_{10}[b]	24-hour	43
	Annual	9.6
NO_2[c]	Annual	4.3
SO_2[e]	3-hour	34
	24-hour	26
	Annual	8

[a.]Micrograms per cubic meter
[p]Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

1 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

3.0 MODELING IMPACT ASSESSMENT

3.1 Modeling Methodology

Table 4 provides a summary of the modeling parameters used in the CJ Environmental's modeling analyses.

Table 4. MODELING PARAMETERS		
Parameter	*Description/Values*	*Documentation/Additional Description*
Model	ISCST3	Bee-Line software BEEST 9.50.
Meteorological data	Boise Surface and Upper Air Data	1987 through 1991, with 45° rotation of wind direction to correspond with the terrain effect.
Model options	Regulatory Default	
Land use	Rural	Population density in area is not sufficient for urban classification, and there is a large fraction of unimproved land within three kilometers
Terrain	Modeled	USGS 7.5-degree DEM data
Building downwash	Included	Default Schulman-Scire downwash algorithm. Prime downwash is not employed because the only point source has only intermittent exposure, the building cavity does not extend nearly to the ambient air boundary.
Receptor grid	Grid 1, 25-meter spacing along boundary and out to 100 meters	IDEQ modeling guidance.
	Grid 2, 50-meter spacing in a 500x500 meter grid centered on the source.	
	Grid 3, 100-meter spacing in a 1x1 kilometer grid centered on the source.	
	Grid 4, 500-metr spacing in 5x5 kilometer centered on the source	
Facility location (UTM)[a] Zone 11	Easting 548.400E	kilometers
	Northing 4977.950N	kilometers

[a]Universal Transverse Mercator

3.1.1 Modeling Approach and Review

The facility wide emissions of criteria pollutants were modeled to evaluate compliance with Permit to Construct (PTC) regulations. DEQ reviewed the modeling report and model input-out files, but did not conduct an independent assessment of the analyses by rerunning the model.

3.1.2 Modeling protocol

A modeling protocol was not submitted to DEQ prior to submission of the application. Written and verbal consultations with DEQ (Kevin Schilling, modeling coordinator) occurred through out the process.

3.1.3 Model Selection

The most recent version of ISCST3 was used for the analyses. DEQ determined use of this model is appropriate.

3.1.4 Land Use Classification

The land in the vicinity of the facility and across the model domain is generally open and features virtually no development. Therefore rural dispersion coefficients were used in the modeling analyses.

3.1.5 Meteorological Data

Surface and upper air meteorological data were collected from Boise airport by the National Weather Service and available from EPA. Five year data from 1987 through 1991were used in the analyses. The wind directions were rotated 45° to correspond with the terrain forcing up and down the relatively narrow valley.

PCRAMMET, the meteorological data preprocessor for ISCST-3, occasionally generates unrealistically-low mixing heights as a result of interpolation algorithms used with the twice daily measured mixing heights. Modeling was conducted using meteorological data corrected for low mixing heights. All mixing height values below 50 meters were replaced with a value of 50 meters.

3.1.6 Simple and Complex Terrain

The elevations in model were calculated from USGS 7.5-degree DEM data.

3.1.7 Facility Layout and Ambient Air Boundary

The map and layout of the facility were provided by Tamarack Mill LLC, Dba Evergreen. The modeling maps produced from BEEST software were included in the modeling report.

3.1.8 Building Downwash

Default Schulman-Scire downwash algorithm. Prime downwash is not employed because the only point source has only intermittent exposure, the building cavity does not extend nearly to the ambient air boundary.

3.1.9 Receptor Network

Following the DEQ modeling guidance, the following grid metwork was used: 25-meter receptor spacing along the facility ambient air boundary, 50-meter spacing for a 0.5 by 0.5-kilometer grid centered on the emission source, 250-meter spacing for a 1 by 1-kilometer grid centered on the emission source, and 500-meter spacing for a 5 by 5 kilometer grid centered on the source. DEQ determined this receptor network was adequate to reasonably resolve the maximum modeled concentrations.

3.2 Emission data

The facility sources included in the modeling are two point sources, seven area sources (emission from ST1 is zero and was not modeled) and four volume sources. The emission rates and source parameters are listed in the Table 5. TAPs were not included on that list because the boiler and the facility have long been operating and the TAP emissions have not increased. Limits on boiler operation have not changed from earlier permits, nor are they understood to have changed since the IDAPA limits on increases of TAP emissions were implemented in the 1990s. Total facility TAP emissions are probably down from historic levels with the removal of the dry kilns since 2000. Therefore, no TAP impact analysis is required because there has not been any increase in allowable TAP emissions to drive such a requirement.

Table 5, Emission rates and stack parameters

Pointer sources

Source ID	Source Description	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	PM10	NO2	SO2	CO
		(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
BOILER	Boiler	548411.6	4977936	1265.9	22.6	342.0	5.7	2.2	18.0	20.9	2.38	57.6
CLTWR	Cooling tower	548434.8	4977874	1265.7	9.1	302.6	4.5	4.9	0.068			

Area Sources

Source ID	Source Description	Easting (X)	Northing (Y)	Base Elevation	Release Height	Easterly Length	Northerly Length	Angle from North	Vertical Dimension	PM10
		(m)	(m)	(m)	(m)	(m)	(m)		(m)	(lb/hr)
BLOWPPIL	Blowpipe to stockpile	548290	4977920	1270.4	7.01	0.91	4.57	0	1.52	0.74
TR3	Transfer of mill cleanup	548331	4977913	1270.4	2.74	2.74	6.1	0	3.35	4.68E-06
TR4	Fuel trucked in	548331	4977926	1267.8	2.74	2.74	7.62	0	3.35	5.58E-05
TR5	Ash pile transfer	548375	4977988	1265.8	1.52	2.44	1.83	0	2.44	0.0277
TR6	Truck transfer to Potlatch	548430	4978082	1271.7	4.27	3.05	12.19	-20	0.91	0.88
ST1*	Lumber Storage	548750	4977675	1251.1	3.04	60.8	577.6	-16	6.1	0.00
ST2	Outdoor storage pile	548190	4977839	1271.9	4.57	137.16	137.16	0	7.32	2.035109
P4	Proposed target box	548335	4977974	1268.4	1.83	1.52	1.52	0	1.52	0.316997

Volume sources

Source ID	Source Description	Easting (X)	Northing (Y)	Base Elevation	Release Height	Horizontal Dimension	Vertical Dimension	PM10
		(m)	(m)	(m)	(m)	(m)	(m)	(lb/hr)
TKBINS	Chip and sawdust bins	548429.6	4978088	1259.8	10.67	3.54	5.1	1.145
TR1	Conveyor to stockpile	548385	4977988	1265.1	3.05	1.42	0.71	4.57E-05
DEBARK	Debarkers	548383	4977999	1265.2	1.83	1.42	0.71	0.289
HOG	Hog	548383	4977995	1265.2	1.52	1.42	0.71	0.051

* This source is not modeled, the emission rate is zero.

3.3 Results

3.3.1 Significant Impact Analysis

This section describes dispersion modeling results for PM_{10}, SO_2, NO_2 and CO. Table 6 summarizes the results from the analyses.

Table 6. Modeling Results (Max impact, 1987-1991 met data)

Pollutant	Averaging Period	Modeled Result[a] (μg/m^3)[b]	Background Concentration (μg/m^3)	Significant Contribution Levels	Total Concentration (μg/m^3)	NAAQS/IDAPA 58.01.01.586	Percentage of NAAQS (%)	Remarks for NAAQS & IDAPA 58.01.01.577
PM10	Annual	18.4	9.6	1.0	28.3	50	56	Maximum 1st highest
	24 hour	92.2	43	5.0	135.3	150	90	Highest 2nd highest
NO_x	Annual	8.3	4.3	1.0	12.6	100	13	Maximum 1st highest
CO	1-hour	932		2000	*	40,000	*	Highest 2nd highest
	8-hour	251		500	*	10,000	*	Highest 2nd highest
SO_2	Annual	0.95	8	1	9.0	80	11	Maximum 1st highest
	24 hr	4.97	26	5	31.0	365	8.5	Highest 2nd highest
	3 hr	17.2	34	25	51.2	1300	4	Highest 2nd highest

a. These are highest predicted concentrations (1st highest) from 1987 to 1991, the second highest were not used. See remarks in the table. The modeling results obtained by CJ Environmental

b. Micrograms per cubic meter

* The predicted values of CO contribution is less than SCL, so it is not required to compare the total concentrations to the NAAQS or IDAPA

4.0 CONCLUSIONS

Dispersion modeling of the proposed permit, conducted by the applicant, demonstrated to the satisfaction of DEQ that the proposed Tamarack Mills Tier II/PTC permit will not cause or significantly contribute to a violation of any ambient air quality standard.