✓# 29729 $1,000.00
T5

EVERGREEN FOREST
Drawer H • New Meadows, Idaho • 83654
Phone: (208) 347-2111

June 10, 2013

Idaho Department of Environmental Quality
Air Quality Program Office – Application Processing
1410 N. Hilton
Boise, ID 83706-1255

RE: Application for a Air Quality Permit for Construct Modification for the addition of three additional Wellons Lumber Dry Kilns at the Tamarack Mill / Evergreen Forest facility in Tamarack, Idaho, with 15-day Pre-Permit Construction Approval requested

Idaho DEQ:

This package provides the Tamarack / Evergreen application for a Permit To Construct (PTC) modification for the addition of three additional Wellons lumber dry kilns at the Tamarack / Evergreen facility in Tamarack, Idaho, consistent with the requirements in our current Permit To Construct (PTC) and IDAPA 58.01.01.200 -230 and IDEQ PTC and 15-Day Pre-Permit Construction Approval Guidance. To meet IDEQ Pre-Permit Construction Approval requirements associated with the required informational meeting, which we have scheduled for June 24, we ask that this application be entered into the IDEQ system on June 14, or upon receipt if later than that.

One printed copy and two electronic copies of the PTC application are enclosed, exceeding the recommendation by IDEQ Air Permits manager William Rogers on June 6 to meet IDEQ requirements for permit and air quality modeling review. The check for the permit processing fee is also enclosed. Electronic copies of all files needed to review and duplicate the modeling prepared to support the permit application are included on both CDs, so that the CDs represent copies of the entire application including the required electronic files to duplicate the modeling analyses. This application was prepared consistent with the guidance from IDEQ.

Pre-application interaction with IDEQ included discussions meeting the pre-application meeting requirement with IDEQ Air Permitting Program Manager William Rogers, receiving IDEQ written approval for the modeling protocol, and discussions with IDEQ to ensure a complete and effective permit application. Aggressive efforts have been taken to provide a thorough application, including verifying IDEQ recommendations to minimize the chances of an incompleteness determination. Those efforts are reflected in this permit application. Appendix E of the application includes an IDEQ 15-Day Pre-Construction Approval Request Permit Application Checklist documenting the location within the application of all required information. Our certification of Truth, Accuracy, and Completeness is included on form GI in Appendix A of the application.

We look forward to the 15 day Pre-permit Construction Approval the application justifies, and a completeness determination IDEQ guidance Indicates that we can expect within 30 days of submittal. We have tried to provide an application thorough enough to ensure that it is determined complete. We will follow up this application by promptly providing any information IDEQ verifies during review is necessary to support it. Any technical follow-up inquiries should be directed to our environmental contact, Chris Johnson, at 628-4036.

Thank you.

Sincerely,

Mark Krogh
Plant Superintendent

Tamarack Mills / Evergreen Forest

Permit to Construct Modification Application
With Request for Pre-Permit Construction Approval

For:

Addition of Three Wellons Lumber Dry Kilns

Submitted to:
Idaho Department of Environmental Quality
Air Quality Division
1410 N. Hilton
Boise, Idaho 83706

June 14, 2013

Table of Contents

Introduction

This Permit-to-Construct modification application is being submitted by Tamarack Mills (dba Evergreen Forest) to justify the installation and operation of three more Wellons dry kilns, in addition to the three existing Wellons dry kilns, at its Tamarack, ID facility, along with our request for a Permit To Construct, and Pre-Permit Construction Approval for the project.

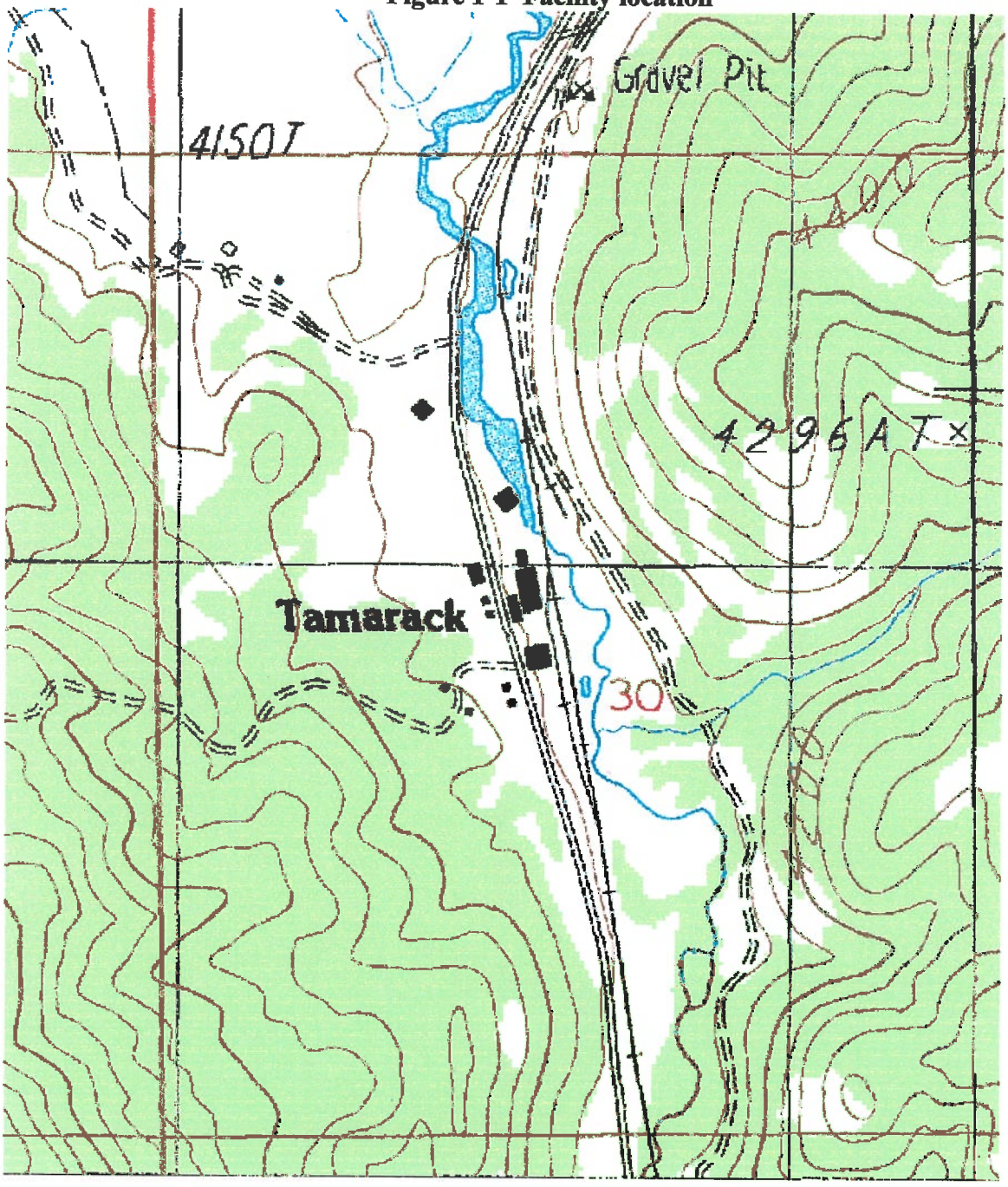
The facility has current a Tier I Operating Permit (T1-050009) and a PTC permit (P-2009.0064) that authorizes current and ongoing operations at the facility including operating a sawmill and a wood-fired boiler. The PTC has one error; it includes a boiler CO source test requirement that was sunset per the facility's 2007 source test and the Tier 1 permit condition 3.13. We ask that this proposed action correct that by removing references to CO source testing. The proposed action would be to add three lumber dry kilns on the east central area of the facility, east of Hwy b95 and north of the existing three lumber dry kilns. There would be no changes to existing permitted facility process flow, potential to emit (PTE) and actual emissions associated with the proposed action other than splitting the existing cumulative kiln throughput limit over six kilns rather than the existing three kilns. All proposed changes are discussed in detail in Sections 2 (Process Flow Diagram) and/or Section 4 (Emission Inventory) of this application. Air quality modeling performed in support of the application, consistent with an IDEQ-approved modeling protocol, demonstrates compliance with the National Ambient Air Quality Standards for criteria pollutant and Idaho Toxic Air Pollutants acceptable ambient concentrations set forth in IDAPA 58.01.01.585 and 586. Toxic Air Pollutant Reasonably Available Control Technology (T-RACT) is not applied here, though we have justified T-RACT for the facility's kilns in our 2009 PTC application which IDEQ approved. This application includes a request for Pre-Permit Construction Approval consistent with IDAPA 58.012.01.213 and the IDEQ Pre-Permit Construction Approval Guidance Document. The proposed action qualifies for pre-permit construction approval consistent with IDAPA 58.01.01.213.01 because the emission inventory in Section 4 (and Appendix D) shows that the proposed action represents a minor modification. Appendix F includes a copy of the two IDEQ completeness checklists for this type of application, documenting how all application completeness requirements have been met.

The facility Emission Inventory (Tables 4-1 and 4-2 and in more detail in Appendix D) shows that facility-wide emissions are well below the 250 ton per year criteria pollutant major source category threshold for this non-designated facility, and below the 100 ton per year threshold for Title V major sources. Our emission estimates show potential HAP emissions are safely below the HAP major source threshold. If IDEQ review indicates potential HAP emissions approach HAP major source thresholds, we would request permit conditions requiring that HAP emissions remain below the HAP major source threshold, and requiring tracking of actual rolling 12 month HAP emissions to verify compliance with those HAP emission limits. Therefore, this proposed action will not change the classification of the facility from its current status as a Title V source which is not a PSD facility and is not a major source of HAPs,. As such, the facility is eligible for the Pre-Permit Construction process being requested here. If IDEQ review indicates T-RACT is needed for TAP compliance demonstrations, an update to the 2009 T-RACT demonstration for this facility will be promptly provided.

Project Location

The Tamarack / Evergreen facility is located approximately 7 road miles SW of New Meadows, Idaho on US95. The facility operations are centered around 44.955 ° North latitude and 116.385° West longitude and can be found on the Tamarack, 7.5 minute, United States Geological Survey (USGS) Topographic Map. Figure 1-1 shows the location of the facility on the USGS topographic map. Sections 6 and 7 provide a more detailed description of the facility property and ambient air boundary.

Figure 1-1 Facility location



1.0 Application Forms and Checklists

All forms required to support this PTC application are provided in electronic format on the submittal disk in the directory 0513 Permit Forms. That directory includes a checklist verifying all required forms.

Copies of the 15 day IDEQ Pre-Permit Construction Approval Checklist and the TAP Pre-Construction Compliance Application Checklist are included in Appendix E, along with text showing how each requirement in each checklist is met by this application.

2.0 Process Description

Overview / Historic and Currently Permitted

The facility, as currently permitted, includes a boiler, three lumber dry kilns, a log yard, a sawmill, a lumber yard, and wood by-product handling processes involved in managing sawdust, chips, and wood by-products to fuel the facility boiler or for sale. Those processes have been described for the facility's Tier I and PTC combination permits. The flow diagram in the next section shows the processes involved in taking in raw logs, debarking them, cutting them into lumber, processing the wood by-products generated (bark, green chips and shavings, and sawdust into salable products or boiler fuel, and burning that fuel in the boiler to generate steam that is used primarily for energy generation and secondarily for drying lumber in facility dry kilns. The facility's finished product is kiln dried lumber. That lumber is shipped offsite to be planed and packaged for market. As such, the only dried wood product onsite is the kiln dried lumber that is processed and finished offsite. All onsite cutting or processes that generate any wood by-products operate on wood with an average moisture content of 40% or higher, "green" wood..

Proposed Action

Lumber cut at the facility sawmill has been shipped offsite for final planing and market prep since the first three Wellons kilns were installed starting in 2009. All wood sawn or otherwise worked on onsite is green lumber, with an average moisture content of 40% or higher.. The proposed action is to add three more lumber dry kilns at the facility, on the east side of US95 just north of the three existing lumber dry kilns, using steam currently wasted from boiler operation to dry the lumber cut at the sawmill onsite. We do not propose any change in cumulative allowable kiln throughput or emissions facility-wide, only to have more lumber dry kilns available to process the same cumulative allowable throughput (76.02 MMbf/yr).. The dry kilns would be located conveniently alongside the lumber storage area in near proximity to where the lumber leaves the sawmill. The new kilns would be three Wellons double track models, similar or identical to the existing three lumber dry kilns. Green lumber would be brought into the kilns along new local tracks extending a short distance before and beyond the kilns. Steam heat would be supplied by overhead steam lines from the facility's Yanke boiler. The steam would be contained in lines, and used to generate dry heat in the kilns. The lumber would remain in the kilns until automated controls reduced the lumbers moisture content to desired levels near 14%. The dried lumber would continue to be shipped offsite for finishing and market prep. No sawing or other working of wood that would generate air emissions is or would be performed on any dried wood. The drying onsite would result in a significant reduction of the weight of the lumber because of the reduction in the lumber's moisture content. There would be little short term increase in kiln drying because the kiln drying is limited by the rate at which the sawmill produces the wood, not by kiln capacity or steam availability. Kiln throughputs are based upon maximum sawmill lumber generation capacity.

No existing processes would be changed, nor would there be any increase in potential emissions at any existing permitted facility process. No additional fuel will be burnt for the kiln steam; the steam for the dry kilns would be taken after it passes through the electrical generation process so

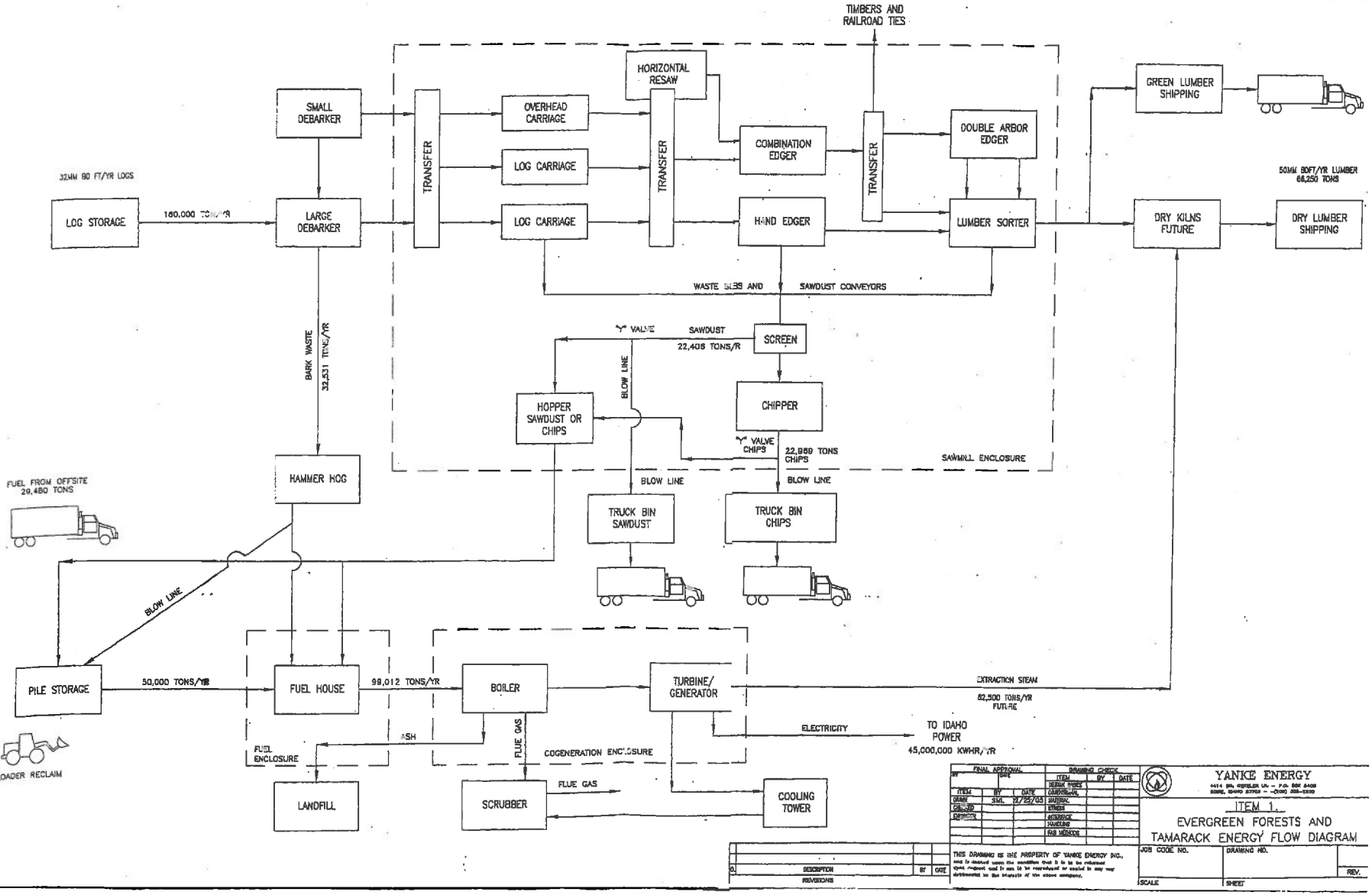
would represent a use of a previously unused asset. With no changes in the boiler fuel demand or sawmill cutting capacity, there would be no change in any wood by-product throughput.

3.0 Process Flow Diagram

The process flow figure shows the facility process flow. This process flow diagram is unchanged from that used to support the facility Tier I and 2009 PTC permit applications. The proposed action represents the installation of the 3 more lumber dry kilns to the existing three lumber dry kilns (listed as future in the process flow diagram), sharing the same annual throughput already permitted, which is limited by sawmill lumber generation capacity.

ITEM 1.

EVERGREEN FORESTS AND TAMARACK ENERGY FLOW DIAGRAM



FINAL APPROVAL			DRAWING CHECK		
BY	DATE		ITEM	BY	DATE
			DESIGN WORK		
ITEM	BY	DATE	CARTOGRAPHIC		
DRAW	SML	12/25/05	MATERIAL		
CHECKED			ETHICS		
APPROVED			ACCURACY		
			HANDLING		
			R&B MEMBERS		

NO.	DESCRIPTION REVISIONS	BY	DATE

THIS DRAWING IS THE PROPERTY OF YANKE ENERGY INC., and is received upon the condition that it is to be returned upon request, and is not to be reproduced or copied in any way detrimental to the interests of the above company.

YANKE ENERGY

4414 5th AVENUE W. – P.O. BOX 8408
BOISE, IDAHO 83703 – (208) 888-3300

ITEM 1.
EVERGREEN FORESTS AND TAMARACK ENERGY FLOW DIAGRAM

JOB CODE NO.	DRAWING NO.	REV.
SCALE	SHEET	

4.0 Applicable Regulatory Requirements

In preparing and submitting this application, Tamarack has evaluated the applicability of state and Federal regulations to the facility.

4.1 GREENHOUSE GAS TAILORING RULE

Since the initial Tier I permit was issued, EPA promulgated new regulations related to greenhouse gas emissions. In addition to requirements to monitor and report annual greenhouse gas emissions, EPA established thresholds that determine whether greenhouse gas emissions trigger applicability of the major source status under Title V or EPA's preconstruction permitting program. In both cases, EPA established that greenhouse gas emissions of 100,000 tons or more would make a facility "major" for Title V and for new source review.

Although Tamarack's wood-fired boiler generates greenhouse gases, those emissions are considered biogenic and are ignored when evaluating applicability of the PSD or Title V pelmit programs. Consequently, the Tamarack facility is not a major source with respect to New Source Review.

EPA also has established that greenhouse gas monitoring and reporting requirements are not applicable requirements with respect to the Title V air operating permit program.

4.2 EMERGENCY FIRE PUMP ENGINE

The facility permit, T1-2007.0161, limits the generator to 500 hours operation per year in Section 5.1, with recordkeeping requirements in section 5.4. Section 2.7 of the permit and IDAPA 58.01.01.625 limit opacity to no more than three aggregated minutes over a 60 minute period over 20% over any six minute period. Section 5.2 limits sulfur in fuel to less than 0.5% sulfur, with monitoring and recordkeeping requirements in 5.3.

The EPA has established two rules that regulate exhaust gases from compression ignition internal combustion engines: National Emission Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engine Requirements Subpart ZZZZ ("NESHAP Subpart ZZZZ") and New Source Performance Standards: Stationary Compression Ignition Internal Combustion Engine Requirements Subpart IIII ("NSPS Subpart IIII") in 40 CFR 63 and 40 CFR 60, respectively. These rules were developed to limit previously unregulated engines to the same standards established for comparable non-road and marine engines. NSPS Subpart IIII limits emissions of criteria pollutants from new stationary diesel internal combustion engines. Tamarack's diesel-fired fire pump engine has a maximum power capacity of 150 horsepower (hp). Due to its age, the fire pump engine is not subject to NSPS Subpart IIII.

NESHAP ZZZZ applies to new and existing, spark and compression ignition engines located at major and area sources of hazardous air pollutants (HAP). Engines located at major sources of HAP are subject to standards determined by maximum achievable control technology, whereas engines located at area sources are subject to generally achievable control technology (GACT). The Tamarack facility is an area source with respect to HAP because its potential emissions are less than 10 tons per year (tpy) of a single HAP and

existing stationary engine under 300 hp located at an area source of HAP and must comply with the following requirements:

- The engine identified above must comply with the applicable requirements of NESHAP ZZZZ before May 3rd, 2013. [40 CFR 63.6595(a)]. Onsite documentation verifies our compliance
- The permittee shall change the oil and filter every 500 hours of operation or annually, whichever comes first or at a frequency determined by an oil sample and analysis program as follows:
    - Sample and analyze the oil annually or every 500 hours of operation, whichever comes first to determine total base number, viscosity and water content by volume.
    - If one or more of the following condemning limits for these parameters is exceeded then the permittee is required to change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation then the pe1mittee must change the oil within 2 days of receiving the results or before commencing operation, whichever is later.
        - Total Base Number is less than 30% of the Total Base Number when the oil is new.
        - Viscosity of the oil has changed by more than 20% from the viscosity of the oil when new.
        - Percent Water Content (by volume) is greater than 0.5.
    - The permittee must keep records of the oil analysis results and the oil and filter changes for the engine. [40 CFR 63.6603 Table 2d, 63.6625(i)]
- The permittee shall inspect air cleaners every 1,000 hours of operation or annually, whichever comes first. [40 CFR 63.6603 Table 2d]
- The permittee shall inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary. [40 CFR 63.6603 Table 2d]
- The permittee must operate and maintain the stationary RICE according to the manufacturer's emission-related written instructions or develop their own maintenance plan which must ensure, to the extent practicable, the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 63.6625(e)]
- The permittee must minimize the engine's time spent at idle and at startup to a period needed for appropriate and safe loading, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR 63.6625(h)]
- The permittee must be in compliance with the preceding management practice standards at all times as well as maintaining and operating any affected source in a manner consistent with safety and good air pollution control. [40 CFR 63.6605(a-b)]
- The permittee must demonstrate compliance with the preceding management practice standards by operating and maintaining the stationary RICE according to the manufacturer's emission-related instructions or by developing and following their own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice. [40 CFR 63.6640(a), Table 6]
- The permittee must report each instance of deviation from the management practice standards. [40 CFR 63.6640(b)]

- Each instance in which the unit did not meet the requirements of the applicable general provisions listed in Table 8 of this subpart must be recorded. [40 CFR 63.6640(e)]
- If the permittee follows their own maintenance plan rather than the manufacturer's written instructions they must keep records of maintenance conducted on the stationary RICE. [40 CFR 63.6655(e)]
- The permittee is subject to the General Requirements provided in Table 8 except for the notification requirements of63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), and 63.9(b)-(e), (g) and (h). [40 CFR 63.6665, 63.6645(a)(5)]

4.3 BOILER

Table 4-1 contains a summary of the requirements that apply to the Yanke Energy Hog Fuel Boiler, BOILER.

Table 4-1 Boiler Applicable Regulations Summary

Citation	Requirement	Monitoring and Recordkeeping Requirements	Reporting Requirement
Tier 1 T1-2007.0161	PM_{10} emissions do not exceed 432 lbs/day or 77.4 tons/yr	Tier 1 T1-2007.0161 2.10, 2.11, 2.13, 3.9 - 3.14	Tier 1 T1-007.0161 2.10, 2.11, 2.13, 3.9 - 3.14, 40CFR64.9
Tier 1 T1-2007.0161 3.2	CO emissions do not exceed 57.6 lbs/hr and 242 tons per year	Tier 1 T1-2007.0161 2.10 2.11, 3.9 - 3.14	Tier 1 T1-2007.0161 2.10 2.11, 2.12, 3.9 - 3.14
Tier 1 T1-2007.0161 2.13, 3.3, IDAPA 58.01.01.676 NSPS Subpart Db:	PM emissions do not exceed 0.08 gr/dscf	Tier 1 T1-2007.0161 2.10, 2.11, 3.9 - 3.14	Tier 1 T1-2007.0161 2.10, 2.11, 2.12, 3.9 - 3.14, 40CFR64.9
Tier 1 T1-2007.0161 2.7, 3.5 IDAPA 58.01.01.625 NSPS Subpart Db	20% opacity for any 6-minute period, or any aggregated 3 minutes in an hour	Tier 1 T1-2007.0161 2.8, 2.12	Tier 1 T1-2007.0161 2.8, 2.9, 2.12
Tier 1 T1-2007.0161 3.5	619.2 million pounds steam per consecutive 12 month period	Tier 1 T1-2007.0161 3.9	Tier 1 T1-2007.0161 3.9, 2.12
40CFR64	Compliance Assurance Monitoring (CAM)	IDAPA 58.01.01.107.03.j	IDAPA 58.01.01.107.03.j

(For NSPS Subpart Db of 40CFR60 reference SOB T/-2007.0061 for clarification)

Boiler NESHAPs Requirements

EPA promulgated final NESHAP for Area Sources: Industrial, Commercial, and Institutional Boilers (NESHAP Subpart JJJJJJ) on December 21, 2012. Tamarack's hog fuel-fired boiler is classified as an existing boiler designed to burn biomass/bio-based solid located at an area source of HAP and is therefore subject to work practice standards that include performing initial and subsequent tune- ups

qualified technicians to perform tune-ups, EPA has issued two No Action Assurance letters[2] saying that they will use their enforcement discretion to not enforce violations of conducting the annual tune up and submitting a notice of compliance (due March and July 2012 respectively).

Tamarack's boiler is subject to the following NESHAP JJJJJJ requirements:

- The permittee must conduct the initial tune-up no later than March 21, 2014
- The permittee must conduct the energy assessment no later than March 21, 2014.
- The permittee must conduct a tune-up of the boiler biennially. Each biennial tune-up specified must be conducted no more than 25 months after the previous tune-up. The management practices in Table 2 apply at all times. [40 CFR 63 Subpart JJJJJJ Table 2, 63.11201(b),(d), 63.11223(a)]
- The permittee must conduct a one-time energy assessment performed by a qualified energy assessor. Must have a one-time energy assessment performed on the major source facility by a qualified energy assessor. The energy assessment must include:
    - A visual inspection of the boiler or process heater system.
    - An evaluation of operating characteristics of the facility, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints,
    - An inventory of major energy consuming systems,
    - A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage,
    - A review of the facility's energy management practices and provide recommendations for improvements consistent with the definition of energy management practices,
    - A list of major energy conservation measures,
    - A list of the energy savings potential of the energy conservation measures identified, and
    - A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments. [40 CFR 63 Subpart JJJJJJ, Table 2]
- The permittee must operate and maintain the unit in a manner consistent with safety and good air pollution control practices for minimizing emissions. [40 CFR 63.11205(a)]
- The permittee must demonstrate initial compliance with the work practice standard and management practice above by the dates listed above. [40 CFR 63.11210(c)]
- The permittee must conduct a tune-up and submit a signed statement in the Notification of Compliance Status report that indicates that the tune-up has been completed. [40 CFR 63.11214(b)]
- The permittee must submit a signed certification in the Notification of Compliance Status report that indicates that an energy assessment of the boiler and energy use system has been completed and submit, upon request, the energy assessment report. [40 CFR 63.11214(c)]

- The permittee must conduct a tune-up of the boiler or process heater biennially to demonstrate continuous compliance as follows:
    - As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, but you must inspect each burner at least once evely 36 months);
    - Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern.. The adjustment should be consistent with the manufacturer's specifications, if available;
    - Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly;
    - Optimize total emissions of carbon monoxide. This optimization should be consistent with the manufacturer's specifications, if available;
    - Measure the concentrations in the effluent stream of carbon monoxide in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made); and
    - Maintain on-site and submit, if requested by the Administrator, a biennial report containing the following information:
        - The concentrations of carbon monoxide in the effluent stream in parts per million by volume, and oxygen in volume percent, measured before and after the adjustments of the boiler;
        - A description of any corrective actions taken as a pmlof the combustion adjustment; and
        - The type and amount of fuel used over the 12 months prior to the biennial tune-up.
    - If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within one week of startup. [40 CFR 63.l1223(b)]
- The permittee must submit an initial notification as specified in §63.9(b)(2) not later than 120 days after May 20,2011. [40 CFR 63.11225(a)(l)-(2)]. Tamarack met that notification requirement.
- The permittee must submit a Notification of Compliance Status in accordance with 40 CFR 63.9(h) no later than 120 days after the applicable compliance dates for tune-ups and energy assessment listed above (EPA will not enforce violation of this deadline). In addition to the information required in 40 CFR 63.9(h)(2) the notification must include the following statements, as applicable:
    - "This facility complies with the requirements in §63.11214 to conduct an initial tune-up of the boiler."
    - "This facility has had an energy assessment performed according to §63.11214(c)." [40 CFR 63.11225(a)(4)]
- The permittee must prepare by March 1 of every other year, and submit to the delegated authority upon request, a biennial compliance certification report.. If there are any instances of deviations from applicable requirements during the repm1ing period, the permittee must submit the report by March 15. The report must include the following:
    - Company name and address.
    - Statement by a responsible official, with the official's name, title, phone number, e-mail address, and signature, ce11ifying the truth, accuracy and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpm1.

- If the source experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken. [40 CFR 63.11225(b)]

- The permittee must keep the following records:
  - Copies of each notification and report submitted to comply with this subpart and all documentation supporting any Initial Notification or Notification of Compliance Status.
  - Records of the date of each tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.
  - Records documenting the fuel type used monthly, including, but not limited to, a description of the fuel, including whether the fuel has received a non-waste determination by you or EPA, and the total fuel usage amount with units of measure.
  - Records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.
  - Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in §63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation. [40 CFR 63.11225(c)]
- Records must be in a form suitable and readily available for expeditious review. Records must be kept for 5 years, two of which must be on-site. Records may be kept off-site for the remaining three years. [40 CFR 63.11225(d)]
- If the permittee intends to commence or recommence combustion of solid waste, you must provide 30 days prior notice of the date upon which you will commence or recommence combustion of solid waste. The notification must identify:
  - The name of the owner or operator of the affected source, the location of the source, the boiler(s) or process heater(s) that will commence burning solid waste, and the date of the notice.
  - The currently applicable subcategory under this subpart.
  - The date on which you became subject to the currently applicable emission limits.
  - The date upon which you will commence combusting solid waste. [40 CFR 63.11225(£)]
- If you intend to switch fuels, and this fuel switch may result in the applicability of a different subcategory, you must provide 30 days prior notice of the date upon which you will switch fuels. The notification must identify:
  - The name of the owner or operator of the affected source, the location of the source, the boiler(s) that will switch fuels, and the date of the notice.
  - The currently applicable subcategory under this subpart.
  - The date on which you became subject to the currently applicable standards.
  - The date upon which you will commence the fuel switch. [40 CFR 63.11225(g)]
- The permittee may assert affirmative defense to a claim for civil penalties for exceeding the emission and operating standards listed above, according to the procedures listed in § 63.11226
- The permittee must comply with the General Provisions provided in Table 8 of Subpart JJJJJJ. [40 CFR 63.11235]

4.4 LUMBER DRY KILNS, SAWDUST TARGET BOX, AND CHIP TARGET BOX

Table 4-2 summarizes requirements that apply to the dry kilns cumulatively, and the target boxes.

Table 4-2 Dry Kiln and Target Boxes Applicable Regulations Summary

Citation	Requirement	Monitoring and Recordkeeping Requirements	Reporting requirement
Tier 1 T1-2007.0161 4.1, 4.2	Target box vent emissions less than 19.2 lbs/day, 3.36 tons/yr	Tier 1 T1-2007.0161 4.3, 4.4	Tier 1 T1-2007.0161 4.3, 4.4
Tier 1 T1-2007.0161 2.7, 3.5 IDAPA 58.01.01.625	20% opacity for any 6-minute period, or any aggregated 3 minutes in an hour	PTC T1-2007.0161 2.8, 2.12	Tier 1 T1-2007.0161 2.8, 2.9, 2.12
Tier 1 T1-2007.0161 4.3	Kiln throughput shall not exceed 76.02 MMbf per any rolling 12-month	Tier 1 T1-2007.0161 4.3, 4.4	Tier 1 T1-2007.0161 4.3, 4.4

4.5 FACILITY-WIDE EMISSION LIMITS

Table 4-3 contains a summary of the requirements that apply facility-wide.

Table 4-3 Facility-wide Applicable Regulations Summary

Citation	Requirement	Monitoring and Recordkeeping Requirements	Reporting requirement
Tier 1 T1-2007.0161 2.1 IDAPA 58.01.01.650-651	Reasonably control fugitive dust	Tier 1 T1-2007.0161 2.2 - 2.4	Tier 1 T1-2007.0161 2.2 - 2.4
Tier 1 T1-2007.0161 2.5	Do not allow or cause odors in quantity to represent air pollution	Tier 1 T1-2007.0161 2.6, 2.12	
Tier 1 T1-2007.0161 2.7 IDAPA 58.01.01.625	20% opacity for any 6-minute period, or any aggregated 3 minutes in an hour	Tier 1 T1-2007.0161 2.8, 2.12	Tier 1 T1-2007.0161 2.9, 2.13
Tier 1 T1-2007.0161 2.9 IDAPA 58.01.01.130 - 136	Comply with IDAPA Excess Emissions rules and regulations	Tier 1 T1-2007.0161 , IDAPA 58.01.01.133-136	Tier 1 T1-2007.0161 2.12, 2.13 IDAPA 58.01.01.133-136
Tier 1 T1-2007.0161 2.15 IDAPA 58.01.01.600 - 616	No Open Burning		

4.6 INSIGNIFICANT ACTIVITIES

Section 6 of the facility's Tier 1 permit, T1-2007.0161, lists a full page of insignificant activities and associated citations for that determination of insignificance under IDAPA 58.01.01.317.01(b).

That section of the permit expressly states there are no monitoring, recordkeeping, or reporting requirements for those insignificant activities.

5.0 Potential To Emit / Emission Sources / T-RACT Demonstration

Existing permitted air emission sources at the facility include a sawmill, a wood fired boiler and associated cooling tower, and numerous wood by-products handling fugitive sources, as well as onsite haul roads, and an emergency back-up generator for fire water. Detailed emissions sources are reflected on the PTC forms in Appendix A. The emissions for all those sources are documented on the emission inventory in this section, and in more detail with their derivations, references, and defense in the emission inventory in Appendix D. The emission inventory is also provided in electronic form in the files on the accompanying CD-ROM.

Also included in the emission inventory is the Potential to Emit information for all new emissions associated with the proposed action. That specifically includes the emissions from the three new Wellons lumber dry kilns, and the diesel fire water pump. The Potential To Emit criteria air pollutants and HAPs / TAPs is summarized in Table 4-1, in total as well as the increase as a result of the proposed action. Yellow highlights in the more detailed emission inventory in Appendix D indicate changes in this emission inventory as opposed to previous permit PTE calculations. Those changes include documenting and taking credit for some existing emission controls. CO_2 equivalent greenhouse gas emissions are not documented in this Table because of space considerations. Appendix D and the electronic files show CO_2 eq emissions of 84,400 tons/yr, almost all from biomass combustion which is exempt from federal greenhouse gas emissions regulations.

More conservatism is included in the emission inventory because many of the emission factors used for material transfers do not consider in their derivation the size or moisture content of the material moved. Often, they are derived from moving finer, drier material rather than the coarser and moister wood by-products handled material at Tamarack.

Table 5-1 Facility-Wide Potential to Emit (tons per year)

	Tons/yr							
	PM Emiss	PM10 Emiss	PM2.5 Emiss	VOC Emiss	CO Emiss	NOx Emiss	SOx Emiss	HAP Emiss
	4.20	2.10	0.42	NA	NA	NA	NA	NA
	NA	NA	NA	NA	NA	NA	NA	NA
subtotal	**4.20**	**2.10**	**0.42**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	1.30E-04	1.30E-04	1.30E-05	NA	NA	NA	NA	NA
	1.33E-05	1.33E-05	1.33E-06	NA	NA	NA	NA	NA
	1.58E-04	1.58E-04	1.58E-05	NA	NA	NA	NA	NA
	1.26E-03	1.26E-03	1.26E-04	NA	NA	NA	NA	NA
	2.80	1.68	0.28	NA	NA	NA	NA	NA
subtotal	**2.80**	**1.68**	**0.28**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	0.00	0.00	0.00	NA	NA	NA	NA	NA
	0.00	0.00	0.00	NA	NA	NA	NA	NA
	0.56	0.32	0.06	NA	NA	NA	NA	NA
subtotal	**0.56**	**0.32**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	NA	NA	NA	0.05	NA	NA	NA	NA
	NA	NA	NA	1.19	NA	NA	NA	NA
	NA	NA	NA	0.01	NA	NA	NA	NA
	NA	NA	NA	0.00	NA	NA	NA	NA
subtotal	**0.00**	**0.00**	**0.00**	**1.25**	**0.00**	**0.00**	**0.00**	**0.00**
	0.30	0.14	0.03	NA	NA	NA	NA	NA
	0.45	0.20	0.04	NA	NA	NA	NA	NA
	0.31	0.14	0.03	NA	NA	NA	NA	NA
	0.90	0.45	0.09	NA	NA	NA	NA	NA
subtotal	**1.96**	**0.93**	**0.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	8.62	2.46	0.82	NA	NA	NA	NA	NA
subtotal	**8.62**	**2.46**	**0.82**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Fugitives, including roads (t/yr)	**18.14**	**7.50**	**1.77**	**1.25**	**0.00**	**0.00**	**0.00**	**0.00**
Fugitives, without roads (t/yr)	**9.52**	**5.04**	**0.95**	**1.25**	**0.00**	**0.00**	**0.00**	**0.00**

	PM	PM10	PM2.5	VOC	CO	NOx	SOx	HAP
Boiler	77.40	77.40	77.40	NA	*NA*	*NA*	*NA*	*NA*
	NA	NA	NA	6.80	NA	NA	NA	NA
	NA	*NA*	*NA*	*NA*	242.00	NA	NA	NA
	NA	NA	NA	NA	NA	82.95	NA	NA
	NA	NA	NA	NA	NA	NA	10.0	NA
	NA	NA	NA	NA	NA	NA	NA	9.17
	77.4	77.4	77.4	6.8	242.0	82.9	10.0	9.2
Generator	0.02	0.02	0.02	NA	NA	NA	NA	NA
	NA	NA	NA	0.02	NA	NA	NA	NA
	NA	NA	NA	NA	0.05	NA	NA	NA
	NA	NA	NA	NA	NA	0.23	NA	NA
	NA	NA	NA	NA	NA	NA	0.0	NA
	NA	NA	NA	NA	NA	NA	NA	0.00
	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.000
Cool Twr	0.29	0.29	0.29	NA	NA	NA	NA	NA
	NA	NA	NA	NA	NA	NA	NA	0.015
	NA	NA	NA	NA	NA	NA	NA	0.0003
	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.015
Dry Kilns	1.9005	1.9005	1.9005					
				53.21				
	Acetaldehyde							5.47
	Formaldehyde							0.17
	Propionaldehyde							0.17
	Methanol							0.19
								9.12
	1.9	1.9	1.9	53.2	0.0	0.0	0.0	9.12
Point Sources	**79.6**	**79.6**	**79.6**	**60.0**	**242.1**	**83.2**	**10.0**	**18.3**

Facility-Wide Potential To Emit (tons/yr), excl roads

PM	PM10	PM2.5	VOC	CO	NOx	SOx	HAP
89.1	84.6	80.6	61.3	242.1	83.2	10.0	18.3

Baseline Actual Emissions and Proposed Increase (to retain current kiln throughput limits and facility-wide PTE)

The facility has an energy contract with Idaho Power that has the boiler running near capacity year round. Therefore, baseline actual operations of the boiler, cooling tower, and associated fugitive processes are equivalent to potential emissions; no increase above baseline actual emissions is proposed. The maximum and current throughput in the lumber dry kilns is approximately half of permitted potential emissions. Specific calculations of baseline actual emissions based upon running 24 month average historic dry kiln throughput, and increases

proposed (to simply retain permitted kiln throughput of 76.02 MMbf/yr) are shown in Appendix D on worksheet Lumber Dry Kilns. The proposed increases in emissions above baseline actual would be limited to increases in the lumber dry kilns from baseline actual throughputs to current permit limit throughputs, and comparable increases in fugitive emissions from baseline actual to current permit potential from log sawing and wood by-product handling processes (to generate the additional lumber to be dried). Table 4-2 shows the proposed emission increases above baseline actual proposed (to retain current permit throughput limits). Derivation of the emission estimates in Table 4-2, baseline actual throughputs and emissions, and proposed increase in emissions (to retain current permit throughput limits) are documented in Appendix D on worksheet Increase from Baseline Actual.

Table 4-2 Increase in emissions from Baseline Actual (tons per year)

	PM	PM10	PM2.5	VOCs	Acetaldehyde	Formaldehyde	Methanol	Propionaldehyde	Acrolein	Total HAPs
Fugitives	4.95	2.61	1.31							
Dry Kilns	0.96	0.96	0.96	26.86	2.76	0.09	1.42	0.08	0.10	4.60
Total	**5.9**	**3.6**	**2.3**	**26.9**	**2.8**	**0.1**	**1.4**	**0.1**	**0.1**	**4.6**

The emission inventory in Appendix D shows conservative and well referenced and documented estimates of emissions of toxic air pollutants (TAPs) listed in IDAPA 58.01.01.585 or 586 from the boiler (currently permitted) and the dry kilns (increase as a result of the proposed action).

As the TAPs analyses on the Dry Kilns page/worksheet in the emission inventory in Appendix D shows, only three TAPs (585 non-carcinogen acrolein, and 586 carcinogens acetaldehyde and formaldehyde) were found to have potential emission rate increases above baseline actual exceeding IDAPA ELs. Although no increases in allowable annual emissions are proposed, the emissions could come from the proposed new kilns. Previous modeling supporting the facility's 2009 PTC application showed compliance with all applicable impact limits from emissions from the existing three lumber dry kilns. Emissions of each of those TAPs were modeled assuming all emissions above actual baseline come from the three proposed new kilns. Those TAP emission estimates are quite conservative since they assume that all wood dried would be the species with the highest HAP emission rate (even though the highest emitting species is different for different TAPs). The reference for the most up to date TAP emission estimates, the 2008 Milota / Mosher paper, is included in the zipped electronic files. Model TAP emission rates are documented in Table 7-1 for each model source. Their derivations are documented on the Dry Kilns page/worksheet in Appendix D (and in electronic form in the Dry Kiln worksheet in the PTE spreadsheet included in the electronic zipped files). Model predicted maximum TAP impacts were below the applicable IDAPA AAC or AACC thresholds without T-RACT. We will promptly provide an update tot eh IDEQ approved T-RACT demonstration for the facility's 2009

PTC application if IDEQ review indicates that T-RACT demonstration is needed to support the compliance demonstration for any TAP modeled in this application..

6.0 Facility Classification

The Tamarack facility is located in Adams County, which has been designated by the US EPA as "attainment" or "unclassified" for all criteria pollutants. There are no Class I areas within 10 kilometers of the facility, which is located in AQCR 63 and UTM zone 11. For attainment or unclassified areas, a source is considered a Prevention of Significant Deterioration of Air Quality (PSD) Program major source if it has the potential to emit: (1) 10 tons per year or more of any hazardous air pollutant, or (2) 25 tons per year or more of combined hazardous air pollutants or, (3) 100 tons per year or more of a regulated pollutant if the source is classified as one of twenty-eight designated industrial source categories or, (4) 250 tons per year or more of a regulated pollutant from a stationary source. For the Title V Operating Permit program, a source is considered major if potential emissions exceed 100 tons per year. For HAPs, a source is considered major if it emits more than 10 tons per year of an individual HAP or more than 25 tons of HAPs per year cumulatively. From the IDEQ 2007 Tier I permit Statement of basis, the SIC defining the facility is 2421, and the AIRS facility classification is A.

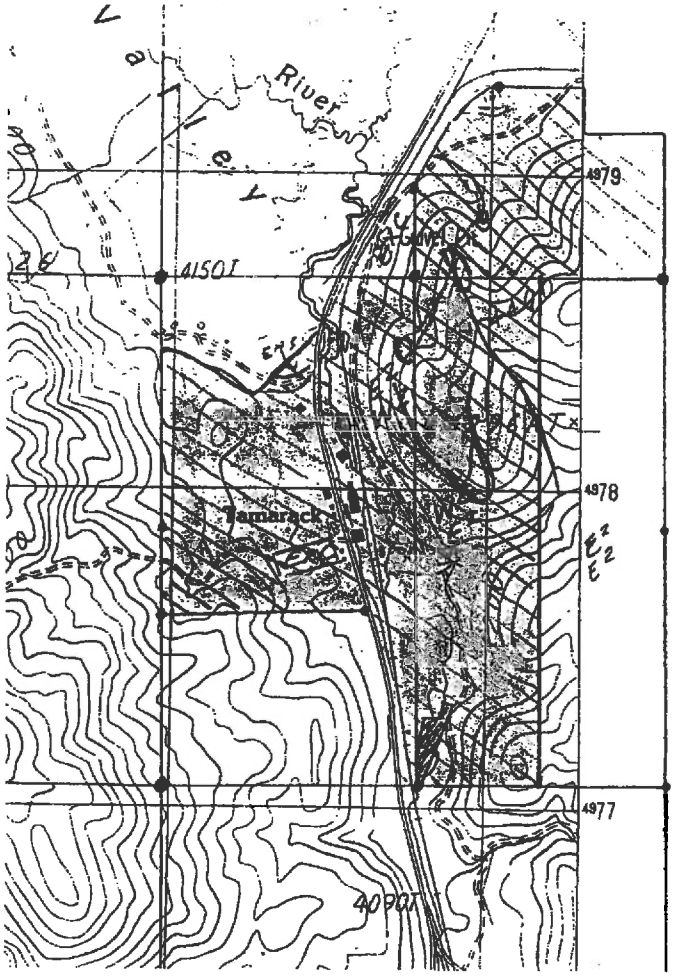
The Tamarack / Evergreen mill is not a designated facility and will not produce emissions in excess of any of the PSD thresholds. The facility is, and will remain a Title V source as a result of the proposed action. As documented by the tables in Section 4 of this application, the facility's potential to emit is sufficiently low (less than 250 tons per year for all criteria air pollutants, less than the 10 ton per year individual and 25 ton cumulative HAP major source threshold, and reaching the 100 ton per year Title V program threshold for only one pollutant, CO) for Tamarack to be considered a Title V major source of air emissions, not reaching PSD, or HAP major source thresholds. The criteria air pollutant with the highest emissions, therefore driving the facility classification, is shown by Table 4-1 to be CO. Actual CO emissions, coming exclusively from the facility boiler, have been shown to be well below the permitted PTE. No credit was taken for chemical degradation or transformation of CO before its exposure to ambient air, though such decreases in CO would occur.

7.0 Scaled Plot Plan

Figures 7-1, 7-2, and 7-5 in the modeling report provide scaled representation of the facility layout and plot plan. Most or all of the figures referenced are also enclosed in electronic form on the accompanying CD-ROM. A ;large scale 2' x 2' plot plan was provided with the facility's 2009 PTC application for the first three lumber dry kilns.

The facility owns a lot of land east of all project activity across the Weiser River, and some land west of US 95 south and possibly west of project activity areas shown on the large format scaled plot plan. For added reference Figure 6-1 below shows the property boundary on the USGS Tamarack topo map. Note that the facility is near the Tamarack lettering in the darkened facility property, and that all currently existing operations (except storage of cut lumber) are on the west side of US95.

Figure 6-1 Facility Property Boundary on USGS Topographic Map



The electronic file egreen1.pdf provides an aerial photo of the area, including all existing facility buildings and activity areas (except the existing kilns added in 2009 - 2010). The three new dry kilns are proposed on the east side of US95, north of the existing dry kilns and approximately 10 meters east of the end of the US95 60' wide ROW, across Highway 95 from the facility office building.

7.1 Ambient Impact Assessment

Purpose

This section describes the modeling proposed to be conducted to assess the ambient air quality impact. The modeling analysis submitted will be prepared consistent with an IDEQ approved modeling protocol to support the proposed air permit for the proposed action.

Model Description / Justification

The model chosen, consistent with the IDEQ approved modeling protocol, is AERMOD, the US EPA approved model recommended by IDEQ. AERMOD has replaced the Industrial Source Complex model ISCST3 as the primary recommended model for facilities with multiple emission sources. AERMOD was applied as recommended in EPA's *Guideline on Air Quality Models*, consistent with guidance in IDEQ's *Air Quality Modeling Guideline*, as described and approved in the modeling protocol. Recommended regulatory default options were employed. Terrain data was processed consistent with EPA guidance for AERMAP, as documented in the IDEQ-approved modeling protocol, as in the IDEQ approved 2009 modeling application for this facility. Meteorological data recommended to be considered for this application by Kevin Schilling was reviewed, along with other meteorological data provided by IDEQ that was deemed more representative of the facility's tight valley location with channeled winds. The Prime building downwash algorithm was employed. Modeling analyses were performed for all pollutants for which new emissions source were proposed. The only new sources proposed were three new lumber dry kilns. Those dry kiln emissions included PM-10, PM2.5, and four toxic air pollutants (TAPs) potentially emitted at rates exceeding the IDAPA 585 or 586 TAP threshold emission level (EL). Chemical transformation of emissions was not considered. All these details were included in the IDEQ approved modeling protocol.

Final permit modeling includes all recommendations included in IDEQ's modeling protocol approval, which will be found in Appendix E, Attachment 1. The methodology used to respond to the IDEQ comments in the modeling protocol is documented in the same attachment, in italics after each IDEQ comment. Copies of the modeling protocol, the IDEQ protocol approval, and the responses proposed to address those IDEQ modeling protocol approval comments are included in the electronic files submitted on CD.

Emission and Source Data

Model stack and emissions data representative of the worst case emissions at the Tamarack facility were incorporated directly into the air quality modeling analysis. Modeling methodology is based off and closely follows the 2009 analysis approved by IDEQ to support the facility's 2009 application for PTC P-2009.0064 for the addition of the first three lumber dry kilns. Emission rates modeled for each pollutant are the maximum emissions under proposed operations over the duration of the shortest ambient air quality standard for that pollutant. No limit of hours per day were included in the modeling analysis, though the emission rates for many sources were calculated assuming limited hours per day, therefore overestimating the

emissions and impacts of those sources in the modeling analyses. That could potentially result in overestimation of longer term emission rates for pollutants that have short term ambient air quality standards, like PM-10 and SO_2.

The emission inventory was developed consistent with worst-case conditions anticipated during operation at the facility consistent with the facility operational plan. The facility emissions were conservatively estimated to exceed IDEQ Level 1 modeling thresholds for two criteria pollutants PM-10 and PM2.5, and three TAPs, acute 585 TAP acrolein, and chronic 586 TAPs acetaldehyde and formaldehyde.

Model stack sources consisted of the facility boiler and cooling tower, and the emergency generator as well as stacks representing the emissions from the proposed lumber dry kilns. Stack source base elevations were updated from the IDEQ approved 2009 analysis to be set equal to the building base elevations rather than the DEM derived elevation for the stack coordinates. The boiler stack parameters were set consistent with the most recent stack test. Area and volume source parameters representing the fugitive sources generally associated with wood by-product handling are based upon the modeling analysis supporting the facility's 2009 PTC combination permit, which were verified based upon field data checks. The rightmost column on Table 7-1 documents the derivation of the model source parameters.

Attachment 2 in Appendix E, provides a summary of the BPIP-Prime input data and results documenting the building downwash parameters included in the modeling. The BPIP input and output files are included in the electronic submittal. The final building downwash information used in the modeling analysis is unchanged from that presented in the modeling protocol, except for using tiers to reflect the angled rooves of the kilns rather than the flat roof at roof peak implicit in the protocol submittal.

Table 7-1 summarizes the model source data consistent with the proposed action. The derivation of all model emissions data is documented in the emission inventory accompanying this permit application. That documentation was enhanced in response to IDEQ modeling protocol approval comments. The derivation of all model source parameters other than emission rates and mapping are documented in the emission inventory in Appendix D and in the model source data spreadsheet accompanying this application in the electronic file submission.

Table 7-1 Model Source Data

SIL analysis (verifying if or where the proposed action would have a significant impact)

Source ID	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	PMTEN	PM25
	(m)	(m)	(m)	(ft)	(°F)	(fps)	(ft)	(lb/hr)	(lb/hr)
KILN1A	548573.6	4977886.4	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN1B	548570.8	4977896.4	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN1C	548568.0	4977906.4	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN2A	548583.5	4977889.2	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN2B	548580.7	4977899.2	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN2C	548577.9	4977909.2	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN3A	548593.4	4977892.1	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN3B	548590.6	4977902.0	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN3C	548587.8	4977912.0	1255.9	21.6	180.0	3.23	5.04	-0.03034	-0.03034
KILN4A	548553.0	4977966.3	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034
KILN4B	548550.2	4977976.3	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034
KILN4C	548547.4	4977986.3	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034
KILN5A	548562.9	4977969.1	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034
KILN5B	548560.1	4977979.1	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034
KILN5C	548557.3	4977989.1	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034
KILN6A	548572.8	4977972.0	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034
KILN6B	548570.0	4977981.9	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034
KILN6C	548567.2	4977991.9	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034

NAAQS analysis for limited number of receptors where proposed action had potential significant impacts

POINT SOURCES	Easting (X)	Northing (Y)	Base Elev	Stk Ht	Temp	Exit Vel	Stack Diam	PMTEN	PM2.5	ACETALD	FORMAL D	ACROLEIN	Derivation of Model Source data
Source ID	(m)	(m)	(m)	(ft)	(°F)	(fps)	(ft)	(lb/hr)	(lb/hr)	(tons/yr)	(tons/yr)	(lb/hr)	
BOILER	548411.6	4977935.5	1266.1	75.0	139.4	23.5	6.67	18	17.72	-0.30121	-0.00941		Manufacturer's specs, with consistency with 12 passing source test runs
CLTWR	548434.8	4977873.5	1265.9	30.0	85.0	14.9	16.00	0.07504	0.07504	-0.30121	-0.00941		Based upon manufacturer's specs, as

													previously approved by IDEQ
KILN1A	548573.6	4977886.4	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	-0.00301	
KILN1B	548570.8	4977896.4	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	-0.00301	Compliance shown in 2009 for all emissions from kilns 1,2 and 3
KILN1C	548568.0	4977906.4	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	-0.00301	
KILN2A	548583.5	4977889.2	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	-0.00301	This TAP analysis shows compliance with all emissions from kilns 3, 4, and 5
KILN2B	548580.7	4977899.2	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	-0.00301	
KILN2C	548577.9	4977909.2	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	-0.00301	
KILN3A	548593.4	4977892.1	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	-0.00941	-0.00301	Vent sizes and exhaust flow on actual kilns (operating at CF!, measured by operator Rudy Hicks during representative operations. Three pseudo stacks with cumulative area equal to the 10 actual 28" by 28" vents were sued in the model, with model exhaust velocity calculated from measured exhaust (cumulative acfm from model pseudo stacks equals cumulative measured flow from actual vents (1054 acfm each). Exhaust temperature is at or slightly below mean kiln temperature, which is always between 160 and 200 degrees
KILN3B	548590.6	4977902.0	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	-0.00941	-0.00301	
KILN3C	548587.8	4977912.0	1255.9	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	-0.00941	-0.00301	
KILN4A	548553.0	4977966.3	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	0.00959	0.00306	
KILN4B	548550.2	4977976.3	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	0.00959	0.00306	
KILN4C	548547.4	4977986.3	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	0.00959	0.00306	
KILN5A	548562.9	4977969.1	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	0.00959	0.00306	
KILN5B	548560.1	4977979.1	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	0.00959	0.00306	
KILN5C	548557.3	4977989.1	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	0.30695	0.00959	0.00306	
KILN6A	548572.8	4977972.0	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	0.00306	
KILN6B	548570.0	4977981.9	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	0.00306	
KILN6C	548567.2	4977991.9	1255.3	21.6	180.0	3.23	5.04	0.03034	0.03034	-0.30121	-0.00941	0.00306	

AREA SOURCES		Easting (X)	Northing (Y)	Base Elev	Rel Ht	East Leng	North Length	< from N	Vert Dim	PMTEN	PM2.5	Derivation of Model Source data
Src ID	Source Description	(m)	(m)	(m)	(ft)	(ft)	(ft)		(ft)	(lb/hr)	(lbs/hr)	
BLOWP PIL	Blowpipe to stockpile	548290	4977920	1273	23.0	3.0	15.0		5.0	0.74000	0.148	Short distance drop from dump truck to ground modeled as area source. Short distance drop from dump truck to ground. Conservative estimate of horiz and fall trajectory of wood by-products to pile
TR3	Transfer of mill cleanup	548331	4977913	1271	9.0	9.0	20.0		11.0	0.000005	1.56E-06	Short distance drop from dump truck to ground modeled as area source. Horiz dimensions based upon typical truck moving material, vertical dimension based upon truck drop ht from top of bed
TR4	Fuel trucked in	548331	4977926	1270	9.0	9.0	25.0		11.0	0.00006	6.00E-06	Same as above
TR5	Ash Pile transfer	548375	4977988	1265	5.0	8.0	6.0		8.0	0.02770	0.00277	Short distance drop from dump truck to ground modeled as area source. Smaller volume transfer from vehicle, dimensions from forklift or smaller truck
ST1	Lumber storage	548625	4977875	1253.5	10.0	426.5	1148.3	-16	20.0	0.000000	0	Based upon actual horiz dimensions of lumber yard usage
ST2	Outdoor storage pile	548190	4977839	1280.2	15.0	450.0	450.0		24.0	2.03500	1.00E-05	Short distance drop from dump truck to ground modeled as area source. Area source for ground based pile. Dimensions based upon

												mean actual horiz and vert dimensions of fuel / wood by-products pile
P4	Target Box	548335	4977974	1267.9	6.0	5.0	5.0		5.0	0.1585	0.032	Area source for vent opening in smaller box distant from bldgs. Horiz dimensions of target box opening, vert based upon likely puff spread

Source ID	Source Description	Easting (X)	Northing (Y)	Base Elevation	Release Height	Horizontal Dimension	Vertical Dimension	PMTEN	PM2.5	Derivation of Model Source data
		(m)	(m)	(m)	(ft)	(ft)	(ft)	(lb/hr)	(lb/hr)	
ST3AND4	chip and sawdust bins	548429.6	4978088.0	1260.8	35.0	5.81	16.73	0.114	0.02	Volume source because bins are vertical structures sufficient to create a wake effect. Horiz and vert dimensions based upon size of elevated bin (25' horiz dim /4.3 for model horiz, 35' ht /2.15 for model vert)
TR1	Conveyor to stockpile	548385.0	4977988.0	1265.1	10.0	4.66	2.33	0.00005	5.00E-06	Volume source for drop from conveyor belt to stockpile. 20' actual horiz dim / 4.3 for model horiz dim, 5' elevated drop / 2.15 for model vert dim
DEBARK	Debarkers	548383.0	4977999.0	1265.1	6.0	4.66	2.33	0.28900	0.027	Equipment large enough to cause downwash, mounted alongside 1 story bldg in vicinity of taller sawmill. Est from actual equipment dimensions and area of potential "puff" from source (20' horiz / 4.3 for model horiz dimension, 10' actual ht for grnd based equip and fuel storage bldg / 4.3 for model vert dim
HOG		548383.0	4977995.0	1265.1	5.0	4.66	2.33	0.05100	0.011	
TR6	Truck bin drop	548431.5	4978088.1	1260.6	14.0	5.81	16.73	0.44	0.0716	Same as for Tkbins for drop from bin to truck

Modeling analyses were performed for all pollutants listed in Table 7-1, first for those in the SIL analysis to determine where the proposed action potentially has a significant impact, then in the NAAQS analysis to estimate maximum impacts during each averaging period for which an applicable ambient air quality impact limit exists at each receptors where the proposed potentially had a potentially significant impact, and at all receptors for the TAP impact analysis. All model sources have emissions understood to represent worst-case permitted emissions for the shortest averaging period to estimate the worst case impacts under allowable emissions from the facility. Potential worst-case impacts for each pollutant and averaging period were directly output by the model. All model source data underwent quality assurance review by the facility staff and CJ Environmental.

No model source factors were employed. All model sources are assumed to operate 24 hours per day, 8760 hours per year. This is very conservative, since maximum hourly emission rates modeled for many sources were estimated from annual throughputs assuming a limited number of hours of operation and operating rates well above average hourly emissions.

Building downwash was accounted for by including in the AERMOD model analysis Prime building downwash from all buildings within the facility within 5 building dimensions of facility point sources.

The facility is in a sparsely developed area. Site review indicated that there were not any external co-contributing sources potentially affecting the project area. IDEQ did not identify any cocontributing sources to include in the 2009 modeling analysis, discussions, or the modeling protocol review. Therefore, no cocontributing sources were included in the modeling analysis, consistent with the IDEQ approved modeling protocol.

Figure 7-1 shows the model layout, with the public access / ambient air boundary. That ambient air boundary is defined and defended below, consistent with IDEQ recommendations during pre-application discussions and follow up. Facility emission sources are shown and labeled in red. All currently permitted sources are west of US95, which bisects the facility, except for the three existing lumber dry kilns and the lumber storage area to the east which has no emissions except fugitive road dust. The new lumber dry kilns are shown on the east side of the highway, adjacent to the lumber storage area and north of the existing kilns. The background grid is the UTM coordinate system, NAD 27, whose units are in meters. The dots at UTM grid corners beyond the property boundary indicate the inner model receptors. Note that model receptors are placed at and beyond the facility boundary. per 2009 modeling protocol, these are the compliance locations for long term impact analyses

Figure 7-1 Model Facility Layout

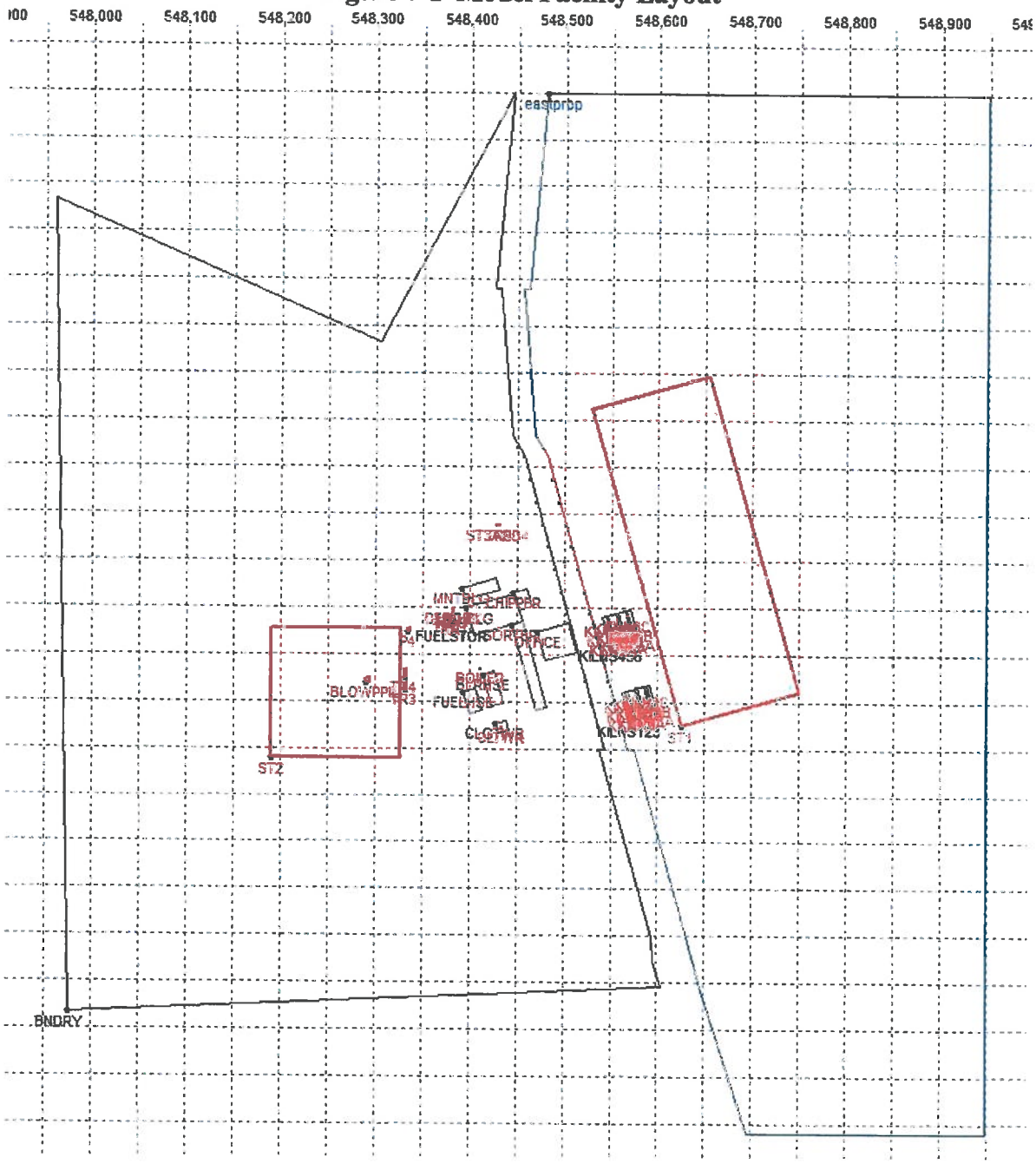
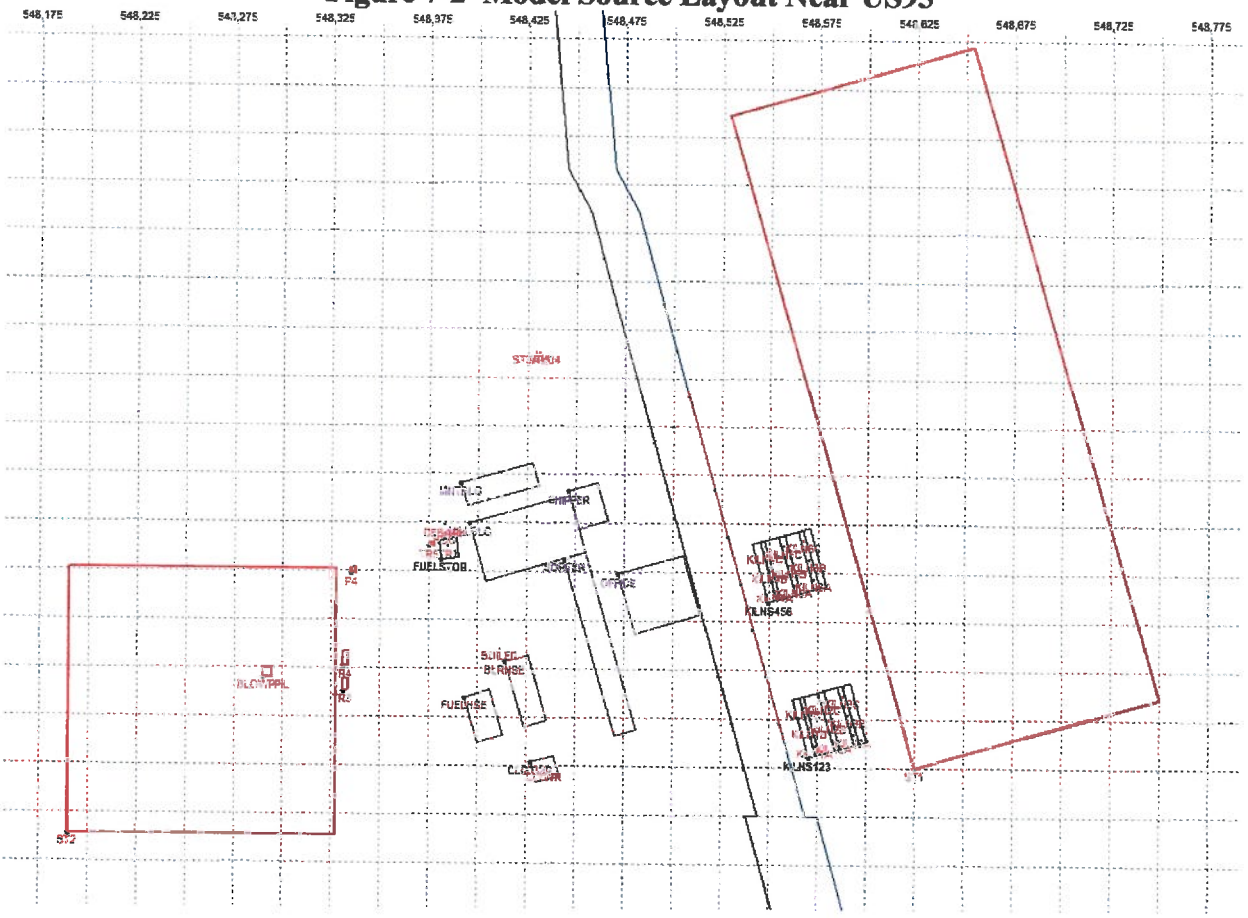


Figure 7-2 shows the facility-wide model source details in the vicinity of the US95. Note that the receptors placed along highway 95 and its ROW through the facility, where the facility controls access on both sides but does not control access along the highway. This analysis assumes potential continuous public exposure along the highway for a 24 hour period, per IDEQ guidance. That is very conservative for a highway where the facility controls both sides of the road. The new kilns are proposed on the east side of the highway, north of the existing kilns alongside the lumber storage area.

Figure 7-2 Model Source Layout Near US95



Ambient Air Boundary / Receptor Network / Model Domain

The Tamarack facility is located along the upper Weiser river in a remote, tight mountain valley in western Idaho, approximately seven miles NW of new Meadows on US95. There are few residences in the vicinity. The facility owns extensive lands to the east, generally to the ridge east of the river. The ambient air boundary proposed for this project conservatively stops well short of the property boundary in all directions except along US95 on the east side of the Weiser River.

Public access is prevented by training facility staff to aggressively discourage unauthorized access. Because much of the log yard is on elevated terrain, and the lumber yard is in open terrain, staff regularly in those areas can routinely see most or all of the facility property within the ambient air boundary. Though the Weiser River crosses the facility property flowing south east of US95 and all facility activity, it is not considered ambient air because:

1) Access to the river is fenced along the highway,
2) facility staff are trained to discourage access within the property boundary,
3) that stretch of the Weiser River is not on the state list of navigable rivers, and

4) There is a dam just west of the facility office within Tamarack property lines with a unnavigable drop

On those bases, the ambient air boundary used for this analysis is the facility property boundary on the west side of US 95 and a shortening of the facility boundary on the east side to an area beyond all facility activities where public access is controlled, as included in the IDEQ approved modeling protocol. US 95 and its right-of-way (60 feet from the highway centerline at the north and south end, 40 feet from the highway centerline from a few hundred feet south of the Tamarack office building north to the location of the small facility shop) is included as ambient air for all averaging periods under one year.

SIL and TAP analysis model receptors were placed from the ambient air boundary out at least 1 kilometer in every direction. The AERMOD modeling domain was conservatively calculated to include nearly the entire USGS quad for any receptor or any elevated point beyond the edge of the receptor network that meets the AERMAP / AERMOD guidance condition of 10% elevation gain. This method is built into the BeeLine BEEST software used to prepare these analyses, and is recommended as conservative in meeting or exceeding new EPA guidance by software developer Dick Perry of Bee-Line software. Sixteen USGS quads were included in the modeling domain. Documentation on the AERMOD domain calculations and identified USGS quads is included among the electronic files accompanying this submission.

Figure 7-3 shows the complete SIL and TAP analysis model receptor network. The dense inner model receptors placed at 25 meter intervals along the ambient air boundary can be seen as black dots outside the ambient air boundary in Figure 7-5. Receptor density is 50 meters for at least the first 100 meters beyond the ambient air boundary, then 100 meters for at least 300 meters from the ambient air boundary, and 300 meters out to at least one kilometer. As IDEQ concurred in modeling protocol discussions, the extent of the model receptor network is justified by the rapid drop-off in predicted emissions in modeling analyses supporting the facility's 2008 PTC / Tier II combination permit and the fact that the new kiln pseudo stacks were below the mean roof height of the kiln building so the impacts from all new sources would be downwash dominated and higher close to the boundary than beyond it. Model results document predicted kiln impacts peaking at the ambient air boundary.

Figure 7-3 Model Receptor Network

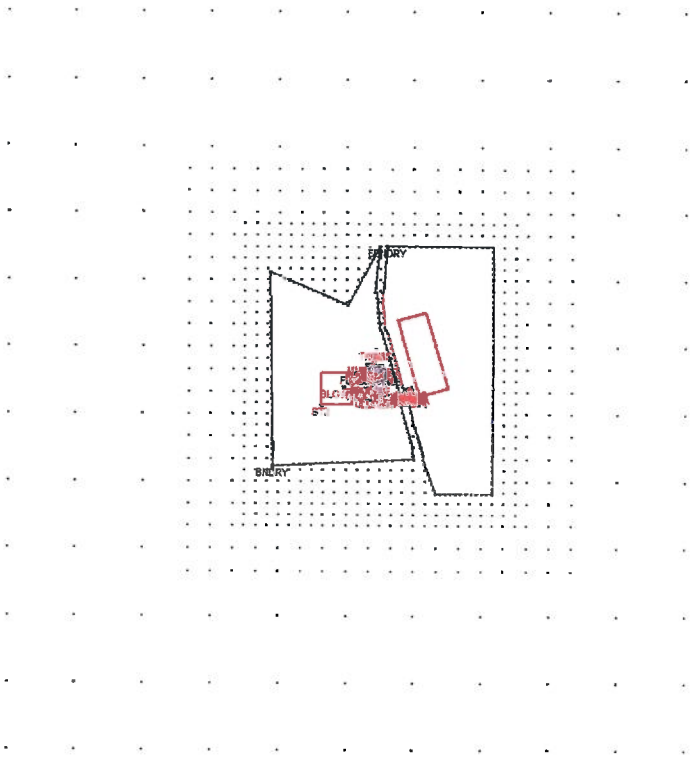


Figure 7-4 shows the facility, its ambient air boundary, the model receptor network (the black dots around the denser inner model receptors), the AERMOD model domain (the green line just inside USGS quad lines outside the receptor network), and the USGS quad maps that cover the model domain.

Figure 7-4 Model Domain and Receptor Network

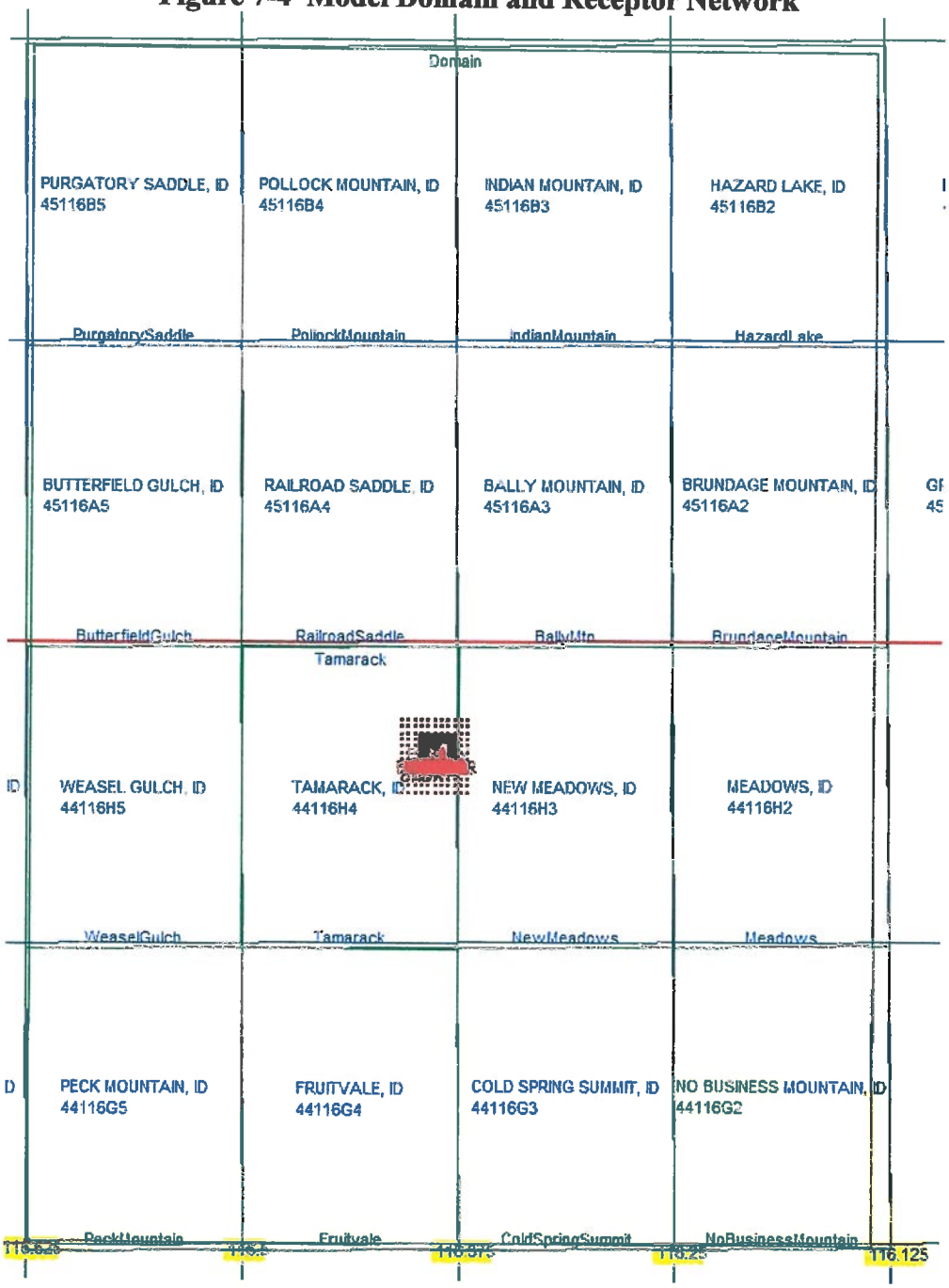
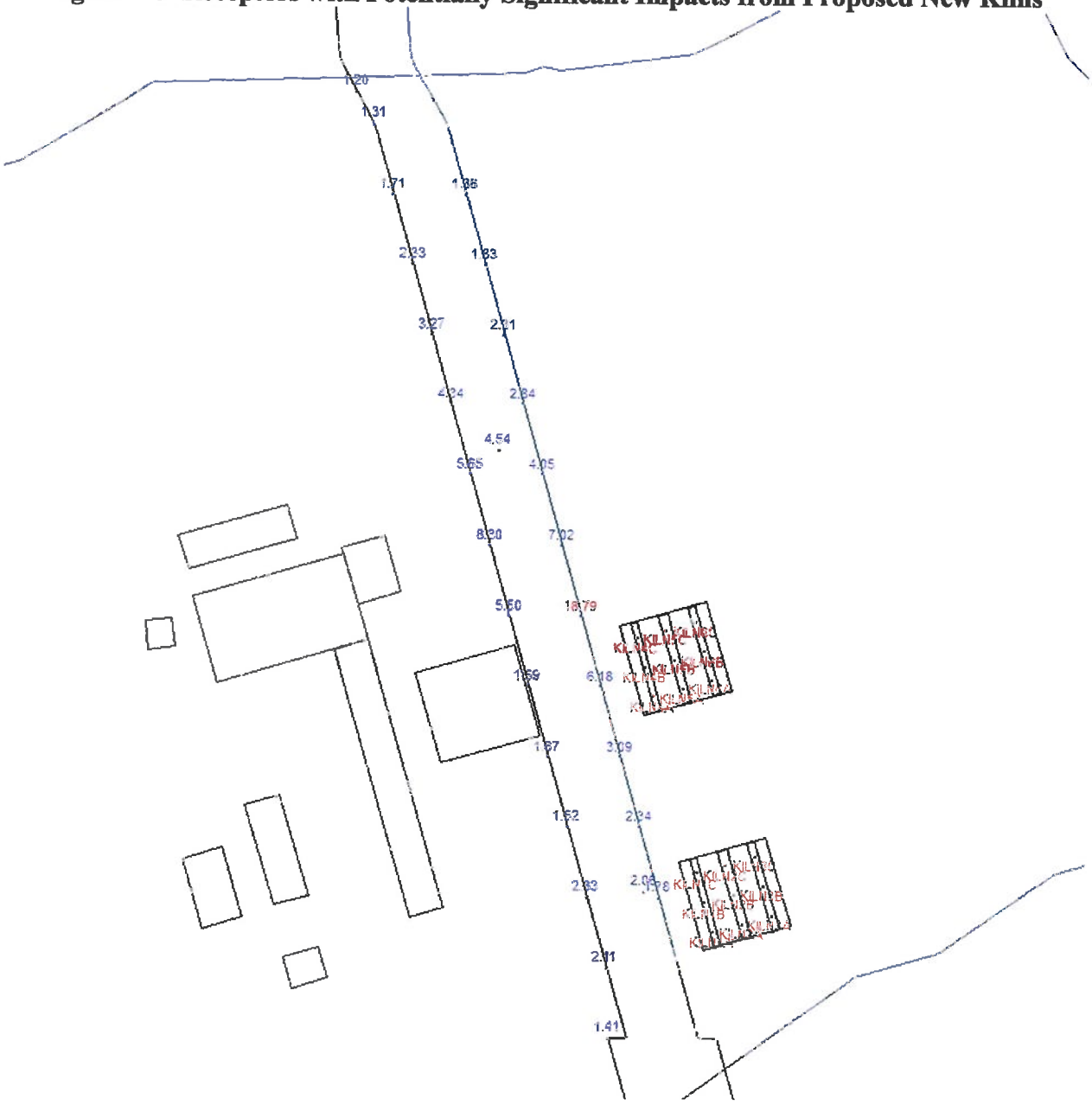


Figure 7-5 Receptors with Potentially Significant Impacts from Proposed New Kilns



The only criteria pollutants for which the proposed action, the addition of three new lumber dry kilns without changing the cumulative kiln throughput limit) represents any increase in emissions from any source are particulates, PM_{10} and $PM_{2.5}$. For each of those particulate pollutants, the area of potentially significant annual average impacts was very limited. The most extensive area of potentially significant impacts was for 24 hour average $PM_{2.5}$. Figure 7-5 shows that significant impact area, which is limited to 28 receptors along Highway 95 or it's right of way. NAAQS compliance analyses were prepared for all particulates, PM_{10} and $PM_{2.5}$, for all averaging periods for those 28 receptors. Those 28 receptors are explicitly documented in the PM2.5 SIL analysis 24 hour average model results. Figure 7-5 was printed directly from the

output from that modeling run, with all receptors with predicted first maximum impacts over five years above the 24 hour average SIL of 1.2 ug/m3 shown. The annual average SIL analyses for both pollutants verified no significant impacts at any receptor for which annual impacts are valid; the only receptors where annual average impacts reached the SILs were along the road where annual average impact limits do not apply. Therefore, no annual average impact analyses were required for PM_{10} or $PM_{2.5}$. Analyses were prepared anyway to show annual average NAAQS compliance even right next to the kilns.

All model predicted maximum facility impacts occurred at the applicable ambient air boundary, within the 25 meter grid density. The maximum predicted impact for all 24 hour average impact analyses occurred on Hwy 95 or in its right of way. The maximum impacts for all annual average analyses occurred on the N property boundary's southernmost point, well north of all kilns, new and existing.

The receptor networks employed in the modeling were consistent with those in the IDEQ approved modeling protocol and subsequent discussions with IDEQ to ensure appropriate application of those recommendations, and ensuring that the analysis meets or exceeds IDEQ receptor network requirements and capture the maximum impact from the facility. Therefore, no supplemental receptor network or expansion of the model domain was required or included.

AERMAP Input and Elevation Data

All building, tank, and source base and receptor elevations were calculated from USGS 7.5-degree 30m or less horizontal resolution DEM data (UTM NAD 27) downloaded from Geo Community www.geocommunity.com), the USGS freeware download system, using the Bee-Line BEEST preprocessing system. That same DEM data was used in the AERMAP preprocessor to prepare the terrain data for the model domain to run AERMOD. The anchor location and user location required by AERMAP was near the center of the facility. Electronic data files sufficient to review or duplicate the AERMAP model application are included with this report. The base elevations for all sources located on buildings were adjusted to match the BEEST DEM generated base elevation of the building rather than the DEM elevation of the actual center point of the source itself.

Meteorological Data and Local Parameters

Five years of meteorological data from McCall were provided for consideration of use in this analysis by Kevin Schilling of Idaho DEQ. That that meteorological data set, which was prepared from measurements taken at McCall airport, showed a broad variety of wind directions as would be expected in the open valley location near Payette Lake. Tests showed that the McCall data set contained cross valley winds not representative of the pattern expected and observed in the Tamarack facility's tight Weiser River valley location. Five year of recent meteorological data from the Boise airport provided by IDEQ were proposed for use for the dispersion modeling analysis in the modeling protocol. An older meteorological data set from the same location was used in the IDEQ approved 2009 modeling of the facility. The winds from that Boise data set were rotated 45 degrees clockwise to align with the terrain forcing in the facility's vicinity, as per the IDEQ-approved modeling analysis supporting the 2009. The

persistence of the winds from the Boise airport were more representative of the tight valley conditions at the Tamarack site than the McCall data which showed less terrain forcing and more cross-valley flow. That proposed meteorological data set and methodology was accepted by IDEQ in the modeling protocol approval letter Figure 7-8 shows the tight valley the Tamarack facility is located in would force winds to align with the valley and couldn't allow for much cross-valley flow.

Wind-roses of the Boise and McCall meteorological data sets are provided in Figure 7-6 and Figure 7-7.

Figure 7-6 Wind Rose for Boise Meteorological Data

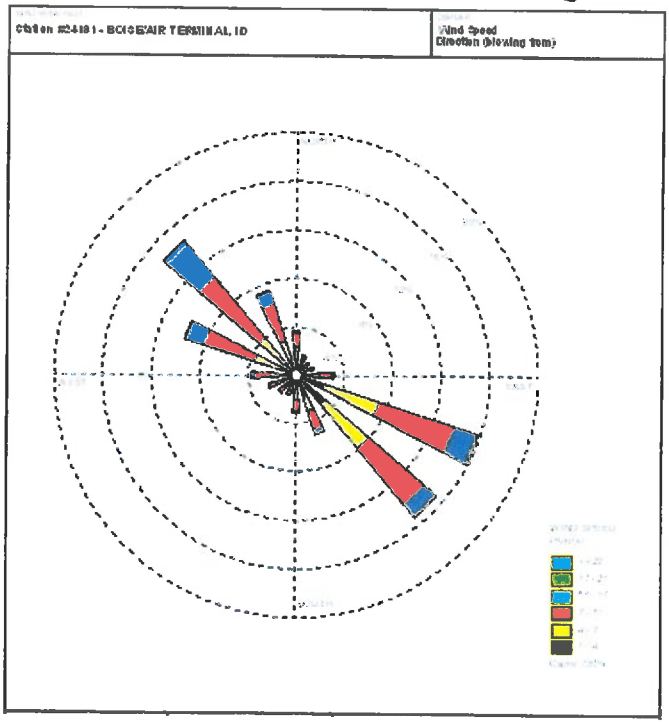


Figure 7-7 Wind Rose for Meteorological Data

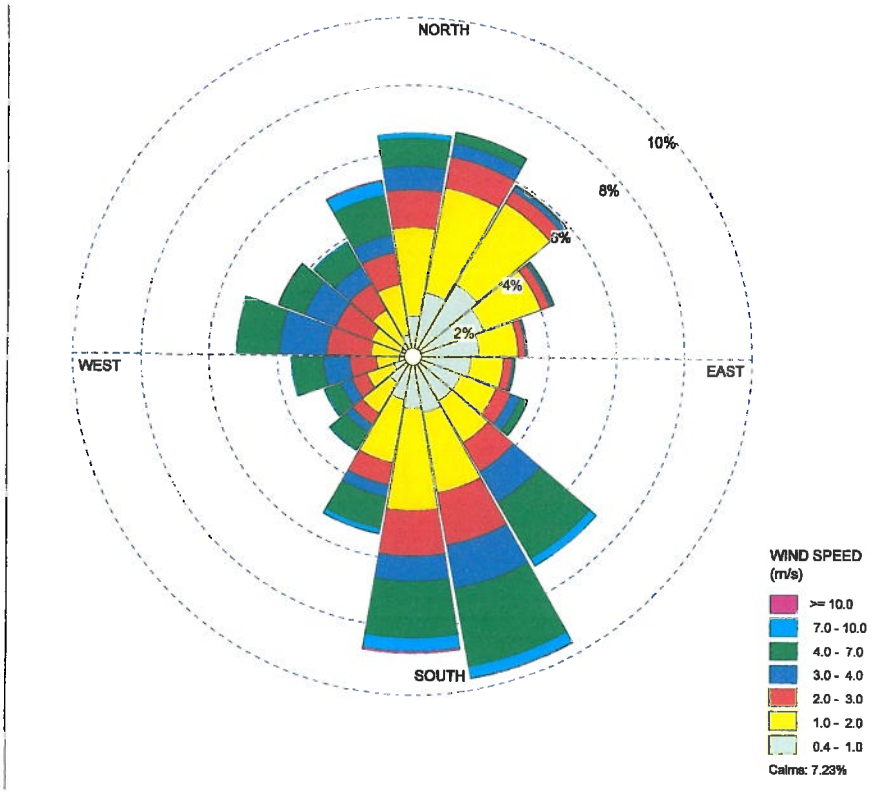
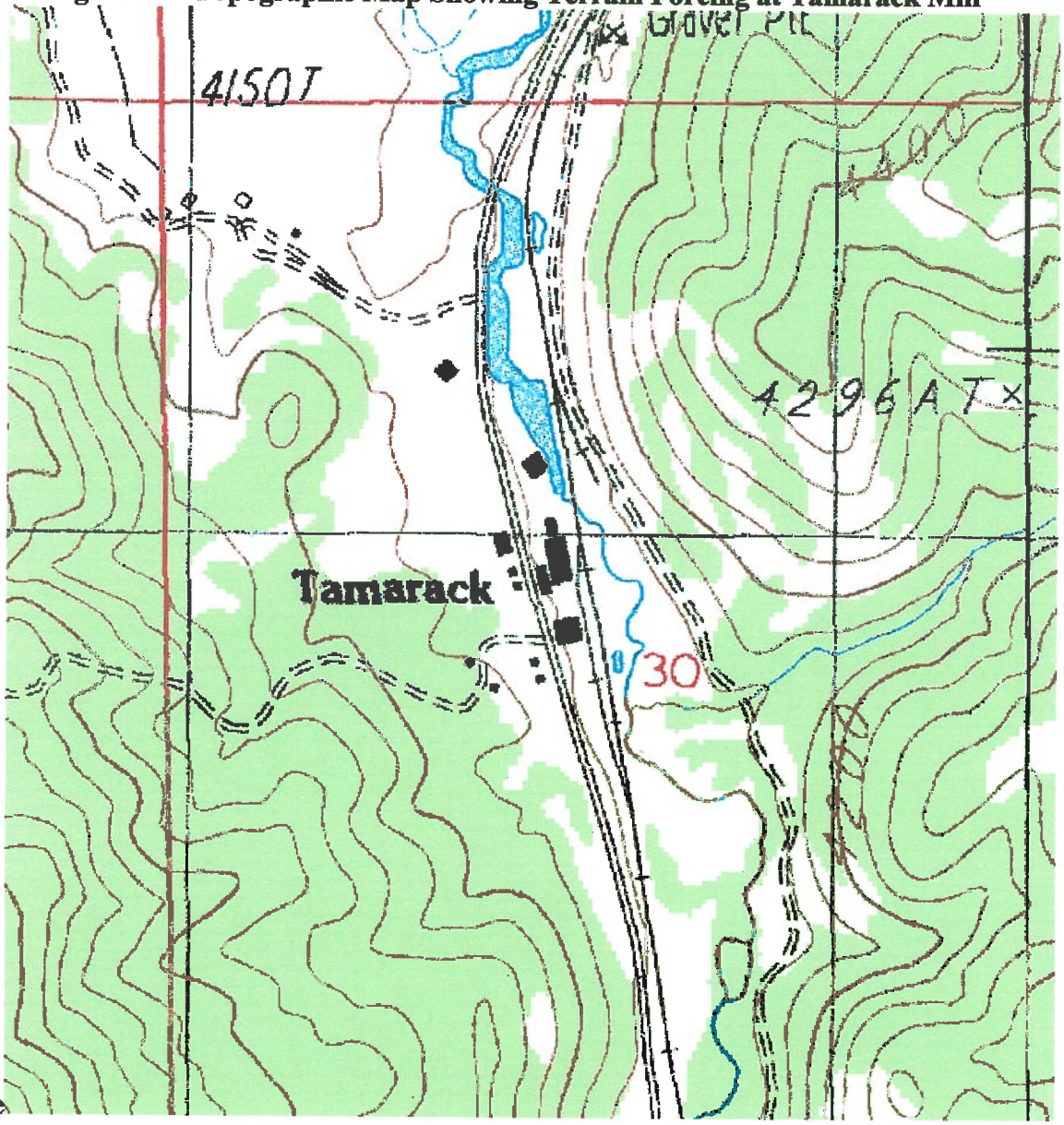

NORTH
10%
8%
6%
4%
2%
WEST
EAST
SOUTH
WIND SPEED
(m/s)
>= 10.0
7.0 - 10.0
4.0 - 7.0
3.0 - 4.0
2.0 - 3.0
1.0 - 2.0
0.4 - 1.0
Calms: 7.23%

Figure 7-8 Topographic Map Showing Terrain Forcing at Tamarack Mill



site

Land Use Classification

The facility is in a very lightly populated rural mountainous area that would be considered rural by the Auer classification scheme, or any other consideration. Therefore, rural dispersion algorithm was used everywhere in the modeling analyses.

Background Concentrations

The background concentrations used are the IDEQ recommended values for this remote rural area ambient background concentrations by Mr. Schilling of IDEQ. They are appropriate since

there is little development in the project vicinity, and little regular activity that would generate any emissions. The IDEQ rural remote background values used are shown below in Table 7-2. All values listed were explicitly recommended by Mr. Schilling in the IDEQ modeling protocol approval letter except PM_{10} annual average. Mr. Schilling made no recommendation for annual average PM_{10} background in 2013, so we have used the PM_{10} annual average background concentration recommended by IDEQ for the 2009 facility-wide modeling analysis.

Evaluation Of Compliance With Impact Standards

The impact limit standards applicable to this permit application are the National Ambient Air Quality Standards (NAAQS) for criteria pollutants, and the IDAPA 58.01.01.585 and 586 limits for the TAPs emitted above IDEQ EL thresholds. Predicted maximum total concentrations reported are the model predicted maximum ambient impacts during facility operation plus background concentrations for criteria pollutants. Model predicted maximum impacts are the highest predicted impact for the annual average period, all TAP analyses, the highest second max over five years for shorter averaging periods for PM10, the highest 8th max in any year for $PM_{2.5}$. Table 7-2 shows the maximum model predicted impact each year for each pollutant for each averaging period modeled. A percent of allowable impact column is included to be consistent with the IDEQ MI forms. No credit is taken for T-RACT's potential to increase IDAPA 585 AAC and 586 AACC impact limits here, though T-RACT has previously been demonstrated for this facility's kilns and could easily follow that precedent if necessary.

Table 7-2 Background Concentrations, Ambient Impact Limits and Method of Comparison with Ambient Air Quality Standards

Pollutant	Averaging Period	Backgr Conc ($\mu g/m^3$)	Modeled Maximum Impact ($\mu g/m^3$)		Total Concentration ($\mu g/m^3$)	NAAQS, AAC or AACC ($\mu g/m^3$)	Total Conc as % of applicable Impact limit	Location of maximum predicted impact
				Year				
585 TAP Acrolein	24 Hour	-	1.99		-	12.5	15.9%	US 95 ROW, just off NW corner of new kilns
PM_{10}	24-hour	38	73.4	2005	111.4	150	74.3%	Hwy 95 just east of truck bins, N of new kilns
	Annual	9.6	N/A [b]	2009	26.9	50	53.8%	
$PM_{2.5}$	24-hour	16	18.49 [a]	2007	34.49	35	98.5%	US 95 ROW, just off NW corner of new kilns
	Annual	6	N/A [b]	2006	14.60	15	97.3%	
586 TAP Acetaldehyde	Annual	-	0.296	2005	-	0.45	65.8%	Southernmost point on N Bndry, W of Hwy 95 well N of kilns
586 TAP Formaldehyde	Annual	-	0.0092	2005	-	0.077	12.0%	

a excludes one southernmost receptor with a few exceedances to which the proposed action had no significant contribution (see discussion below)

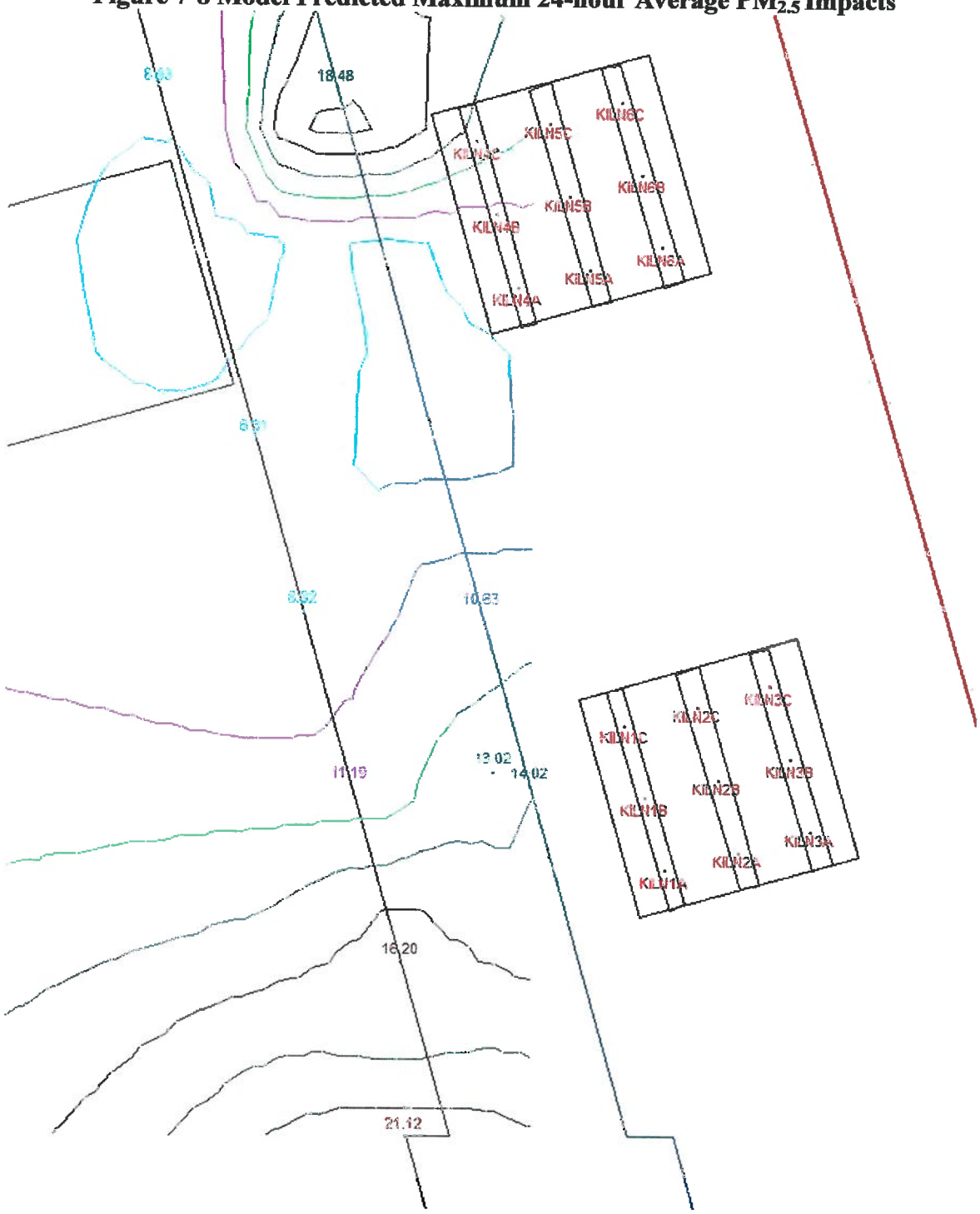
b no significant increase predicted at any receptor with year-round exposure. NAAQS analysis shows compliance within Hwy 95 or ROW, even though those are not valid receptors for annual average impact analyses

For criteria pollutants, modeling was conducted to determine the extent of significant impacts from the proposed change, reallocating the same annual lumber dry kiln throughput across the existing three kilns and three new ones. The model source data used in this analysis are shown in Table 7-1. SIL analyses to determine receptors with potentially significant impacts were performed for PM_{10} and $PM_{2.5}$, for 24 hour and annual averaging periods. The results of the $PM_{2.5}$ 24 hour average analysis, which had the largest significant impact area and included all 28 receptors with significant impacts in any analysis, are shown in Figure 7-5. That figure therefore identifies any receptor that had significant impacts in any of the SIL analyses. NAAQS compliance analyses for PM_{10} and $PM_{2.5}$ were performed on those 28 receptors. All other 24 hour average impact analyses were performed on the entire receptor network. All annual average impact analyses were performed on the same receptor network, except that the receptors on Hwy 95 and it's right of way were eliminated because there would be no long term impact there. All methodology described here is consistent with the IDEQ approved modeling protocol.

Maximum model predicted impacts for each pollutant and averaging period occurred at the ambient air boundary near project activity, where the model receptor network included receptors every 25 meters. The overall maximum impacts for all 24 hour average impact analyses was along Hwy 95 or in its right of way. The overall maximum impacts for all annual average analyses occurred on the N property boundary. The $PM_{2.5}$ maximum impacts were predicted to occur just off the northwest corner of the proposed new dry kilns on the Hwy 95 right of way. All maximum impacts except $PM_{2.5}$ are shown to be well below all applicable impact levels for all criteria pollutants. PM_{10} and $PM_{2.5}$ are the only pollutants for which ambient impacts are predicted to reach half the applicable impact limit. Predicted maximum PM-10 impacts are caused primarily by fugitive emissions. Predicted maximum $PM_{2.5}$ impacts are driven by boiler stack emissions to the south, and by dry kiln emissions in their near vicinity within the limited area of significant impact within Hwy 95 and its ROW. AERMOD MAXDCONT analyses set up by IDEQ's Kevin Schilling showed that the lumber dry kilns had no significant impact to any exceedances at the one southernmost receptor for which the 24 hour average $PM_{2.5}$ NAAQS analyses showed any exceedances (12 predicted impacts over 35 ug/m3 in 2007, 11 in 2008 and 2009 as compared to an allowable 8 given the NAAQS's 98th percentile condition). The highest predicted 24 hour average PM2.5 impact from the new lumber dry kilns during any of those exceedances was 0.54159 ug/m3 in 2009, the highest predicted impact for all lumber dry kilns during those exceedances was 0.74401 ug/m3. Those dry kiln impact predictions are below the significant impact level of 1.2 ug/m3. Therefore, the proposed action did not significantly contribute to any exceedances of any ambient air quality standard. Those MAXDCONT analyses are documented in electronic files *.OUT included with this submittal. Conservatism in model emissions is documented in the Emission and Source data section above. Maximum predicted facility impacts are shown to be low enough to prevent any ambient exceedances of that NAAQS under worst case operating conditions.

Figure 7-8 shows the maximum model predicted 24-hour average facility $PM_{2.5}$ impacts. Those impacts occurred along the US95 ROW just N of the center of the facility. Maximum model predicted annual average PM_{10} impacts occurred in the same location. Maximum predicted impacts drop off by the ambient air boundary beyond the highway, and promptly away from that boundary.

Figure 7-8 Model Predicted Maximum 24-hour Average $PM_{2.5}$ Impacts



Electronic Copies of the Modeling Files

Electronic copies of all input, output, and support modeling files necessary to duplicate the model results and/or verify any details documented in this section are provided with the application submittal.

8.0 Proposed Permit Limits

The proposed action does not request any change in permit limit for any facility process. We request only that the current 76.02 MMbf/yr cumulative throughput limit for the dry kilns be retained with the number of Wellons lumber dry kilns at the facility increasing from three to six.

The PTC has one error; it includes a boiler CO source test requirement that was sunset per the facility's 2007 source test and the Tier 1 permit condition 3.13. We ask that this proposed action correct that by removing references to CO source testing.

The emission inventory and air quality impact analysis were prepared assuming such a kiln throughput limit. They are accompanied by permit and modeling analyses justifying their approval.

Appendix A

IDEQ Permit Application Forms

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Cover Sheet for Air Permit Application – Permit to Construct **Form CSPTC**

Please see instructions on page 2 before filling out the form.

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER			
1. Company Name	Tamarack Mills, LLC dba Evergreen Forest and Tamarack Energy Partnership		
2. Facility Name	Tamarack Mill / Evergreen Forest	3. Facility ID No.	003-00001
4. Brief Project Description - One sentence or less	PTC Modification to add 3 dry kilns		

PERMIT APPLICATION TYPE

5. ☐ New Source ☒ New Source at Existing Facility ☐ PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c
☐ Unpermitted Existing Source ☐ Facility Emissions Cap ☐ Modify Existing Source: Permit No.:_____ Date Issued:_____
☐ Required by Enforcement Action: Case No.:_____

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms		DEQ Verify
☒	☐	Form CSPTC – Cover Sheet		☐
☒	☐	Form GI – Facility Information		☐
☒	☐	Form EU0 – Emissions Units General		☐
☐	☐	Form EU1– Industrial Engine Information	Please specify number of EU1s attached: ____	☐
☐	☐	Form EU2– Nonmetallic Mineral Processing Plants	Please specify number of EU2s attached: ____	☐
☐	☐	Form EU3– Spray Paint Booth Information	Please specify number of EU3s attached: ____	☐
☐	☐	Form EU4– Cooling Tower Information	Please specify number of EU3s attached: ____	☐
☐	☐	Form EU5 – Boiler Information	Please specify number of EU4s attached: ____	☐
☐	☐	Form CBP– Concrete Batch Plant	Please specify number of CBPs attached: ____	☐
☐	☐	Form HMAP – Hot Mix Asphalt Plant	Please specify number of HMAPs attached: ____	☐
☐	☐	PERF – Portable Equipment Relocation Form		☐
☐	☐	Form AO – Afterburner/Oxidizer		☐
☐	☐	Form CA – Carbon Adsorber		☐
☐	☐	Form CYS – Cyclone Separator		☐
☐	☐	Form ESP – Electrostatic Precipitator		☐
☐	☐	Form BCE– Baghouses Control Equipment		☐
☐	☐	Form SCE– Scrubbers Control Equipment		☐
☐	☐	Form VSCE – Venturi Scrubber Control Equipment		☐
☐	☐	Form CAM – Compliance Assurance Monitoring		☐
☒	☐	Forms EI— Emissions Inventory	see Appendix D	☐
☒	☐	PP – Plot Plan		☐
☒	☐	Forms MI1 – MI4 – Modeling	(Excel workbook, all 4 worksheets)	☐
Tamarack form	☐	Form FRA – Federal Regulation Applicability		☐

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/26/07

Please see instructions on page 2 before filling out the form.

All information is required. If information is missing, the application will not be processed.

IDENTIFICATION	
1. Company Name	Tamarack Mills, LLC dba Evergreen Forest and Tamarack Energy Partnership
2. Facility Name (if different than #1)	Tamarack Mill / Evergreen Forest
3. Facility I.D. No.	003-00001
4. Brief Project Description:	PTC Modification to add 3 dry kilns
FACILITY INFORMATION	
5. Owned/operated by: (√ if applicable)	☐ Federal government ☐ County government ☐ State government ☐ City government
6. Primary Facility Permit Contact Person/Title	Mark Krogh, Plant Superintendent
7. Telephone Number and Email Address	(208) 347-2111 x228 Markkrogh@frontiernet.net
8. Alternate Facility Contact Person/Title	Gerry Kincaid / Boiler
9. Telephone Number and Email Address	(208) 347-2216
10. Address to which permit should be sent	PO Box H
11. City/State/Zip	New Meadows, Idaho 83654
12. Equipment Location Address (if different than #10)	6 miles SW of New Meadows on US95
13. City/State/Zip	Tamarack, Idaho
14. Is the Equipment Portable?	☐ Yes ☒ No
15. SIC Code(s) and NAISC Code	Primary SIC: 2421 Secondary SIC (if any): NAICS:
16. Brief Business Description and Principal Product	Sawmill with boiler (adding dry kilns)
17. Identify any adjacent or contiguous facility that this company owns and/or operates	No known nearby industrial facilities
PERMIT APPLICATION TYPE	
18. Specify Reason for Application	☐ New Facility ☒ New Source at Existing Facility ☐ Unpermitted Existing Source ☐ Modify Existing Source: Permit No.:_____ Date Issued: _____ ☐ Permit Revision ☐ Required by Enforcement Action: Case No.:_____
CERTIFICATION	
IN ACCORDANCE WITH IDAPA 58.01.01.123 (RULES FOR THE CONTROL OF AIR POLLUTION IN IDAHO), I CERTIFY BASED ON INFORMATION AND BELIEF FORMED AFTER REASONABLE INQUIRY, THE STATEMENTS AND INFORMATION IN THE DOCUMENT ARE TRUE, ACCURATE, AND COMPLETE.	
19. Responsible Official's Name/Title	Mark Krogh Plant Supervisor
20. RESPONSIBLE OFFICIAL SIGNATURE	Date: 6/11/2013
21. ☐ Check here to indicate you would like to review a draft permit prior to final issuance.	

Emissions Unit - General **Form EU0**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Tamarack Mills, LLC dba Evergreen Forest	Tamarack Mill / Evergreen Forest	003-00001
Brief Project Description:	PTC Modification to add 3 more lumber dry kilns	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	KILN4
2. EU ID Number:	KILN 4 (A, B, AND C FOR MOD FOR MULT VENTS)
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source – Previous Permit #:P-2009.0064 Date Issued: 5/31/11
4. Manufacturer:	WELLONS
5. Model:	DOUBLE TRACK LUMBER DRY KILN
6. Maximum Capacity:	UNKNOWN, CLOSE TO 25333 MMBY/YR
7. Date of Construction:	2004
8. Date of Modification (if any)	
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	24/7/52
19. Maximum Operation	8760

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☐ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	76.02 MMBF/YR CUMULATIVELY THROUGH 6 DRY KILNS
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	DRY KILN THROUGHPUT LIMIT MATCHES EXISTING SAWMILL INPUT IN PTE MATERIAL BALANCE

Emissions Unit - General **Form EU0**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: Tamarack Mills, LLC dba Evergreen Forest	Facility Name: Tamarack Mill / Evergreen Forest	Facility ID No: 003-00001
Brief Project Description:	PTC Modification to add 3 more lumber dry kilns	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION	
1. Emissions Unit (EU) Name:	KILN5
2. EU ID Number:	KILN 5 (A, B, AND C FOR MOD FOR MULT VENTS)
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #:P-2009.0064 Date Issued: 5/31/11
4. Manufacturer:	WELLONS
5. Model:	DOUBLE TRACK LUMBER DRY KILN
6. Maximum Capacity:	UNKNOWN, CLOSE TO 25333 MMBY/YR
7. Date of Construction:	2004
8. Date of Modification (if any)	
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT						
10. Control Equipment Name and ID:						
11. Date of Installation:		12. Date of Modification (if any):				
13. Manufacturer and Model Number:						
14. ID(s) of Emission Unit Controlled:						
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No					
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)					
	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						
17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.						

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)	
18. Actual Operation	24/7/52
19. Maximum Operation	8760

REQUESTED LIMITS	
20. Are **you** requesting any permit limits?	☐ Yes ☐ **No** (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	76.02 MMBF/YR CUMULATIVELY THROUGH 6 DRY KILNS
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	DRY KILN THROUGHPUT LIMIT MATCHES EXISTING SAWMILL INPUT IN PTE MATERIAL BALANCE

Emissions Unit - General **Form EU0**

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/27/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION

Company Name:	Facility Name:	Facility ID No:
Tamarack Mills, LLC dba Evergreen Forest	Tamarack Mill / Evergreen Forest	003-00001
Brief Project Description:	PTC Modification to add 3 more lumber dry kilns	

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

1. Emissions Unit (EU) Name:	KILN6
2. EU ID Number:	KILN 6 (A, B, AND C FOR MOD FOR MULT VENTS)
3. EU Type:	☒ New Source ☐ Unpermitted Existing Source ☐ Modification to a Permitted Source -- Previous Permit #:P-2009.0064 Date Issued: 5/31/11
4. Manufacturer:	WELLONS
5. Model:	DOUBLE TRACK LUMBER DRY KILN
6. Maximum Capacity:	UNKNOWN, CLOSE TO 25333 MMBY/YR
7. Date of Construction:	2004
8. Date of Modification (if any)	
9. Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 18.

EMISSIONS CONTROL EQUIPMENT

10. Control Equipment Name and ID:			
11. Date of Installation:		12. Date of Modification (if any):	
13. Manufacturer and Model Number:			
14. ID(s) of Emission Unit Controlled:			
15. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No		
16. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)		

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

17. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

18. Actual Operation	24/7/52
19. Maximum Operation	8760

REQUESTED LIMITS

20. Are you requesting any permit limits?	☐ Yes ☐ No (If Yes, check all that apply below)
☐ Operation Hour Limit(s):	
☐ Production Limit(s):	76.02 MMBF/YR CUMULATIVELY THROUGH 6 DRY KILNS
☐ Material Usage Limit(s):	
☐ Limits Based on Stack Testing	Please attach all relevant stack testing summary reports
☐ Other:	
21. Rationale for Requesting the Limit(s):	DRY KILN THROUGHPUT LIMIT MATCHES EXISTING SAWMILL INPUT IN PTE MATERIAL BALANCE

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION

Revision 3
03/26/07

Please see instructions on page 2 before filling out the form.

IDENTIFICATION		
Company Name: Tamarack Mills, LLC dba Evergreen Forest	Facility Name: Tamarack Mill / Evergreen Forest	Facility ID No: 003-00001
Brief Project Description:		

APPLICABILITY DETERMINATION		
1. Will this project be subject to 1990 CAA Section 112(g)? (Case-by-Case MACT)	☒ NO	☐ YES* * If YES, applicant must submit an application for a case-by-case MACT determination [IAC 567 22-1(3)"b" (8)]
2. Will this project be subject to a New Source Performance Standard? (40 CFR part 60)	☒ NO	☐ YES* *If YES, please identify sub-part: _____
3. Will this project be subject to a MACT (Maximum Achievable Control Technology) regulation? (40 CFR part 63) THIS ONLY APPLIES IF THE PROJECT EMITS A HAZARDOUS AIR POLLUTANT	☒ NO	☐ YES* *If YES, please identify sub-part: _____
4. Will this project be subject to a NESHAP (National Emission Standards for Hazardous Air Pollutants) regulation? (40 CFR part 61)	☐ NO	☒ YES* *If YES, please identify sub-part: Boiler GACT, RICE
5. Will this project be subject to PSD (Prevention of Significant Deterioration)? (40 CFR section 52.21)	☒ NO	☐ YES
6. Was netting done for this project to avoid PSD?	☒ NO	☐ YES* *If YES, please attach netting calculations
IF YOU ARE UNSURE HOW TO ANSWER ANY OF THESE QUESTIONS, CALL THE AIR PERMIT HOTLINE AT 1-877-5PERMIT		

Form MI

All information required for form MI, all pages, is included in the modeling report in Section 7.0 (BPIP building data in an Attachment to Appendix E). This information is also included on the electronic data files submitted on CD-ROM.

Appendix B

Equipment List

Source ID	Source
BOILER	Yanke / Riley wood-fired boiler rated capacity 72000 lbs steam/hr
COOLTOWER	Permitted boiler cooling tower
BLOWPPIL	Blowpipe to stockpile
TR3	Transfer of mill cleanup
TR4	Fuel trucked in
TR5	Ash Pile transfer
ST1	Lumber storage
ST2	Outdoor storage pile
P4	Target Box
TKBINS	chip and sawdust bins
TR1	Conveyor to stockpile
DEBARK	Debarkers
HOG	Hog to process wood by-products to boiler fuel
KILN1	Existing Wellons Dry Kiln
KILN2	Existing Wellons Dry Kiln
KILN3	Existing Wellons Dry Kiln
KILN1	Proposed Wellons Dry Kiln
KILN2	Proposed Wellons Dry Kiln
KILN3	Proposed Wellons Dry Kiln
GENERATOR	Emergency 150hp diesel fire water pump generator

Appendix C

Application Fee, and Affidavit of Publication for Informational Meeting Announcement

Application Fee

The $1000 check for the application fee accompanies the application in the same envelope

Copy of Affidavit of Publication

LEGAL NOTICE

Tamarack Mill/Evergreen Forest will hold an informational meeting, in accordance with Idaho Code 58.01.01.213.02(a), on Monday, June 24, 2013, at the facility's office at 3555 Hwy 95 in Tamarack, Idaho from 1:00pm to 3:00pm. The purpose of the meeting will be to provide information on and discuss the company's Air Quality Permit To Construct Modification Application to add three Wellons lumber dry kilns at the facility's Tamarack mill. The meeting is intended to focus only on air quality aspects of the proposed project.

Published in the Adams County Record on June 12, 2013

Appendix D

Emission Inventory and Emission Source Supporting Documents

The same information is presented in electronic form in spreadsheet "Tamarack Permit App PTE 0613.xls"

TAMARACK ENERGY -THE BALANCING ACT - Permit App June 2013

Scene 1- Convert everything into BDT.

Assume:

80 Projected lumber production (M Bdft)
151% % production compared to 2005 actual
1666.5 G ton/Mbft log scale
933.2 BDT/Mbft lu scale gr lumber
8,400 Boiler hrs
6,240 Mill hrs

GT = BDT/(1-mc)
BDT= GT x (1-mc)

Data balanced from 2005 quantities
Increased to represent permit requested max
informational only

	MBF	mc	GT	BDT		
Permit requested max: raw logs into sawmill in 2005		0.47	248,196	131,544		
Requested operating hours in 2005:						
(24 hrs/day, 50 wks/yr) Boiler				8,400	hrs/hr	46% raw log is waste
(2-10 shifts, 6 days/wk, 50 wks/yr) Sawmill				6,240	hrs/yr	
Fuel BTU consumption:		0.5	98,700	49,350	BDT/yr	93755 / 46878
				8,100	BTU/BD lb from latest Mill data	
				799,470	MBTU/yr	507730
				93	MBTU/hr	
Boiler ash produced:	(170 lbs/hr)			714	TR-9	
Estimated Fuel to be purchased:		0.25	26,927	21,695		
Loads shipped to Potlatch		0.48	21,531	11,196		

Scene 2- Make sure everything that goes into the mill.. is accounted for in what goes out.

@ tons/hr: 11.75
98,700 GT

out of mill	used as fuel	0.45	98,700	54,285	
	Sawdust and chips sold to Potlatch	0.48	21,531	11,196	(Note: lower BTU in future, but higher volume and
	Estimated Sold lumber (based on calcs) 76.02		6,082	70,943	
			BDTs out:	136,424	
	reclaimed yard cleanup material	0.50	755	377	estimated TR-4
	fuel purchased from vendors (need<'05 since producing more)	0.25	26,927	4,503	
	logs	0.47	248,196	131,544	ST-1
			BDT in:	136,424	

Notes:

Sawdust and chips NOT sold to Potlatch (but used as fuel) 0.50 35,961

Scene 3- Assign Qtys to equipment going forward

From Lumber Storage — 131,544

Goes into small debarker		0.4	99,278	52,618	P-1
Goes into large debarker		0.6	148,918	78,926	P-2
				52,618	
From small debarker into waste wood		0.1022		5,378	
				78,926	
From large debarker into waste wood		0.1022		8,066	
Total bark waste	From large debarker		8,066		
	From small debarker		5,378		
				13,444	TR-1
Total weight of debarked logs				52,618	
	From small debarker	0.898		47,240	47,240
				78,926	
	From large debarker	0.898		70,860	70,860
					118,100
Weight going into sawmill:				118,100	
	Turns into chips/sawdust	40%		47,157	
	Turns into green lumber	60%		70,943	# MBdft OK ??
					76.02 Mbdft - OK
Chips and sawdust go to:				47,157	
	To blowpipe and outdoor storage	0.763		35,961	P-4
	Sawdust and chip truck bins and onto Potlatch	0.237		11,196	
	Back up blowpipe direct to boiler fuel	*0.000*		*0*	
		0.00			
Chips and sawdust from sawmill:					
	From Sawmill			11,196	ST-3/4
	Into TR-6		1.00	11,196	TR-6
Goes into Hammer Hog					
	From small debarker			5,378	
	From large debarker			8,066	
	From log yard cleanup			377	TR-3
		P-3	26,078	13,821	
Leaves Hammer Hog		TR-8		13,821	
	Blowpipe to Boiler	553	0.02	276	
	To outdoor storage pile		*0.98*	13,545	P-4, TR-2
Total going into outdoor storage pile					
	From Hammer hog			13,545	
	Purchased Fuel	0.25	26,927	4,503	TR-4
	From sawmill (chips and sawdust)			35,961	
		0.40	90,014	54,009	
			ST-2		
Going into boiler:	From outdoor storage pile			54,009	TR-7
	From Hammer Hog			276	
	From backup blowpipe of mill			0	
				54,285	B-1
				Needs to be to match	balancing 54,285

POTENTIAL EMISSIONS

No change in potential emissions from currently permitted
only proposed change is three new lumber dry kilns sharing the same cumulative throughput previously permitted for three original kilns

PROJECTED HOURLY EMIS

For stacks, assume 100% of PM10 is PM2.5
For fugitives, assume PM2.5 = PM10

MILL PRODUCTION
(Unless otherwise shown, Assume all PM is PM10)

FUGITIVE SOURCES:

Source	% moisture or Notes	PM E.F.	PM10 E.F.	PM2.5 E.F.	VOC E.F.	CO E.F.	NOX E.F.	SOx E.F.	HAPs E.F.	Permit Throughput (76.02)	PM10 control efficiency	MMBF
BLOWPIPES												
TR-2 (from hog to outd pile) (assume PM10 is 50% of Full)	Yenke/ODEQ	0.62	0.31	0.062	-	-	-	-	-	[illegible]		BDT/yr
TR-7 (New blowpipe to boiler w/target box)	See P-4	NA	NA	NA	-	-	-	-	-	refer to P-4		BDT/yr
TRANSFERS												
TR-1 Vibrating conveyor	Yenke/EPA AP-42	1.93E-05	1.93E-05	1.93E-06	-	-	-	-	-	[illegible]		BDT/yr
TR-3 Truck transfer of mill cleanup	Same as TR-4	7.03E-05	7.03E-05	7.03E-06	-	-	-	-	-	[illegible]		BDT/yr
TR-4 Trucked in fuel	Yenke/EPA AP-42	7.03E-05	7.03E-05	7.03E-06	-	-	-	-	-	[illegible]		BDT/yr
TR-5 Truck transfer to ash pile (est)	Yenke/EPA AP-42	3.52E-03	3.52E-03	0.000352	-	-	-	-	-	715		BDT/yr
TR-6 Bin to truck transfer	IDEQ EFs for Wood Products Industry	2.00	1.20	0.2	-	-	-	-	-	[illegible]	75%	BDT/yr
STORAGE												
ST-1 Lumber Storage	0.00	0.00	0.00	0	-	-	-	-	-	[illegible]		BDT/yr
ST-2 Outdoor stg pile	Yenke/EPA AP-42	4.86E-05	4.86E-06	4.86E-07	-	-	-	-	-	[illegible]		Green tons/yr
ST-3/4 cold Sawdust & Chip Truck bins	IDEQ	1.00	0.53	0.1	-	-	-	-	-	[illegible]	[illegible]	BDT/yr
VOLATILE												
V1 gasoline	NA	NA	NA	NA	tank calc	-	-	-	-	[illegible]		Gal/yr
V2 Diesel	NA	NA	NA	NA	tank calc	-	-	-	-	[illegible]		Gal/yr
V3 Parts washers	NA	NA	NA	NA	estim	-	-	-	-	[illegible]		Gal/yr
V4 Lube oil	NA	NA	NA	NA	0.00	-	-	-	-	[illegible]		Gal/yr
PROCESS												
P-1 Small Debarker (fugitive)	NA	0.024	0.011	0.0024	-	-	-	-	-	[illegible]	[illegible]	G tons logs/yr
P-2 Large Debarker (fugitive)	NA	0.024	0.011	0.0024	-	-	-	-	-	[illegible]	[illegible]	G tons logs/yr
P-3 Hammer Hog (fugitive)	NA	0.024	0.011	0.0024	-	-	-	-	-	[illegible]		G tons/yr
P-4 Target box (fugitive)	IDEQ EFs for Wood Products Industry	0.1	0.05	0.01	-	-	-	-	-	[illegible]	[illegible]	BDT/yr
ROADS												
Fugitive (refer to road calcs tab)	NA	NA	NA	NA	-		-	-	-	NA		BDT/yr

Tons/yr

Source	Units	PM Emiss	PM10 Emiss	PM2.5 Emiss	VOC Emiss	CO Emiss	NOx Emiss	SOx Emiss	HAP Emiss	CO2eq Emissions
TR-2		4.20	2.10	0.42	NA	NA	NA	NA	NA	NA
TR-7		NA	NA	NA	NA	NA	NA	NA	NA	NA
	subtotal	4.20	2.10	0.42	0.00	0.00	0.00	0.00	0.00	0.00
TR-1		1.30E-04	1.30E-04	1.30E-05	NA	NA	NA	NA	NA	NA
TR-3		1.33E-05	1.33E-03	1.33E-06	NA	NA	NA	NA	NA	NA
TR-4		1.58E-04	1.58E-04	1.58E-05	NA	NA	NA	NA	NA	NA
TR-5		1.26E-03	1.26E-03	1.26E-04	NA	NA	NA	NA	NA	NA
TR-6		2.80	1.68	0.28	NA	NA	NA	NA	NA	NA
	subtotal	2.80	1.68	0.28	0.00	0.00	0.00	0.00	0.00	0.00
ST-1		0.00	0.00	0.00	NA	NA	NA	NA	NA	NA
ST-2		0.00	0.00	0.00	NA	NA	NA	NA	NA	NA
ST-3/4		0.58	0.32	0.06	NA	NA	NA	NA	NA	NA
	subtotal	0.58	0.32	0.06	0.00	0.00	0.00	0.00	0.00	0.00
V1		NA	NA	NA	[illegible]	NA	NA	NA	NA	
V2		NA	NA	NA	[illegible]	NA	NA	NA	NA	
V3		NA	NA	NA	0.01	NA	NA	NA	NA	
V4		NA	NA	NA	0.00	NA	NA	NA	NA	
	subtotal	0.00	0.00	0.00	1.26	0.00	0.00	0.00	0.00	0.00
P-1		0.30	0.14	0.03	NA	NA	NA	NA	NA	NA
P-2		0.45	0.20	0.04	NA	NA	NA	NA	NA	NA
P-3		0.31	0.14	0.03	NA	NA	NA	NA	NA	NA
P-4		0.90	0.45	0.09	NA	NA	NA	NA	NA	NA
	subtotal	1.96	0.93	0.20	0.00	0.00	0.00	0.00	0.00	0.00
Roads		8.62	2.46	0.82	NA	NA	NA	NA	NA	NA
	subtotal	8.62	2.46	0.82	0.00	0.00	0.00	0.00	0.00	0.00
Fugitives, including roads (t/yr)		18.14	7.50	1.77	1.26	0.00	0.00	0.00	0.00	0.00
Fugitives, without roads (t/yr)		9.52	5.04	0.95	1.26	0.00	0.00	0.00	0.00	0.00

Control Efficiency explanations

TR6 60% of materials chips after all the fines have been screened out, all material has moisture content at or over 40%

ST 3/4 Fully enclosed pneumatic conveyance into fully enclosed bins, all material has moisture content at or over 40%

P1, P2 Physical structures and system design capture most material, which has 40+% moisture content, and route it to be processed as boiler fuel or saleable product

P4 All material has moisture content at or over 40%

POINT SOURCES:

WOOD FIRED SPREADER STOKER BOILER 450 PSIG, 750°FTT — Uncontrolled boiler PM10

Note: All EF possibilities listed, used only worst case scenario in emission calculations - in bold)

Source	Notes	PM	PM10	PM2.5	VOC	CO	NOx	SOx	HAPs
BOILER									
Particulate, permit limit requested in '09 PTC / Tier II	NA	18.00	[illegible]	[illegible]	-	-	-	-	-
VOC (AP42 1.6-3)	NA	-	-	-	0.017	-	-	-	-
CO, permit limit requested in '09 PTC / Tier II	NA	-	-	-	-		-	-	-
NOx June 2002 source test (@ 57,120 pph)	NA	-	-	-	-	-	19.29	-	-
SOx (AP42 1.6-2)	NA	-	-	-	-	-	-	0.025	-
HAPs (ODEQ dry kiln memo 05/09/07)	NA	-	-	-	-	-	-	-	(HAPs sht)
GENERATOR (150hp diesel fired emergency fire water generator)									
Particulate (AP-42, Table 3.3-1)		0.33	[illegible]	[illegible]					
VOC (AP-42, Table 3.3-1)					0.3705				
CO (AP-42, Table 3.3-1)						1.002			
NOx (AP-42, Table 3.3-1)							4.65		
SOx (AP-42, Table 3.3-1)								0.305	
HAPs (AP-42, Table 3.3-1)									
COOLING TOWER		PM	PM10						
Particulate (lb/hr)		0.0632227	0.0632227	0.0632227					
Potassium Hydroxide (Solubility =100%)									0.0034233
HCL									7.3[illegible]38E-05
DRY KILNS									
Particulate									
VOCs									
Acetaldehyde									
Formaldehyde									
Methanol									
Propionaldehyde									
Total HAPs									

Source	Hours / throughput	PM	PM10	PM2.5	VOC	CO	NOx	SOx	HAP	CO2 eq
Boiler Particulate	8,690 hours	77.40	77.40	77.40	NA	NA	NA	NA	NA	
Boiler VOC	799,470 MBTU/yr	NA	NA	NA	6.80	NA	NA	NA	NA	
Boiler CO	8,690 hours	NA	NA	NA	NA	242.00	NA	NA	NA	
Boiler NOx	8,690 hours	NA	NA	NA	NA	NA	82.86	NA	NA	
Boiler SOx	799,470 MBTU/yr	NA	NA	NA	NA	NA	NA	10.0	NA	
Boiler HAPs	799,470 MBTU/yr	NA	NA	NA	NA	NA	NA	NA	9.17	
BOILER MAX SUBTOTALS (t/yr)		77.4	77.4	77.4	6.8	242.0	82.9	10.0	9.2	84438.1
Generator Particulate	100 hours/yr	0.02	0.02	0.02	NA	NA	NA	NA	NA	
Generator VOC	100 hours/yr	NA	NA	NA	0.02	NA	NA	NA	NA	
Generator CO	100 hours/yr	NA	NA	NA	NA	0.05	NA	NA	NA	
Generator NOx	100 hours/yr	NA	NA	NA	NA	NA	0.23	NA	NA	
Generator SOx	100 hours/yr	NA	NA	NA	NA	NA	NA	0.0	NA	
Generator HAPs	100 hours/yr	NA	NA	NA	NA	NA	NA	NA	0.00	
Generator Totals (t/yr)		0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.000	8.593
Cooling Tower Particulate	8,630 hours/yr	0.29	0.29	0.29	NA	NA	NA	NA	NA	
Cooling Tower KOH	8,630 hours/yr	NA	NA	NA	NA	NA	NA	NA	0.016	
Cooling Tower HCL	8,630 hours/yr	NA	NA	NA	NA	NA	NA	NA	0.0003	
Cooling Tower Totals (t/yr)		0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.016	0.000
Dry Kiln Particulate	8,690 hours/yr	1.9005	1.9005	1.9005						
Dry Kiln VOCs	8,690 hours/yr				53.21					
Dry Kiln Acetaldehyde	8,690 hours/yr								5.47	
Dry Kiln Formaldehyde	8,690 hours/yr								0.17	
Dry Kiln Methanol	8,690 hours/yr								0.17	
Dry Kiln Propionaldehyde	8,690 hours/yr								0.19	
Dry Kiln Total HAPs	8,690 hours/yr								9.12	
Dry Kiln Totals (t/yr)		1.9	1.9	1.9	53.2	0.0	0.0	0.0	9.12	0.00
Point Source subtotal (t/yr)		79.6	79.6	79.6	60.0	242.1	83.2	10.0	18.3	84446.7

Deminimus:

Conveyor drops
Back up generator

PM10 Control Efficiency Explanations TR6

	PM	PM10	PM2.5	VOC	CO	NOx	SOx	HAP	CO2 eq
SITE WIDE TOTALS w/roads (t/yr)	97.7	87.1	81.4	61.3	242.0	82.9	10.0	18.3	84438.1
SITE WIDE TOTALS w/o roads (t/yr)	89.1	84.6	80.6	61.3	242.1	83.2	10.0	18.3	84446.7

	PM	PM10	PM2.5	VOC	CO	NOx	SOx	HAP	CO2 eq
SITE WIDE INCREASE ABOVE ALLOWABLE EMISSIONS AS A RESULT OF THE PROPOSED ADDITION OF 3 LUMBER DRY KILNS (t/yr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0

60

Potential Max Hrly MAXIMUM HOURLY EMISSIONS

unchanged from previously permitted

10% above the Hrly for fugitives, 20% above max hrly for tons

	Op Hrs	PM	PM10	PM2.5	VOC	CO	NOx	SOx	HAP
Sawmill									
Boiler	Hrs/yr	Emiss	Emiss	Emiss	Emiss	Emiss	Emiss	Emiss	Emiss

FUGITIVE SOURCES:

BLOWPIPES

TR-2 (from hog to outdoor pile)	8,760	1.480	0.740	0.148	NA	NA	NA	BA	NA
TR-7 (New blowpipe to boiler w/flange box)	8,760	NA	NA	NA	NA	NA	NA	BA	NA
	0.00	1.48	0.74	0.15	0.00	0.00	0.00	0.00	0.00

TRANSFERS (Unless otherwise shown, Assume all PM is PM10)

TR-1 Vibrating conveyor	8,760	0.00005	0.00005	0.000005	NA	NA	NA	BA	NA
TR-3 Truck transfer of mill cleanup	8,760	0.00000	0.00000	0.000000	NA	NA	NA	BA	NA
TR-4 Truck to fuel	8,760	0.00006	0.00006	0.000006	NA	NA	NA	BA	NA
TR-5 Truck transfer to ash pile (est)	8,760	0.02768	0.00788	0.00277	NA	NA	NA	BA	NA
TR-6 Bin to truck transfer to Potlatch	8,300	0.71602	0.43261	0.07160	NA	NA	NA	BA	NA
		0.74	0.46	0.07	0.00	0.00	0.00	0.00	0.00

STORAGE

ST-1 Lumber Storage	8,760	0.00000	0.00000	0.000000	NA	NA	NA	BA	NA
ST-2 Chipper storage pile	8,760	0.00005	0.00005	0.000001	NA	NA	NA	BA	NA
ST-3/4 and Sawdust & Chip Truck Bins	8,760	0.197	0.114	0.020	NA	NA	NA	BA	NA
		0.20	0.11	0.02	0.00	0.00	0.00	0.00	0.00

VOLATILE

V1 gasoline	8,760	NA	NA	NA	0.01	NA	NA	BA	NA
V2 Diesel	8,760	NA	NA	NA	0.33	NA	NA	BA	NA
V3 Parts washers	8,760	NA	NA	NA	0.00	NA	NA	BA	NA
V4 Lube/oil	8,760	NA	NA	NA	0.00	NA	NA	BA	NA
		0.00	0.00	0.00	0.34	0.00	0.00	0.00	0.00

PROCESS

P-1 Small Debarker (fugitive)	8,760	0.11	0.03	0.011	NA	NA	NA	BA	NA
P-2 Large Debarker (fugitive)	8,760	0.16	0.07	0.010	NA	NA	NA	BA	NA
P-3 Hammer Hog (fugitive)	8,760	0.11	0.05	0.011	NA	NA	NA	BA	NA
P-4 Target box (fugitive)	3,760	0.32	0.16	0.032	NA	NA	NA	BA	NA
		0.69	0.33	0.07	0.00	0.00	0.00	0.00	0.00

ROADS

Fugitive (refer to road calcs tab)	5,760	2.17	0.92	0.21	0.13	NA	NA	BA	NA
		2.17	0.92	0.21	0.00	0.00	0.00	0.00	

Fugitives, including roads (lbs/hr)	0.00	5.28	2.26	0.52	0.34	0.00	0.00	0.00	0.00
Fugitives, without roads (lbs/hr)		3.11	1.64	0.31	0.34	0.00	0.00	0.00	0.00

POINT SOURCES:

Max lbs/hr

Note: All EF possibilities listed, used only worst case scenario in emission calculations - in bold)

BOILER w/ AP42

			PM	PM10	PM2.5	VOC	CO	NOx	SOx	HAP
Particulate, 2007 source test	8,500	hours	18.00	18.00	17.72	NA	NA	NA	BA	NA
VOC (AP42 1.6-3)	799,470	MBTU/yr	NA	NA	NA	0.02	NA	NA	BA	NA
CO (permit limit)	3,900	hours	NA	NA	NA	NA	57.6	NA	BA	NA
NOx (Use 200; source test @ 57.120 ppm)	8,500	hours	NA	NA	NA	NA	NA	21.22	BA	NA
SOx (AP42 1.6-3)	799,470	MBTU/yr	NA	NA	NA	NA	NA	NA	0.03	NA
HAPs (AP42 1.6-3)	799,470	MBTU/yr	NA	NA	NA	NA	NA	NA	BA	2.40
BOILER MAX SUBTOTALS (lbs/hr)			**18.0**	**18.0**	**17.7**	**0.0**	**57.6**	**21.2**	**0.0**	**2.4**

Particulate (AP-42, Table 3.3-1)	100	hours/yr	0.33	0.33	0.33	NA	NA	NA	BA	NA
VOC (AP-42, Table 3.3-1)	100	hours/yr	NA	NA	NA	0.37	NA	NA	BA	NA
CO (AP-42, Table 3.3-1)	100	hours/yr	NA	NA	NA	NA	1.00	NA	BA	NA
NOx (AP-42, Table 3.3-1)	100	hours/yr	NA	NA	NA	NA	NA	4.66	BA	NA
SOx (AP-42, Table 3.3-1)	100	hours/yr	NA	NA	NA	NA	NA	NA	0.01	NA
HAPs (AP42, Table 3.3-1)	100	hours/yr	NA	NA	NA	NA	NA	NA	BA	0.00
Generator Totals (lbs/hr)			**0.3**	**0.3**	**0.3**	**0.4**	**1.0**	**4.7**	**0.3**	**0.000**

COOLING TOWER

COOL TOWER

Particulate (lb/hr) * Includes condensables	8,800	hours/yr	0.0662	0.0662	0.0662	NA	NA	NA	BA	NA
Potassium Hydroxide *Solubility =100%	8,800	hours/yr	NA	NA	NA	NA	NA	NA	BA	0.003
HCL	8,760	hours/yr	NA	NA	NA	NA	NA	NA	NA	0.0001
Cooling Tower Totals			**0.1**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.003**

Particulate	8,800	hours/yr	0.55	0.55	0.55					
VOCs	8,800	hours/yr				15.29				
Acetaldehyde	8,800	hours/yr								1.573
Formaldehyde	8,800	hours/yr								0.249
Methanol	8,800	hours/yr								0.809
Propionaldehyde	8,800	hours/yr								0.048
Total HAPs	8,800	hours/yr								1.621
Dry Kiln Totals			**0.5**	**0.5**	**0.5**	**15.3**	**0.0**	**0.0**	**0.0**	**2.6**
Point Source subtotal			**18.9**	**18.9**	**18.7**	**15.7**	**58.6**	**25.9**	**0.3**	**5.0**

	PM	PM10	PM2.5	VOC	CO	NOx	HAP	HAP
SITE WIDE TOTALS w/ roads (lb/hr)	24.2	21.2	19.2	16.0	58.6	25.9	0.3	5.0
SITE WIDE TOTALS w/o roads (lb/hr)	22.1	20.6	19.0	16.0	58.6	25.9	0.3	5.0

	PM	PM10	VOC	CO	NOx	SOx	HAP	HAP
SITE WIDE INCREASE AS A RESULT OF THE PROPOSED ACTION (t/yr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Process Potential Emissions - Tamarack / Evergreen

Average kiln charge takes 24 - 72 hours to dry. Kilns operate nearly steady state. Hourly emission rate not well defined, number of kilns operational at one time limited by sawmill production rate and large steam demand to bring a kiln up from cold.

Assume that adding three more kilns increases max hrly emission rate to 125% of annual average emission rate

Baseline Actual throughput 37,650.7 mbf/yr
Proposed throughput (previously permitted) 76,020.0 mbf/yr
Proposed increase in throughput 38,369.3 mbf/yr
50.5% increase percentage

assume previously permitted kiln 1, 2, and 3 throughput sum to baseline actual,
new kilns 4, 5, and 6 throughputs sum up to the proposed increase (to retain previously permitted limit of 76.02 MMbf/yr)

Baseline actual derived on Kiln PTC spreadsheet

Process Name		PM Em. Factor	PM-10 Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	125% of ave hrly PM Max hrly Emissions (lbs/hr)	PM Annual Emissions (tons/yr)	125% of ave hrly PM-10 Max hrly Emissions (lbs/hr)	PM-10 Annual Emissions (tons/yr)	125% of average hrly PM-2.5 Max hrly Emissions (lbs/hr)	PM-2.5 Annual Emissions (tons/yr)
Dry Kiln #1	P 15	0.05	0.05	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.090	0.31	0.090	0.31	0.090	0.31
Dry Kiln #2	P 16	0.05	0.05	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.090	0.31	0.090	0.31	0.090	0.31
Dry Kiln #3	P 17	0.05	0.05	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.090	0.31	0.090	0.31	0.090	0.31
Dry Kiln #4	P 25	0.05	0.05	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.092	0.32	0.092	0.32	0.092	0.32
Dry Kiln #5	P 26	0.05	0.05	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.092	0.32	0.092	0.32	0.092	0.32
Dry Kiln #6	P 27	0.05	0.05	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.092	0.32	0.092	0.32	0.092	0.32
Total								76,020		0.546	1.90	0.546	1.90	0.546	1.90
Dry Kiln Proposed Increase from baseline actual								38,369		0.28	0.96	0.28	0.96	0.2756	0.96

Dry Kilns EF is for max ODEQ PM10 EF for any species processed, conservatively assumes 100% of PM is PM2.5

0.03034 max PM2.5 lbs/hr each for 18 model source
0.03034 max PM10 lbs/hr each for 18 model source

VOC's

Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	125% Max hrly Emissions (lbs/hr)	Emissions (tons/yr)
Dry Kiln #1	P 15	1.4	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	2.524	8.79
Dry Kiln #2	P 16	1.4	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	2.524	8.79
Dry Kiln #3	P 17	1.4	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	2.524	8.79
Dry Kiln #4	P 25	1.4	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	2.573	8.95
Dry Kiln #5	P 26	1.4	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	2.573	8.95
Dry Kiln #6	P 27	1.4	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	2.573	8.95
Total							76,020		15.3	53.0
Dry Kiln Proposed Increase from baseline actual							38,369		7.7	26.9

Max ODEQ and/or Mitota (2006) VOC emission factor for any species processed. Actual ODEQ factor 0.5 or less for white fir and doug fir, primary species processed

HAP emissions after the proposed action

Acetaldehyde

IDAPA 586 TAP

Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	125% Max h Emissions (lbs/hr)	Ave Hrly Emissions (lbs/hr)	Emissions (tons/yr)
Dry Kiln #1	P 15	0.144	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.260	0.216	0.90
Dry Kiln #2	P 16	0.144	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.260	0.216	0.90
Dry Kiln #3	P 17	0.144	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.260	0.216	0.90
Dry Kiln #4	P 25	0.144	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.265	0.221	0.92
Dry Kiln #5	P 26	0.144	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.265	0.221	0.92
Dry Kiln #6	P 27	0.144	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.265	0.221	0.92
Total							76,020		1.588	1.324	5.52
Dry Kiln Proposed Increase from baseline actual							38,369		0.794	0.662	2.76

0.30120534 tons/yr decrease from 9 model sources (all from old kilns)
0.30695466 tons/yr increase from 9 model sources (all from new kilns)

EF reference: worst case (white fir) Mitota / Mosher 2008 (or ODEQ dry kiln memo 050907 for lodgepole pine)
0.113 ODEQ dry kiln memo

0.003 IDAPA 586 EL

Requires Modeling? Yes
Modeling shows compliance? No

Modeled max impact (annual ave)
AACC (ug/m3) 0.45
4.5

0.67
w/o TRACT
Yes w/ TRACT

Formaldehyde

IDAPA 586 TAP

Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	125% Max hrly Emissions (lbs/hr)	Ave Hrly Emissions (lbs/hr)	Emissions (tons/yr)
Dry Kiln #1	P 15	0.0045	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.008	0.007	0.03
Dry Kiln #2	P 16	0.0045	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.008	0.007	0.03
Dry Kiln #3	P 17	0.0045	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.008	0.007	0.03
Dry Kiln #4	P 25	0.0045	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.008	0.007	0.03
Dry Kiln #5	P 26	0.0045	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.008	0.007	0.03
Dry Kiln #6	P 27	0.0045	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.008	0.007	0.03
Total							76,020		0.049	0.041	0.17
Dry Kiln Proposed Increase from baseline actual							38,369		0.02481	0.02067	0.0633

0.00941267 tons/yr decrease from 9 model sources (all from old kilns)
0.009592333 tons/yr increase from 9 model sources (all from new kilns)

worst case (white fir) Mitota / Mosher 2008 (or ODEQ dry kiln memo 050907 for lodgepole pine)

0.00051 IDAPA 586 EL

Requires Modeling? Yes
Modeling shows compliance?

Modeled max impact (annual ave)
AACC (ug/m3) 0.077
0.77

0.021
Yes

Methanol

IDAPA 585 TAP

Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	125% Max hrly Emissions (lbs/hr)	Emissions (tons/yr)
Dry Kiln #1	P 15	0.074	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.133	0.46
Dry Kiln #2	P 16	0.074	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.133	0.46
Dry Kiln #3	P 17	0.074	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.133	0.46
Dry Kiln #4	P 25	0.074	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.136	0.47
Dry Kiln #5	P 26	0.074	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.136	0.47
Dry Kiln #6	P 27	0.074	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.136	0.47
Total							76,020		0.808	2.81
Dry Kiln Proposed Increase from baseline actual							38,369		0.408	1.4

EF reference: worst case (white fir) Mitota / Mosher 2008 (or ODEQ dry kiln memo 050907 for lodgepole pine)

17.3 IDAPA 585 EL

Requires Modeling? No

Propionaldehyde

IDAPA 585 TAP

Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	125% Max hrly Emissions (lbs/hr)	Emissions (tons/yr)
Dry Kiln #1	P 15	0.0044	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.008	0.03
Dry Kiln #2	P 16	0.0044	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.008	0.03
Dry Kiln #3	P 17	0.0044	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.008	0.03
Dry Kiln #4	P 25	0.0044	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.008	0.03
Dry Kiln #5	P 26	0.0044	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.008	0.03
Dry Kiln #6	P 27	0.0044	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.008	0.03
Total							76,020		0.048	0.18
Dry Kiln Proposed Increase from baseline actual							38,369		0.024	0.08

EF reference: worst case (white fir) Mitota / Mosher 2008 (or ODEQ dry kiln memo 050907 for lodgepole pine)

0.0287 IDAPA 585 EL

Requires Modeling? No

Acrolein

IDAPA 585 TAP

Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	125% Max hrly Emissions (lbs/hr)	Emissions (tons/yr)
Dry Kiln #1	P 15	0.0050	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.009	0.03
Dry Kiln #2	P 16	0.0050	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.009	0.03
Dry Kiln #3	P 17	0.0050	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.009	0.03
Dry Kiln #4	P 25	0.0050	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.009	0.03
Dry Kiln #5	P 26	0.0050	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.009	0.03
Dry Kiln #6	P 27	0.0050	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.009	0.03
Total							76,020		0.051	0.20
Dry Kiln Proposed Increase from baseline actual							38,369		0.028	0.10

0.0030053 lbs/hr decrease from 9 model sources (all from old kilns)
0.0030627 lbs/hr increase from 9 model sources (all from new kilns)

EF reference: worst case (white fir) Mitota / Mosher 2008 (or ODEQ dry kiln memo 050907 for lodgepole pine)

0.017 IDAPA 585 EL

Requires Modeling? Yes
Modeling shows compliance? Yes

Modeled max impact (24 hr ave)
AAC (ug/m3) 12.5
125

2.09

Total HAPs

IDAPA 585 TAP

Process Name		Em. Factor	EF Units	Operating (hours)	Avg Throughput (hourly)	Units	Throughput (annual)	Units	125% Max hrly Emissions (lbs/hr)	Emissions (tons/yr)
Dry Kiln #1	P 15	2.40E-01	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.433	1.51
Dry Kiln #2	P 16	2.40E-01	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.433	1.51
Dry Kiln #3	P 17	2.40E-01	lb/1,000 BF	8,700	1.44	1,000 BF/hr	12,550	1,000 BF/yr	0.433	1.51
Dry Kiln #4	P 25	2.40E-01	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.441	1.53
Dry Kiln #5	P 26	2.40E-01	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.441	1.53
Dry Kiln #6	P 27	2.40E-01	lb/1,000 BF	8,700	1.47	1,000 BF/hr	12,790	1,000 BF/yr	0.441	1.53
Total							76,020		2.621	9.1
Dry Kiln Proposed Increase from baseline actual							38,369		1.323	4.60

Tamarack Permit app HAPs Summary worst case (white fir) among species processed (all species always processed <200 degrees) from ODEQ dry kiln memo 050907 Total 2.621 9.1

Dry Kilns

Burner HAP Emissions

EF's from AP2 Table 1.6-3 updated 9/03

Hr/year: 8,400

mm BTU/year 799.470

Pollutant	Emission Factor (lbs/unit)	Throughput	Units	585 Regs EL (lb/hr)	586 Regs EL (lb/hr)	(10% more than max) Max. Emissions (lb/hr)	Avg. Emissions (lb/hr)	Emissions (tons/yr)
Acenaphthene	9.1E-07	799,470	lbs/10^6 Btu	NA	NA	9.53E-05	8.66E-05	3.638E-04
Acenaphthylene	5.0E-06	799,470	lbs/10^6 Btu	NA	NA	5.23E-04	4.76E-04	1.999E-03
Acetaldehyde	8.3E-04	799,470	lbs/10^6 Btu	NA	3.00E-03	8.69E-02	7.90E-02	3.318E-01
Acrolein	4.0E-03	799,470	lbs/10^6 Btu	1.70E-02	NA	4.19E-01	3.81E-01	1.599E-00
Anthracene	3.0E-06	799,470	lbs/10^6 Btu	NA	NA	3.14E-04	2.86E-04	1.199E-03
Benzaldehyde	8.5E-07	799,470	lbs/10^6 Btu	NA	NA	8.90E-05	8.09E-05	3.398E-04
Benzene	4.2E-03	799,470	lbs/10^6 Btu	NA	8.40E-04	4.40E-01	4.00E-01	1.679E-00
Benzo (a) pyrene	2.6E-06	799,470	lbs/10^6 Btu	NA	2.60E-06	2.72E-04	2.47E-04	1.039E-03
Benzo anthracene	6.5E-08	799,470	lbs/10^6 Btu	NA	NA	6.81E-06	6.19E-06	2.598E-05
Benzo (j,k)fluoranthene	1.6E-07	799,470	lbs/10^6 Btu	NA	NA	1.68E-05	1.52E-05	6.396E-05
Benzo perylene	9.3E-08	799,470	lbs/10^6 Btu	NA	NA	9.74E-06	8.85E-06	3.718E-05
Benzo pyrene	2.6E-09	799,470	lbs/10^6 Btu	NA	NA	2.72E-07	2.47E-07	1.039E-06
Benzoic acid	4.7E-08	799,470	lbs/10^6 Btu	NA	NA	4.92E-06	4.47E-06	1.879E-05
Bis phthalate	4.7E-08	799,470	lbs/10^6 Btu	NA	2.80E-02	4.92E-06	4.47E-06	1.879E-05
Bromomethane	1.5E-05	799,470	lbs/10^6 Btu	NA	NA	1.57E-03	1.43E-03	5.996E-03
2-Butanone (MEK)	5.4E-06	799,470	lbs/10^6 Btu	39.3	NA	5.65E-04	5.14E-04	2.159E-03
Carbazole	1.8E-06	799,470	lbs/10^6 Btu	NA	NA	1.88E-04	1.71E-04	7.195E-04
Carbon Tetra Chloride	4.5E-05	799,470	lbs/10^6 Btu	NA	4.40E-04	4.71E-03	4.28E-03	1.799E-02
Chlorine	7.9E-04	799,470	lbs/10^6 Btu	0.2	NA	8.27E-02	7.52E-02	3.158E-01
Chlorobenzene	3.3E-05	799,470	lbs/10^6 Btu	23.3	NA	3.45E-03	3.14E-03	1.319E-02
Chloroform	2.8E-05	799,470	lbs/10^6 Btu	NA	2.80E-04	2.93E-03	2.66E-03	1.119E-02
Chloromethane	2.3E-05	799,470	lbs/10^6 Btu	NA	NA	2.41E-03	2.19E-03	9.194E-03
2-Chloronapthalene	2.4E-09	799,470	lbs/10^6 Btu	NA	NA	2.51E-07	2.28E-07	9.594E-07
2-Chlorophenol	2.4E-08	799,470	lbs/10^6 Btu	0.033	NA	2.51E-06	2.28E-06	9.594E-06
Chrysene	3.8E-08	799,470	lbs/10^6 Btu	NA	NA	3.98E-06	3.62E-06	1.519E-05
Crotonaldehyde	9.9E-06	799,470	lbs/10^6 Btu	0.38	NA	1.04E-03	9.42E-04	3.957E-03
Decachlorobiphenyl	2.7E-10	799,470	lbs/10^6 Btu	NA	NA	2.83E-08	2.57E-08	1.079E-07
Dibenzo (a,h)anthracene	9.1E-09	799,470	lbs/10^6 Btu	NA	NA	9.53E-07	8.66E-07	3.638E-06
1,2-Dichloromethane	2.9E-05	799,470	lbs/10^6 Btu	NA	NA	3.04E-03	2.76E-03	1.159E-02
Dichlorobiphenyl	7.4E-10	799,470	lbs/10^6 Btu	NA	NA	7.75E-08	7.04E-08	2.958E-07
1,2-Dichloroethane	2.9E-05	799,470	lbs/10^6 Btu	NA	NA	3.04E-03	2.76E-03	1.159E-02
1,2-Dichloropropane	3.3E-05	799,470	lbs/10^6 Btu	23.133	NA	3.45E-03	3.14E-03	1.319E-02
2,4-Dinitrophenol	1.8E-07	799,470	lbs/10^6 Btu	NA	NA	1.88E-05	1.71E-05	7.195E-05
Ethylbenzene	3.1E-05	799,470	lbs/10^6 Btu	29	NA	3.25E-03	2.95E-03	1.239E-02
Fluoranthene	1.6E-06	799,470	lbs/10^6 Btu	NA	NA	1.68E-04	1.52E-04	6.396E-04
Fluorene	3.4E-06	799,470	lbs/10^6 Btu	1.33E-01	NA	3.56E-04	3.24E-04	1.359E-03
Formaldehyde	4.4E-03	799,470	lbs/10^6 Btu	NA	5.10E-04	4.61E-01	4.19E-01	1.759E-00
Heptachlorobiphenyl	6.6E-11	799,470	lbs/10^6 Btu	NA	NA	6.91E-09	6.28E-09	2.638E-08
Hexachlorobiphenyl	5.5E-10	799,470	lbs/10^6 Btu	NA	NA	5.76E-08	5.23E-08	2.199E-07
Hexanal	7.0E-06	799,470	lbs/10^6 Btu	NA	NA	7.33E-04	6.66E-04	2.798E-03
Heptachlorodibenzo-p-dioxins	2.0E-09	799,470	lbs/10^6 Btu	NA	NA	2.09E-07	1.90E-07	7.995E-07
Heptachlorodibenzo-p-furans	2.4E-10	799,470	lbs/10^6 Btu	NA	NA	2.51E-08	2.28E-08	9.594E-08
Hexachlorodibenzo-p-dioxins	1.6E-06	799,470	lbs/10^6 Btu	NA	NA	1.68E-04	1.52E-04	6.396E-04
Hexachlorodibenzo-p-furans	2.8E-10	799,470	lbs/10^6 Btu	NA	NA	2.93E-08	2.66E-08	1.119E-07
Hydrogen chloride	1.9E-02	799,470	lbs/10^6 Btu	0.05	NA	1.99E+00	1.81E+00	7.595E+00

Indeno pyrene	8.7E-08	799,470	lbs/10^6 Btu	NA	NA	9.11E-06	8.28E-06	3.479E-05
Isobutyraldehyde	1.2E-05	799,470	lbs/10^6 Btu	NA	NA	1.26E-03	1.14E-03	4.797E-03
Lead	4.8E-05	799,470	lbs/10^6 Btu	NA	NA	5.03E-03	4.57E-03	1.919E-02
Methane	2.1E-02	799,470	lbs/10^6 Btu	NA	NA	2.20E+00	2.00E+00	8.394E+00
2- Methylnaphthalene	1.6E-07	799,470	lbs/10^6 Btu	NA	NA	1.68E-05	1.52E-05	6.396E-05
Monochlorobiphenyl	1.6E-07	799,470	lbs/10^6 Btu	NA	NA	1.68E-05	1.52E-05	6.396E-05
Napthalene	2.2E-10	799,470	lbs/10^6 Btu	3.33	NA	2.30E-08	2.09E-08	8.794E-08
2-Nitrophenol	2.4E-07	799,470	lbs/10^6 Btu	NA	NA	2.51E-05	2.28E-05	9.594E-05
4-Nitrophenol	1.1E-07	799,470	lbs/10^6 Btu	NA	NA	1.15E-05	1.05E-05	4.397E-05
Octachlorodibenzo-p-dioxins	6.6E-08	799,470	lbs/10^6 Btu	NA	NA	6.91E-06	6.28E-06	2.638E-05
Octachlorodibenzo-p-furans	8.8E-11	799,470	lbs/10^6 Btu	NA	NA	9.21E-09	8.38E-09	3.513E-08
Pentachlorodibenzo-p-dioxins	1.5E-09	799,470	lbs/10^6 Btu	NA	NA	1.57E-07	1.43E-07	5.990E-07
Pentachlorodibenzo-p-furans	4.2E-10	799,470	lbs/10^6 Btu	NA	NA	4.40E-08	4.00E-08	1.679E-07
Pentachlorobiphenyl	1.2E-09	799,470	lbs/10^6 Btu	NA	NA	1.26E-07	1.14E-07	4.797E-07
Pentachlorophenol	5.1E-08	799,470	lbs/10^6 Btu	NA	NA	5.34E-06	4.85E-06	2.039E-05
Perylene	5.2E-10	799,470	lbs/10^6 Btu	NA	NA	5.44E-08	4.95E-08	2.079E-07
Phenanthrene	7.0E-06	799,470	lbs/10^6 Btu	NA	NA	7.33E-04	6.66E-04	2.798E-03
Phenols	5.1E-05	799,470	lbs/10^6 Btu	1.27E+00	NA	5.34E-03	4.85E-03	2.039E-02
Propanal	3.2E-06	799,470	lbs/10^6 Btu	NA	NA	3.35E-04	3.05E-04	1.279E-03
Propionaldehyde	6.1E-05	799,470	lbs/10^6 Btu	0.0287	NA	6.39E-03	5.81E-03	2.438E-02
Pyrene	3.7E-06	799,470	lbs/10^6 Btu	NA	NA	3.87E-04	3.52E-04	1.479E-03
Styrene	1.9E-03	799,470	lbs/10^6 Btu	6.67	NA	1.99E-01	1.81E-01	7.593E-01
2,3,7,8 Tetrachlorodibenzo-p-dioxins	8.6E-12	799,470	lbs/10^6 Btu	NA	1.50E-10	9.00E-10	8.19E-10	3.438E-09
Tetrachlorodibenzo-p-dioxins	4.7E-10	799,470	lbs/10^6 Btu	NA	NA	4.92E-08	4.47E-08	1.879E-07
2,3,7,8 Tetrachlorodibenzo-p-furans	9.9E-11	799,470	lbs/10^6 Btu	NA	NA	1.04E-08	9.42E-09	3.957E-08
Tetrachlorodibenzo-p-furans	7.5E-10	799,470	lbs/10^6 Btu	NA	NA	7.85E-08	7.14E-08	2.998E-07
Tetrachlorophenyl	2.5E-09	799,470	lbs/10^6 Btu	NA	NA	2.62E-07	2.38E-07	9.993E-07
Tetrachloroethane	3.8E-05	799,470	lbs/10^6 Btu	NA	1.10E-05	3.98E-03	3.62E-03	1.519E-02
o-Tolualdehyde	7.2E-06	799,470	lbs/10^6 Btu	NA	NA	7.54E-04	6.85E-04	2.878E-03
p-Tolualdehyde	1.1E-05	799,470	lbs/10^6 Btu	NA	NA	1.15E-03	1.05E-03	4.397E-03
Toluene	9.2E-04	799,470	lbs/10^6 Btu	25	NA	9.63E-02	8.76E-02	3.678E-01
Trichlorobiphenyl	2.6E-09	799,470	lbs/10^6 Btu	NA	NA	2.72E-07	2.47E-07	1.039E-06
1,1,1-Trichloroehane	3.1E-05	799,470	lbs/10^6 Btu	NA	NA	3.25E-03	2.95E-03	1.239E-02
Trichloroehane	3.0E-05	799,470	lbs/10^6 Btu	NA	NA	3.14E-03	2.86E-03	1.199E-02
Trichlorofluoromethane	4.1E-05	799,470	lbs/10^6 Btu	NA	NA	4.29E-03	3.90E-03	1.639E-02
2,4,6-Trichlorophenol	2.2E-08	799,470	lbs/10^6 Btu	NA	NA	2.30E-06	2.09E-06	8.794E-06
Vinyl Chloride	1.5E-05	799,470	lbs/10^6 Btu	NA	9.40E-04	1.57E-03	1.43E-03	5.996E-03
o-Xylene	2.5E-05	799,470	lbs/10^6 Btu	20	NA	2.62E-03	2.38E-03	9.993E-03
Antimony	7.9E-06	799,470	lbs/10^6 Btu	0.033	NA	8.27E-04	7.52E-04	3.158E-03
Arsenic	2.2E-05	799,470	lbs/10^6 Btu	NA	1.50E-06	2.30E-03	2.09E-03	8.794E-03
Beryllium	1.1E-06	799,470	lbs/10^6 Btu	NA	2.80E-05	1.15E-04	1.05E-04	4.397E-04
Cadmium	4.1E-06	799,470	lbs/10^6 Btu	NA	3.70E-06	4.29E-04	3.90E-04	1.639E-03
Chromium, total	2.1E-05	799,470	lbs/10^6 Btu	0.033	NA	2.20E-03	2.00E-03	8.394E-03
Cobalt	6.5E-06	799,470	lbs/10^6 Btu	0.0033	NA	6.81E-04	6.19E-04	2.598E-03
Manganese	1.6E-03	799,470	lbs/10^6 Btu	NA	NA	1.68E-01	1.52E-01	6.396E-01
Mercury	3.5E-06	799,470	lbs/10^6 Btu	0.007	NA	3.66E-04	3.33E-04	1.399E-03
Nickel	3.3E-05	799,470	lbs/10^6 Btu	NA	2.70E-05	3.45E-03	3.14E-03	1.319E-02
Selenium	2.8E-06	799,470	lbs/10^6 Btu	0.013	NA	2.93E-04	2.66E-04	1.119E-03
Total EPA regulated HAPs	25.24	799,470	lbs/10^6 lbs stm			2.40E+00	2.18E+00	9.17

94

TOTAL 2.5E+01 *Total Organic Compounds* 0.22 5.66 23.56

FUGITIVE ROAD DUST EMISSIONS ESTIMATE

S.SCHULTZ FEBRUARY 2005, updated 5/2006 G. Hoy

(All roads are unpaved)

From Table 13.3.3-2 Industrial roads

AP 42	PM	PM10
a	0.7	0.9
b	0.45	0.45
k	4.9	1.5

E= EMISSION FACTOR #/VEHICLE MILE TRAVELED
k= PARTICLE SIZE DIMENSIONLESS NUMBER
s=SILT CONTENT WEIGHT % 8.4 %
CONTROL EFFICIENCY 80 %

E=k*(s/12)^a x (W/3)^b

For PM: **E=4.9*(.084/12)^0.7 x (W/3)^.45**

For PM10: **E=1.5*(.084/12)^0.9 x (W/3)^.45**

ID	DESCRIPTION	TRIPS PER YEAR EA	TRIPS PER DAY EA	TRIPS PER HR. EA	TRIP LENGTH FT	VEH MILES (per year)	W Veh Wt (Tons)	PM EF lb/veh mi	PM10 EF lb/veh mi	Control from wet suppression	PM EMISSIONS Tons/yr	PM 10 EMISSIONS Tons/yr	UTM "X" M	UTM "Y" M
(8-1)	LOG TRUCK TRAFFIC	6,400	25.60	2.56	1,400	1,697	25	9.91	2.83	0.80	1.682	0.479	548250	4978285
(8-2)	LOG LOADER TRAFFIC	51,200	204.80	12.80	600	5,818	25	9.91	2.83	0.80	5.767	1.644	548250	4978285
(8-6)	LUMBER TRUCKS SHIPPING	1,920	8.00	0.80	300	109	25	9.91	2.83	0.80	0.108	0.031	548575	4978075
(8-7)	ASH TO LAND FILL	2,100	6.00	0.25	1,000	398	25	9.91	2.83	0.80	0.394	0.112	548200	4978200
(8-8)	CLINKER TO LAND FILL	216	1.00	0.04	1,000	41	25	9.91	2.83	0.80	0.041	0.012	548200	4978200
(8-9)	EMPLOYEE TRAFFIC	23,277	93.00	93.00	150	661	0.9	2.22	0.63	0.80	0.147	0.042	548400	4978225
(8-10)	WOOD FUEL DELIVERY	1,234	4.94	0.49	2,100	491	25	9.91	2.83	0.80	0.486	0.139	548225	4978400
(8-11)	PILE FUEL RECLAIM (rem'd by blowpip	0	0.00	0.00	250	0	25	9.91	2.83	0.80	0.000	0.000	548275	4978087
(8-12)	TRUCK REMOVAL OF WOOD CHIPS	0	3.70	0.50	1,500	0	25	9.91	2.83	0.80	0.000	0.000		
								TOTALS			8.62	2.46		

FUEL STORAGE AND HANDLING EMISSIONS

DIESEL FUEL		28,000	gal
TANK SIZE	2	10,000	gal
TANK DIAMETER		8.0	ft
TANK LENGTH		28.0	ft
TANK SIZE	1	8,000	gal
TANK DIAMETER		8.0	ft
TANK LENGTH		22.0	ft
LOCATION		ABOVE GROUND	
VENT SIZE		2.0	in (est.)
ANNUAL THROUGHPUT		**118,000**	**gal**
		(2005 actual was 117,476 gal)	

GASOLINE FUEL		10,000	gal
TANK SIZE	1	10,000	gal
TANK DIAMETER		8.0	ft
TANK LENGTH		28.0	ft
LOCATION		ABOVE GROUND	
VENT SIZE		2.0	in (est.)
ANNUAL THROUGHPUT		**120,000**	**gal**

LOSSES FROM TANKS ARE BREATHING, WORKING AND DISPLACEMENT LOSSES AND SPILLAGE
BREATHING AND WORKING LOSSES ARE ESTIMATED FROM EPA AP-42 SECTION 4.3
DISPLACEMENT AND SPILLAGE LOSSES FOR GASOLINE ARE ESTIMATED FROM EPA AP-42 TABLE 4.4-4

BREATHING LOSSES

Lb= 2.21*10^-4*M*(P/(14.7-P))^.68*D^1.73*H^.51*DT^.5*Fp*C*Kc

Lb= BREATHING LOSSES	DIESEL	GASOLINE	
M= MOLECULAR WEIGHT OF VAPOR IN STORAGE TANK	130	62	## mol
P= TRUE VAPOR PRESSURE AT BULK LIQUID CONDITIONS	0.0074	6.9	PSIA
D= TANK DIAMETER	8	8	ft
H= VAPOR SPACE HEIGHT	4	4	ft
DT= AVERAGE AMBIENT TEMPERATURE CHANGE D TO N	40	40	degrees F
Fp= PAINT FACTOR	1.33	1.33	
C= ADJUSTMENT FACTOR FOR SMALL DIAMETER TANKS	0.4	0.4	
Kc= CRUDE OIL FACTOR	1	1	

DIESEL BREATHING LOSSES PER TANK	**0.0409**	**lb/day**
GASOLINE BREATHING LOSSES	**1.5708**	**lb/day**

WORKING LOSSES

Lw= 2.4*10^-2*M*P*Kn*Kc

Lw= WORKING LOSSES LB/1000 GAL THROUGH PUT	DIESEL	GASOLINE	
M= MOLECULAR WEIGHT OF VAPOR IN STORAGE TANK	130	62	## mol
P= TRUE VAPOR PRESSURE AT BULK LIQUID CONDITIONS	0.0074	6.9	PSIA
Kn= TURNOVER FACTOR	1.0	1.0	
Kc= CRUDE OIL FACTOR	1.0	1.0	

DIESEL WORKING LOSSES	**0.023**	**#/1000 gal**
GASOLINE WORKING LOSSES	**10.267**	**#/1000 gal**
GASOLINE DISPLACEMENT LOSS FACTOR	**9**	**#/1000 gal**
SPILLAGE LOSS FACTOR	**0.7**	**#/1000 gal**

TOTAL DIESEL LOSSES	**98**	lb/yr	**0.011** b/hr
TOTAL GASOLINE LOSSES	**2969**	lb/yr	**0.339** b/hr

DIESEL EMISSIONS AS VOC		**0.0111**	**lb/hr**	**0.049 t/yr**
GASOLINE EMISSIONS AS VOC	79.99%	**0.2711**	**lb/hr**	**1.188 t/yr**

HAZARDOUS EMISSIONS FROM GASOLINE

COMPOUND	CAS	WT FRACTION	EMISSIONS		EMISSIONS	
BENZENE	71432	0.014	**4.75E-03**	**lb/hr**	**2.08E-02**	**t/yr**
LEAD	78002	0.0000528	**1.79E-05**	**lb/hr**	**7.84E-05**	**t/yr**
XYLENES	1E+06	0.077	**2.61E-02**	**lb/hr**	**1.14E-01**	**t/yr**
ETHYL BENZENE	1E+05	0.014	**4.75E-03**	**lb/hr**	**2.08E-02**	**t/yr**
TOLUENE	1E+05	0.065	**2.20E-02**	**lb/hr**	**9.65E-02**	**t/yr**
HEXANE	1E+05	0.03	**1.02E-02**	**lb/hr**	**4.45E-02**	**t/yr**

COOLING TOWER EMISSION ESTIMATE

S.SCHULTZ February 2005 — Bold updated with new fuel data G. Hov 6/2006

FUEL DATA:		: WOOD		MOL. WT.		REACTIONS	
CARBON		50.62%		12		C + O2 – CO2	
HYDROGEN		6.51%		2		.5H2 + O2 – H20	
OXYGEN		39.61%		32		O2 – O2	
SULFUR		0.01%		32		S + O2 – SO2	
NITROGEN		0.22%		28		????	
ASH		3.03%		—		—	
	TOTAL	100.00%					
FUEL MOISTURE CONTENT				50%			
FUEL HIGHER HEATING VALUE				8500	BTU#		
FUEL ENERGY VALUE				4250	BTU/LB		
FUEL AVAILABLE	BDT	11.75 @ ton/hr		23,500	dr lb/hr		
DRY FUEL				11,750	dry lb/hr	O2 dry	
GRATE LOADING		155		75.81	#/HR-FT^2	O2 wet	
FREE WATER				11750	LB/HR	STEAM	
FUEL ENERGY				9.98E+07	BTU/HR	Net Power	
						Annual power	
CARBON				495.85	LB-MOLE		
HYDROGEN				382.46	LB-MOLE		
SULFUR				0.04	LB-MOLE		
OXYGEN REQUIRED:							
CARBON				495.85	LB-MOLE		
HYDROGEN				191.23	LB-MOLE		
SULFUR				0.04	LB-MOLE		
				6083.92	LB-MOLE O2		
OXYGEN REQUIRED FROM AIR				541.48	LB-MOLE O2		
STD AIR REQUIRED @ 70°F 0% EXCESS				7488.90	LB/HR AIR		
EXCESS AIR DESIGN BASIS				135.00%	X		5.59%
FD INLET AIR				10100.15812	LB/HR		
GRATE AIR LOADING		155		652.18	#/HR-FT^2		
AIR LOADING / FUEL LOADING RATIO				8.60	# AIR/# WOOD		
TOTAL COMBUSTION PRODUCTS:				124589	LB/HR FLUE GAS		%
CARBON DIOXIDE				21809	LB/HR		17.55%
WATER				18634	LB/HR		15.00%
SULFUR DIOXIDE				2	LB/HR		0.00%
NITROGEN				77156	LB/HR		62.11%
OXYGEN				6331	LB/HR		5.34%
ASH				356	LB/HR		
			TOTAL	124589	LB/HR	TOTAL	100.00%
CARBON DIOXIDE				495.85	LB-MOLE		11.03%
WATER				1035.24	LB-MOLE		23.04%
SULFUR DIOXIDE				0.04	LB-MOLE		0.00%
NITROGEN				2755.40	LB-MOLE		61.32%
OXYGEN				207.21	LB-MOLE		4.61%
			TOTAL	4493.73	LB-MOLE	TOTAL	100.00%
AVERAGE MOLECULAR WEIGHT:				27.65	LB/LB-MOLE		% BY VOL DRY
DRY MOLECULAR WEIGHT				3458.49	LB-MOLE		14.33%
AVERAGE DRY MOLECULAR WEIGHT				30.53	LB/LB-MOLE		0.00%
DSCFM				22213.28	DSCFM		78.68%
							5.99%
						TOTAL	100.00%
PLANT ELEVATION				4140.00	FT	25.9715	IN HG
FLUE GAS DENSITY WET AT 70°F				0.0820	LB/FT3		
FLUE GAS DENSITY DRY AT 70°F				0.0885	LB/FT3		
FUEL ENERGY INPUT Qf:				9.98E+07	BTU/HR		
BOILER LOSSES:							ENERGY LOSS
CARBON				1.50%			1.56E+06
WATER				1000.00	BTU/LB		1.86E+07
DRY FLUE GAS				400.00	°F		8.71E+06
WET FLUE GAS				0.50	BTU/LB		3.07E+06
SKIN HEAT LOSS				3.00E+05	BTU/HR		3.00E+05
CARBON MONOXIDE				298	PPM		1.24E+06
MISC				1.00%			9.98E+05
						TOTAL	3.34E+07
BOILER EFFICIENCY:				66.55%			
BOILER PLANT ELEVATION IS:				4140.00	FEET		
FORCED DRAFT FAN SIZING:				22415	SCFM		
FORCED DRAFT FAN @100 °F ACFM:				27329	ACFM		
FORCED DRAFT FAN STATIC PRESSURE:				12.00	IN H2O		
FORCED DRAFT FAN EFFICIENCY:				70.00%	%		
FORCED DRAFT FAN HORSE POWER:				73.71	BHP		
FD FAN INLET DUCT SIZE:				40.67	INCHES		
FD FAN OUTLET DUCT SIZE:				35.39	INCHES		
STATIC PRESSURE TEST BLOCK:				15.00%	%		
VOLUME TEST BLOCK:				10.00%	%		
FORCED DRAFT FAN SPEC.:				13.80	IN H2O @	30061.97	ACFM
PREHEAT TEMPERATURE				225	°F		
COMBUSTION AIR GAS VOLUME				33429.30	ACFM		
UNDER GRATE OPENING WIDTH				44	IN		
UNDER GRATE OPENING DEPTH				9	IN		
OPEN AREA				2.75	FT^2		
% OF COMBUSTION AIR UNDER GRATE				80.00%			
COMBUSTION AIR VELOCITY				162.09	FT/SEC		
STATIC PRESSURE DROP				3.95	IN-H2O		
INDUCED DRAFT FAN INLET TEMP.				400	°F		
INDUCED DRAFT FAN VOLUME:				54308.79	ACFM		
INDUCED DRAFT FAN STATIC PRESSURE:				18	IN H2O		
INDUCED DRAFT FAN EFFICIENCY:				65.00%	%		
INDUCED DRAFT FAN HORSE POWER:				238.82	BHP		
ID FAN INLET DUCT SIZE:				53.34	INCHES		
STATIC PRESSURE TEST BLOCK:				15.00%	%		
VOLUME TEST BLOCK:				10.00%	%		
INDUCED DRAFT FAN SPEC.:				20.7	IN H2O @	59739.67	ACFM
BOILER OPERATING CONDITIONS:							
PRESSURE:				400	PSIG		
TEMPERATURE:				750	°F TT		
ENTHALPY:				1380	BTU/LB		
CONDENSATE INPUT:				319	°F		
TOTAL STEAM PRODUCED:				60317	LB/HR		
STEAM SURFACE BLOW DOWN:				1206	LB/HR		
AIR EJECTOR STEAM:				200	LB/HR		
STEAM AVAILABLE AT TURBINE:				58911	LB/HR		
ENERGY AVAILABLE AT TURBINE:				8.16E+07	BTU/HR		
4 PROCESS LOAD REQUIREMENTS LONG TERM AVERAGE:							
PRODUCTION TO BE DRIED:				0.00E+00	BD-FT		
KILN ENERGY FACTOR:				2.50	LB/BD-FT		
KILN UTILIZATION FACTOR:				90.00%	%		
AVERAGE KILN STEAM DEMAND:				0.00E+00	LB/HR		
HIGH PRESSURE HEATER CALCULATIONS:							
EXTRACTION #1 ENTHALPY:				1295.00	BTU/LB		
APPROACH TEMPERATURE:				5.00	°F		
CONDENSATE TEMPERATURE IN:				245.00	°F		
CONDENSATE TEMPERATURE OUT:				319.00	°F		
STEAM REQUIRED:				4183	LB/HR		
STEAM ENERGY INPUT:				5.38E+06	BTU/HR		
STEAM ENERGY OUT:				9.12E+05	BTU/HR		
ENERGY ADDED TO CONDENSATE				4.46E+06	BTU/HR		
INTERMEDIATE PRESSURE HEATER CALCULATIONS:				NONE			
EXTRACTION #2 ENTHALPY:				1337.00	BTU/LB		
APPROACH TEMPERATURE:				5.00	°F		
CONDENSATE TEMPERATURE IN:				245.00	°F		
CONDENSATE TEMPERATURE OUT:				245.00	°F		
STEAM REQUIRED:				0.00	LB/HR		
STEAM ENERGY INPUT:				0.00E+00	BTU/HR		
STEAM ENERGY OUT:				0.00E+00	BTU/HR		
ENERGY ADDED TO CONDENSATE				0.00E+00	BTU/HR		

PROCESS STEAM CALCULATIONS:

AVERAGE STEAM FLOW:	0.00	LB/HR
CONDENSATE RETURN:	85.00%	%
KILN STEAM ENTHALPY (Removed):	0.00	BTU/LB
EXTRACTION STEAM ENTHALPY:	1265.00	BTU/LB
DESUPERHEAT WATER TEMP:	245.00	°F
DESUPERHEAT WATER FLOW:	0.00	LB/HR
EXTRACTION STEAM FLOW:	0.00	LB/HR
ENERGY TO KILN:	0.00E+00	BTU/HR
CONDENSATE RETURN:	0.00	LB/HR
CONDENSATE TEMP:	200.00	°F
ENERGY FROM KILN:	0.00E+00	BTU/HR
ENERGY USED IN KILNS:	0.00E+00	BTU/HR

MAKE UP CONDENSATE REQUIRED:		1206.35	LB/HR
	OR:	2.41	GPM

CALCULATE DEAERATOR:

OPERATING TEMPERATURE:	245.00	°F
EXT CONDENSATE FLOW:	60117	LB/HR
ENERGY OUTPUT:	1.28E+07	BTU/HR
EXTRACTION+LP HEATER FLOW:	54728	LB/HR
EXTRACTION+LP ENERGY:	1.18E+07	BTU/HR
EXTRACTION ENTHALPY:	1211.00	BTU/LB
CONDENSATE TEMPERATURE:	170.00	°F
L.P. HEATER MASS FLOW:	50683	LB/HR
EXTRACTION FLOW:	4045.32	LB/HR
EXTRACTION ENERGY:	4.89E+06	BTU/HR
L.P. HEATER ENERGY;	6.67E+06	BTU/HR

CALCULATE LOW PRESSURE HEATER:

TEMPERATURE OUT:	170.00	°F
TEMPERATURE IN:	130.00	°F
CONDENSATE MASS FLOW:	50683	LB/HR
APPROACH TEMPERATURE:	5.00	°F
EXTRACTION ENTHALPY:	1156.00	BTU/LB
EXTRACTION FLOW:	2113.87	LB/HR
EXTRACTION ENERGY:	2.44E+06	BTU/HR

CALCULATE CONDENSER:

CONDENSER IN FLOW:	48569.55	LB/HR
ENTHALPY IN:	1060.00	BTU/LB
ENERGY INPUT:	5.15E+07	BTU/HR
TEMPERATURE OUT TURBINE	115.00	°F
ENERGY OUT:	4.21E+06	BTU/HR
ENERGY TO COOLING WATER:	4.76E+07	BTU/HR
WATER TEMPERATURE RISE:	14.85	°F
COOLING WATER MASS FLOW:	3246700	LB/HR
OR:	6500.00	GPM
DESIGN WET BULB:	68.00	°F
C.T. APPROACH TEMP.	12.00	°F
COOLING TOWER SUMP TEMP.	80	
COND WATER OUTLET TEMP:	94.85	°F

CALCULATE ENERGY TO TURBINE:	1.76E+07	BTU/HR

CALCULATE ELECTRICAL OUTPUT:

GENERATOR EFFICIENCY:	98.50%	%
GROSS GENERATION:	4985.29	KW-HR

CALCULATE GROSS PLANT EFFICIENCY:	17.03%	%
CALCULATE GROSS HEAT RATE:	20033.98	BTU/KW-HR
PLANT WATER RATE	11.82	LB-STEAM/KW-HR

CALCULATE BOILER FEED PUMP:

HEAD:	1201.20	FT
FLOW:	60317	LB/HR
EFFIENCY:	70.00%	%
HORSEPOWER:	52.28	HP

CALCULATE CONDENSATE PUMP:

HEAD:	115.50	FT
FLOW:	50683	LB/HR
EFFIENCY:	60.00%	%
HORSEPOWER:	5.91	HP

CALCULATE CIRCULATING WATER PUMPS:

HEAD:	60.00	FT
FLOW:	3246700	LB/HR
EFFIENCY:	70.00%	%
HORSEPOWER:	140.54	HP

ESTIMATE OTHER MOTOR LOADS:

COOLING TOWER FANS:	60.00	HP
FUEL SYSTEM:	60.00	HP
OVER FIRE AIR FAN:	100.00	HP
MISC.:	50.00	HP

TOTAL STATION SERVICE LOAD:	749.99	HP
STATION SERVICE LOAD:	605.62	KW-HR
NET POWER OUTPUT	4379.67	KW-HR
IDAHO POWER NET POWER BOUGHT	4682.48	KW-HR
POWER PURCHASED FROM IDAHO POWER	302.81	KW-HR

STATION WATER USE:

COOLING TOWER:	50827.02	LB/HR	
OR:	101.69	GPM:	
KILN:	0.00	LB/HR	
OR:	0.00	GPM	
BLOW DOWN:	1206.35	LB/HR	
OR:	2.41	GPM	
TOTAL:	52033.36	LB/HR	
OR:	104.11	GPM	

ANNUAL OPERATING HOURS	8,500	HOUR/YR
ANNUAL OPERATING FACTOR	100%	%
ANNUAL FUEL CONSUMPTION GREEN TONS	98,700	TONS/YR
ANNUAL FUEL CONSUMPTION DRY	49,380	BDT/YR
ANNUAL ELECTRICAL PRODUCTION	42,873,458	KWH/YR
ANNUAL NET ELECTRICAL PRODUCTION	40,269,297	KWH/YR
ANNUAL PROCESS STEAM PRODUCTION	0	1000#/YR

STACK HEIGHT	75	FT
STACK DIAMETER (INSIDE)	87	INCHES
STACK AREA	41.28	FT^2
FLUE GAS MAKE UP;		

PARTICULATE EMISSIONS RELEASED FROM STACK BASED ON PERMIT .08 GR/SDCF @ 12% CO2

PARTICULATE EMISSIONS	18.19	#/HR
ANNUAL PARTICULATE EMISSIONS 8400 HRS	76.40	TONS/YR

TAMARACK ENERGY PARTNERSHIP

COOLING TOWER EMISSION ESTIMATE

S.SCHULTZ February 2005

CIRCULATING WATER RATE	6500	GPM		
COOLING TOWER DRIFT	0.0050%	%		
DRIFT LOSS	162.435	#/HR	0.325	ppm
ENERGY INPUT	4.76E+07	Btu/hr		
WATER EVAPORATED	5.01E+04	#/HR		
EMISSIONS ESTIMATES				
PARTICULATE				
WATER CONDUCTIVITY	460	mg/l		
WATER TDS	420	mg/l		
PARTICULATE PM-10	**0.068223**	**#/HR**	**0.299**	**TONS/YR**
CHEMCO PRODUCT POLYMER 2307	Potassium Hydroxide		CAS 1310583	
USE RATE	2	gallons/day		
USE RATE IN POUNDS PER HOUR	8.68E-01	#/HR		
CONCENTRATION IN SUMP	2.11E-05	WT %		
POTASIUM HYDROXIDE IN DRIFT LOSSES IF NOT SOLUBLE (SOLUBILITY=100%	**3.42E-03**	**#/HR**	**0.015**	**TONS/YR**
CHLORINE BLEACH NaOCl	15% NaOCl	CAS 7681-52-9		
USE RATE	2.7	GAL/DAY		
USE RATE IN POUNDS PER HOUR	0.12375	#/HR		
CONCENTRATION IN SUMP	3.00606E-06	WT %		
HCL IN DRIFT LOSSES IF NOT SOLUBLE (SOLUBILITY=100%)	**7.32E-05**	**#/HR**	**0.0003**	**TONS/YR**

SOLID MATERIAL STORAGE AND HANDLING EMISSIONS ESTIMATE

S.SCHULTZ February 2005

SOURCES OF MATERIAL STORAGE AND HANDLING EMISSIONS

SOURCE	EMISSION FACTOR #/TON	REF.	NORMAL MAT. TONS/YR	MAX MAT. TONS/YR	OP HRS/YR	NORMAL EM #/HR	MAX EM #/HR	NORMAL EM TON/YR	MAX EM TON/YR
(TR-1) DEBARKER CONVEYOR DROP	**1.93E-05**	**EPA AP-42**	32531	40664	4160	0.0002	0.0002	3.15E-04	3.93E-04
(TR-2) BARK BLOW LINE TO PILE & FUEL HOUSE	**0.62**	**ORE. DEQ**	32531	40663.75	4160	4.8715	6.0894	1.01E+01	1.27E+01
BARK LINE TO PILE	1	ORE. DEQ	8000						
BARK LINE TO FUEL STORAGE HOUSE	0.5	ORE. DEQ	24531						
(TR-4) TRUCK TO PILE	**7.03E-05**	**EPA AP-42**	29480	36850	2000	0.0010	0.0013	1.04E-03	1.30E-03
PILE RECLAIM	7.03E-05	EPA AP-42	50000	55000	2000	0.0018	0.0019	1.76E-03	1.93E-03
RECLAIM HOPPER LOADING	7.03E-05	EPA AP-42	50000	55000	2000	0.0018	0.0019	1.76E-03	1.93E-03
RECLAIM CONVEYOR DROP	1.93E-05	EPA AP-42	50000	55000	2000	0.0005	0.0005	4.84E-04	5.32E-04
SAW DUST TO PILE & FUEL HOUSE	0.679	ORE. DEQ	22406	28007.5	4160	3.6546	4.5682	7.60E+00	9.50E+00
SAW DUST TO PILE	1	ORE. DEQ	8000						
SAW DUST TO FUEL STORAGE HOUSE	0.5	ORE. DEQ	14406						
(ST-2) FUEL PILE STORAGE	**4.86E-06**	**EPA AP-42**	50000	55000	8760	0.0000	0.0000	1.22E-04	1.34E-04
BOTTOM ASH TO LAND FILL	1.76E-03	EPA AP-42	735	808.5	2000	0.0006	0.0007	6.46E-04	7.11E-04
(TR-5) FLY ASH TO LAND FILL	**3.52E-03**	**EPA AP-42**	626	688.6	2000	0.0011	0.0012	1.10E-03	1.21E-03
ASH PILE STORAGE	1.01E-03	EPA AP-42	1200	1320	8760	0.0001	0.0002	6.08E-04	6.69E-04
RECLAIMER CONVEYOR DROP	1.93E-05	EPA AP-42	99012	108913.2	8520	0.0002	0.0002	9.58E-04	1.05E-03
					TOTALS	9.53	10.67	17.74	22.18

GENERAL EMISSION FACTOR EQUATIONS

LOADER AND TRUCK DROPS

E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)

	WOOD	ASH	CLINKER
E= PARTICULATE EMISSIONS #/HR			
P= MATERIAL CARRIED TONS/HR	4.56	0.313	0.367
k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	0.73	0.73
S= % SILT OR FINE PARTICULATE	10.00%	75.00%	25.00%
U= MEAN WIND SPEED MPH	4.6	4.6	4.6
H= DROP HEIGHT	4	4	4
M= MOISTURE CONTENT %	50%	15%	10%
Y= DUMPING CAPACITY YDS.	10	2.5	2.5

CONVEYOR TRANSFER AND DROP

E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)

	WOOD
E= PARTICULATE EMISSIONS #/HR	
P= MATERIAL CARRIED TONS/HR	
k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73
S= % SILT OR FINE PARTICULATE	10.00%
U= MEAN WIND SPEED MPH	4.6
H= DROP HEIGHT	4
M= MOISTURE CONTENT %	50.00%

OPEN STORAGE PILES

E= 1.7*(S/1.5)*((365-p)/235)*(f/15)*A/24

	WOOD	ASH/CLINKER
E= PARTICULATE EMISSIONS #/HOUR		
S= % SILT OR FINE PARTICULATE	10.00%	50.00%
p= NUMBER OF DAYS PER YEAR WITH >.01 IN PRECIP.	85	85
f= % OF TIME WIND EXCEEDS 12 MPH	7.40%	7.40%
A= AREA OF PILE (ACRE)	1	0.5

(7-2) DEBARKER CONVEYOR DROP

CONVEYOR TRANSFER AND DROP

E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)

	WOOD	
E= PARTICULATE EMISSIONS #/HR	0.00015125	
P= MATERIAL CARRIED TONS/HR	7.81995192	TON/HR
k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
S= % SILT OR FINE PARTICULATE	10.00%	
U= MEAN WIND SPEED MPH	4.6	
H= DROP HEIGHT	4	
M= MOISTURE CONTENT %	50.00%	
EMISSION FACTOR	1.9342E-05	#/TON

(7-6) TRUCK TO PILE

LOADER AND TRUCK DROPS

E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)

	WOOD	
E= PARTICULATE EMISSIONS #/HR	0.00103674	
P= MATERIAL CARRIED TONS/HR	14.74	
k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
S= % SILT OR FINE PARTICULATE	10.00%	
U= MEAN WIND SPEED MPH	4.6	
H= DROP HEIGHT	4	
M= MOISTURE CONTENT %	50.00%	
Y= DUMPING CAPACITY YDS.	10	
EMISSION FACTOR	7.0335E-05	#/TON

(7-7) PILE RECLAIM

(7-8) LOADER AND TRUCK DROPS

E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)

	WOOD	
E= PARTICULATE EMISSIONS #/HR	0.00175837	
P= MATERIAL CARRIED TONS/HR	25	
k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
S= % SILT OR FINE PARTICULATE	10.00%	
U= MEAN WIND SPEED MPH	4.6	
H= DROP HEIGHT	4	
M= MOISTURE CONTENT %	50.00%	
Y= DUMPING CAPACITY YDS.	10	
EMISSION FACTOR	7.0335E-05	#/TON

(7-9)	RECLAIM CONVEYOR DROP		
	CONVEYOR TRANSFER AND DROP		
	E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	0.00048355	
	P= MATERIAL CARRIED TONS/HR	25	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	10.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	EMISSION FACTOR	1.9342E-05	#/TON
(7-17)	FUEL PILE STORAGE		
	OPEN STORAGE PILES		
	E= 1.7*(S/1.5)*((365-p)/235)*(f/15)*A/24	WOOD	
	E= PARTICULATE EMISSIONS #/HOUR	2.7757E-05	
	S= % SILT OR FINE PARTICULATE	10.00%	
	p= NUMBER OF DAYS PER YEAR WITH >.01 IN PRECIP.	85	
	f= % OF TIME WIND EXCEEDS 12 MPH	7.40%	
	A= AREA OF PILE (ACRE)	1	
	EMISSION FACTOR IN #/TON	4.8631E-06	#/TON
(7-18)	BOTTOM ASH TO LAND FILL		
	LOADER AND TRUCK DROPS		
	E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)	CLINKER	
	E= PARTICULATE EMISSIONS #/HR	0.0006462	
	P= MATERIAL CARRIED TONS/HR	0.3675	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	25.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	10.00%	
	Y= DUMPING CAPACITY YDS.	5	
	EMISSION FACTOR	0.00175837	#/TON
(7-19)	FLY ASH TO LAND FILL		
	LOADER AND TRUCK DROPS		
	E=.0018*P*k*(S/5)*(U/5)*(H/5)/((M/2)*2*(Y/6)*.33)	ASH	
	E= PARTICULATE EMISSIONS #/HR	0.00110074	
	P= MATERIAL CARRIED TONS/HR	0.313	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE	75.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	15.00%	
	Y= DUMPING CAPACITY YDS.	5	
TR-10	**EMISSION FACTOR**	**0.00352**	**#/TON**
(7-20)	ASH PILE STORAGE		
	OPEN STORAGE PILES		
	E= 1.7*(S/1.5)*((365-p)/235)*(f/15)*A/24	CLINKER/ASH	
	E= PARTICULATE EMISSIONS #/HOUR	0.00013879	
	S= % SILT OR FINE PARTICULATE	50.00%	
	p= NUMBER OF DAYS PER YEAR WITH >.01 IN PRECIP.	85	
	f= % OF TIME WIND EXCEEDS 12 MPH	7.40%	
	A= AREA OF PILE (ACRE)	1	
	EMISSION FACTOR IN #/TON	0.00101314	
(7-21)	RECLAIMER CONVEYOR DROP		
	CONVEYOR TRANSFER AND DROP		
	E=.0018*P*k*(S/5)*(U/5)*(H/10)/((M/2)*2)	WOOD	
	E= PARTICULATE EMISSIONS #/HR	0.00022478	
	P= MATERIAL CARRIED TONS/HR	11.5211268	
	k= PART. SIZE MULTIPLIER .73 FOR PART. DIA.<30 uM	0.73	
	S= % SILT OR FINE PARTICULATE SAWDUST	10.00%	
	U= MEAN WIND SPEED MPH	4.6	
	H= DROP HEIGHT	4	
	M= MOISTURE CONTENT %	50.00%	
	EMISSION FACTOR	1.9342E-05	#/TON
(7-22)	CHIPS TO LOAD OUT BIN		
(7-23)	OREGON DEQ FACTOR	1	#/TON
	TONS PER YEAR	22000	TONS/YR
	CONTROL BY ENCLOSURE (CHIP BIN)	**50%**	
	EMISSION FACTOR	**0.5**	**#/TON**

Increase from Baseline Actual emissions

For fugitives, assume PM2.5 = PM/10 (material is wood by-product, bark, chips, and sawdust, with >40% moisture content)

Calculated from rolling 24 month ctual kiln throughput, assuming all other wood sawing and wood by-product processing would increase from saem percentage

Actual baseline data and % increase to proposed (already poermitted) throughputs derivations documented atop Lumber Dry Kilns worksheet

all affected processes highlighted in green
red indicates processes where throughput wouldn't change from actual baseline

No change in throughputs or emissions from any point sources except kilns

tons / yr

		PM	PM10	PM2.5	VOCs	Acetaldehyde	Formaldehyde	Methanol	Propionaldehyde	Acrolein	Total HAPs
TR-2 (from hog to outdr pile) (assume PM10 is 50% of PM)		4.20	2.10	1.05							
TR-7 (New blowpipe to boiler w/target box)		NA	NA								
TR-1 Vibrating conveyor											
TR-3 Truck transfer of mill cleanup											
TR-4 Trucked in fuel	would decr w/proposed action										
TR-5 Truck transfer to ash pile (est)											
TR-6 Bin to truck transfer	mostly chips	2.80	1.68	0.84							
ST-1 Lumber Storage		0.00	0.00	0.00							
ST-2 Outdoor stg pile		0.00	0.00								
ST-3/4 and Sawdust & Chip Truck bins	mostly chips	0.56	0.32	0.16							
P-1 Small Debarker (fugitive)	mostly bark	0.30	0.14	0.07							
P-2 Large Debarker (fugitive)	mostly bark	0.45	0.20	0.10							
P-3 Hammer Hog (fugitive)		0.31	0.14	0.07							
P-4 Target box (fugitive)		0.90	0.45	0.22							
		9.81	5.17	2.59							
		4.95	2.61	1.31							
	from Lumber Dry Kiln worksheet	0.96	0.96	0.96	26.86	2.76	0.09	1.42	0.08	0.10	4.60
		5.91	3.57	2.27							
				4.1							
				0.35							

lbs/hr

		PM	PM10	PM2.5	VOCs	Acetaldehyde	Formaldehyde	Methanol	Propionaldehyde	Acrolein	Total HAPs
TR-2 (from hog to outdr pile) (assume PM10 is 50% of PM)		1.346	0.673	0.224							
TR-7 (New blowpipe to boiler w/target box)		NA	NA								
TR-1 Vibrating conveyor											
TR-3 Truck transfer of mill cleanup											
TR-4 Trucked in fuel	would decr w/proposed action										
TR-5 Truck transfer to ash pile (est)											
TR-6 Bin to truck transfer	mostly chips	0.861	0.391	0.130							
ST-1 Lumber Storage		0.000	0.000	0.000							
ST-2 Outdoor stg pile		0.000	0.000								
ST-3/4 and Sawdust & Chip Truck bins	mostly chips	0.179	0.104	0.035							
P-1 Small Debarker (fugitive)	mostly bark	0.10	0.04	0.015							
P-2 Large Debarker (fugitive)	mostly bark	0.14	0.07	0.022							
P-3 Hammer Hog (fugitive)		0.10	0.05	0.015							
P-4 Target box (fugitive)		0.29	0.14	0.048							
	Fugitive Total	2.90	1.51	0.50							
	Fugitive Increase	1.46	0.76	0.25							
	Kiln Increase	0.28	0.28	0.28	7.72	0.79	0.02	0.41	0.02	0.03	1.32
	Total Increase	1.74	1.04	0.53							
	IDEQ Lvl 2 Mod thresh		2.8	0.63							
	IDEQ Lvl 1 Mod thresh		0.22	0.054							

IDAPA AAC or AACC, see Lumber Dry Kiln worksheet

150 horsepower

AP-42 sections 3.3 and 3.4 assume 0.007MMbtu/hr/hp

Emission factors from Manufacurer's specifications

Pollutant	EF	Hrs/yr	Units	lb/yr	tons/yr @ 5	lb/hr
CO	0.00668	100	lb/hp-hr	100.2	0.05	1.002
PM	0.0022	100	lb/hp-hr	33	0.02	0.33
PM10	0.0022	100	lb/hp-hr	33	0.02	0.33
PM2.5	0.0022	100	lb/hp-hr	33	0.02	0.33
VOC *	0.00247	100	lb/hp-hr	37.05	0.02	0.3705
NOx	0.031	100	lb/hp-hr	465	0.23	4.65
SOx	0.00205	100	lb/hp-hr	30.75	0.02	0.3075
CO2	1.15	100	lb/hp-hr	17250	8.63	172.5

6.66 Total tons/yr (w/o dbl count PM)

EFs from AP-42 Table 3.3-1

VOC emission rate listed is for "TOC"

assume PM, PM2.5 = PM10

	EF	hrs/yr		Mmbtu/hr	g/hr	lbs/hr	CO2 eqiv factor	CO2 eq lbs/hr	tons/yr	CO2 eq tons/yr
CO2	73.96	100	kg/Mmbtu	1.05	77658	171.2792	1	171.28	8.563961	8.56
CH4	3.0	100	g/Mmbtu	1.05	3.15	0.006948	21	0.15	0.000347	0.01
N2O	0.6	100	g/MMbtu	1.05	0.63	0.00139	310	0.43	6.95E-05	0.02
CO2 equiv								**171.86**		**8.59**

EPA - Emission factors for Greenhouse Gas Inventories

EF		hrs/yr		Mmbtu/hr	g/hr	lbs/hr	CO2 eqiv factor	CO2 eq lbs/hr	tons/yr	CO2 eq tons/yr
CO2	93.8	8600	kg/Mmbtu	93.0	8719800.7	19232.03	1	19232.03	82697.71	82697.71
CH4	32.0	8600	g/Mmbtu	93.0	2974.8	6.56	21	137.78	28.21	592.46
N2O	4.2	8600	g/MMbtu	93.0	390.4	0.86	310	266.95	3.70	1147.89
CO2 equiv								**19636.76**		**84438.07**

EPA - Emission factors for Greenhouse Gas Inventories

Appendix E

Air Quality Modeling Support Documents

Attachment 1

Modeling Protocol Approval Letter

with documentation on our responses following each comment in italics

STATE OF IDAHO
DEPARTME
NT OF
ENVIRONM
ENTAL
QUALITY

1410 NORTH HILTON, BOISE, ID 83706 - (208) 373-0502

C. L. "BUTCH"
OTTER, GOVERNOR
CURT FRANSEN, DIRECTOR

June 3, 2013

Chris Johnson
Consultant for Tamarack Mill

RE: Modeling protocol for the Tamarack Mill Permit to Construct application for proposed changes to their sawmill mill facility in New Meadows, Idaho.

Chris:

DEQ received your dispersion modeling protocol submitted via email, received on May 14, 2013. The modeling protocol was submitted on behalf of Tamarack Mill (Tamarack). The modeling protocol proposes methods and data for use in the ambient impact analyses of a PTC application for proposed modifications to the Tamarack facility.

The modeling protocol has been reviewed and DEQ has the following comments:

- Comment 1: The protocol states that the project involves installation of an additional dry kiln, and emphasizes that the modification will not increase mill capacity beyond current production levels. The change in capacity must be evaluated for all averaging periods associated with specific air quality standards. Emissions modeled for the Significant Impact Level (SIL) analysis must reflect the change in allowable emissions from any specific point. Since an additional kiln will be operated, the application must describe in detail how daily maximum throughput (and resulting emissions) will not increase as a result of the modification, and it must describe how such restrictions can be made enforceable with a permit. If there will be no

increase in daily emissions from kilns, then the modification should be assessed by modeling the allowable capacity of the new kiln as positive emissions along with reduction in emissions from the existing kiln, modeled as negative emissions.

Criteria pollutant SIL modeling was performed as recommended, with max daily emissions from new kilns modeled as positive and reduction in emissions from existing kilns modeled as negative. That modeling identified a limited number of receptors, all on Hwy 95 or in that highway's right of way, where the new kilns could have a significant impact for particulates

- Comment 2: The submitted application must provide clear, thorough, and complete justification and documentation of release parameters of all sources included in the modeling analyses. As results approach applicable standards, DEQ will demand a greater degree of stack parameter justification. Also, each application must be complete in itself. Referencing previously provided documentation is not adequate. Release parameters of existing co-contributing sources must also be verified in the application. Documentation must be provided with the current application submitted. If equations/calculations were used in the generation of parameters, copies of these equations/calculations must be provided in the application such that DEQ reviewers can easily follow and reproduce the values. If kiln exhausts do not vent uninterrupted in the vertical dimension, DEQ will allow the use of the non-default option of modeling a capped release. This effectively turns off the momentum flux while allowing the buoyancy flux to govern plume rise.

  The derivation of model source parameters are described in the tables in Section 7 describing the model input, and in the emission inventory in Appendix D. All model source parameters match those approved by IDEQ in 2009 facility-wide modeling.

- Comment 3: The protocol describes the receptor grid proposed, including 25-meter spacing along the boundary and road bisecting the facility. The adequacy of the receptor grid is largely dependent upon modeling results and the location of the controlling concentrations. It is the applicant's responsibility to use a sufficiently tight receptor network such that the maximum modeled concentration is reasonably resolved. The receptor grid should be sufficiently tight such that receptors near the maximum-impacted receptor do not show substantially different concentrations than that of the maximum-impacted receptor.

  The model receptor network matches the one approved by IDEQ for the facility's 2009 facility-wide modeling. Receptor density in all areas at or near model maximum impact predictions was 25 meters or less, meeting or exceeding IDEQ Modeling Guidelines recommendations and providing fine resolution in maximum impact areas.

- Comment 4: After reviewing the meteorological data assessment presented in the protocol, DEQ agrees that the McCall meteorological data are less likely to be representative of the wind fields at the site than rotated Boise data. Also, because maximum impacts are likely to be very close to the facility and largely driven by downwash, parameters such as wind direction and speed will be much more important

than other meteorological parameters (temperature, cloud cover, surface characteristics, etc) that would be better represented by McCall data. DEQ will not require modeling to be performed using both Boise and McCall data because of the following: 1) the magnitude of emissions increase associated with the project is relatively small, as the facility's consultant insists there will be no actual increase in emissions associated with the project; 2) the receptors likely to be impacted to the greatest degree are those along the road bisecting the facility, and there is a very limited opportunity for public exposure at such ambient air locations.

BOI met data was used, as proposed and approved by IDEQ.

- Comment 5: There are no particulate monitors in the area that could be considered as reasonably representative of the Tamarack site. A beta version of a background concentration tool was developed by the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) and provided through Washington State University (located at http://lar.wsu.edu/nw-airquest/lookup.html). The tool uses regional scale modeling of pollutants in Washington, Oregon, and Idaho, with modeling results adjusted according to available monitoring data. Using the background concentration tool, DEQ suggests the following background concentrations for the Tamarack site: $PM_{2.5}$ 24-hour = 16 $\mu g/m^3$; $PM_{2.5}$ annual = 6; PM_{10} 24-hour = 38 $\mu g/m^3$. These values compare fairly well to monitored values from other fairly remote locations.

The IDEQ recommended background values were used. Since no PM10 annual average background was recommended, the background value IDEQ recommended in 2009 was used. In that case, compliance was shown by a wide enough margin that compliance can be assumed with any reasonably conceivable background value.

- Comment 6: The results of the SIL analyses can be used to narrow the number of receptors to include in the cumulative NAAQS impact analyses. A cumulative impact analysis is only required for those receptors where the project was shown to have an impact exceeding the SILs. The modeled design values to compare against the standards, as specified in the *State of Idaho Guideline for Performing Air Quality Impact Analyses* (DEQ Modeling Guideline at http://www.deq.idaho.gov/media/355037-modeling-guideline.pdf), are as follows:

  24-hour PM_{10} – When using a 5-year meteorological data set, use the maximum of 6th high modeled values at each receptor;

24-hour $PM_{2.5}$ – When using a 5-year meteorological data set, use the maximum of 5- year means of 8th highest modeled values at each receptor (this is an adjustment from what is stated in the modeling guideline and is the method proposed by draft EPA guidance - *Draft Guidance for $PM_{2.5}$ Permit Modeling*. Memorandum from Stephen D. Page, Director, Office of Air Quality Planning and Standards, EPA, March 4, 2013);

Annual $PM_{2.5}$ – When using a 5-year meteorological data set, using the maximum of 5- year means of annual average modeled values at each receptor.

Impacts along the road cannot be adjusted for an assumed lower exposure level. All areas of ambient air must be assessed in the same manner, with the regulatory exception for carcinogenic TAPs as noted in Idaho Air Rules.

IDEQ recommended methodologies were applied a s described in Section 7. The NAAQS demonstration were performed for all receptors where significant impacts from the proposed change were identified (a limited number of receptors on Hwy 95 and/or it's ROW). The recommended compliance determination methods were used. No reduction was used for model predicted 24 hour average impacts predicted on the highway or it's right of way

DEQ's modeling staff considers the submitted dispersion modeling protocol, with resolution of the additional items noted above, to be approved. It should be noted, however, that the approval of this modeling protocol is not meant to imply approval of a completed dispersion modeling analysis. Please refer to the *State of Idaho Guideline for Performing Air Quality Impact Analyses*, which is available on the Internet at http://www.deq.idaho.gov/media/355037- modeling-guideline.pdf, for further guidance.

To ensure a complete and timely review of the final analysis, our modeling staff requests that electronic copies of all modeling input and output files (including BPIP and AERMAP input and output files) are submitted with an analysis report. A copy of this protocol approval notice should also be included with the submitted application. If DEQ provided model-ready meteorological data files, then these do not need to be resubmitted to DEQ with the application. If you have any further questions or comments, please contact me at (208) 373-0112.

Sincerely,

Kevin Schilling

Kevin Schilling
Stationary Source Air Modeling Coordinator
Idaho Department of Environmental Quality
208 373-0112

Attachment 2

BPIP-Prime Run Summary

Building dimensions and heights are detailed in the BPIP and BST input files

Electronic file Tamarack 060513.SUM provides a complete and thorough summary of all input and output from the BPIP Prime downwash analysis.

Base elevations for all stacks atop buildings were set to the AERMAP derived building base elevation

Appendix F

Permit Application Supporting Documents

Attachment 1

IDEQ Pre-Permit Construction Application Checklist

COMPLETENESS DETERMINATION CHECKLIST

Company Name Tamarack Mills / Evergreen Forest.

Location Tamarack Idaho

Project PTC Modification to Add Three Wellons Dry Kilns with 15-Day Pre-Construction Approval PTC Application

Reviewer Chris Johnson **Date** 6-10-2013

IDEQ 15-Day Pre-Permit Construction Approval Application Completeness Checklist, and Documentation of the ICP application's compliance assuring a complete application

By meeting those completeness requirements, the application also meets all requirements on the IDEQ Minor Source Permit To Construct Application Completeness Checklist, which are duplicative.

I. **Actions Needed Before Submitting Application** **(YES / NO)**

y Refer to the Rule. Read the Pre-Permit Construction requirements contained in IDAPA 58.01.01.213.

PTC Requirements in IDAPA 58.01.01.200-228 have been reviewed, and followed in this PTC application.

y Refer to DEQ's Pre-Permit Construction Approval Guidance Document. DEQ has developed a guidance document to aid applicants in submitting a complete pre-permit construction approval application.

The IDEQ Pre-Permit Construction Approval Guidance Document was used as a reference for developing the permit application. The application structure tries to exactly match the recommendation in that document. This document verifies that everything necessary for a complete application is included and locatable.

y Consult with DEQ Representatives. Schedule a meeting with DEQ to discuss application requirements before submitting the pre-permit construction approval application. The meeting can be in person or on the phone. Contact DEQ's Air Quality Permit Coordinator at (208) 373-0502 to schedule the meeting.

Regular communications with IDEQ Air Permits Manager William Rogers and IDEQ Air Quality Modeling Representative Kevin Schilling met the requirement for pre-application meeting, as verified in a May 16, 2013 EMAIL from Mr. Rogers to Chris Johnson.

y Schedule Informational Meeting. Schedule an informational meeting before submitting the pre-permit construction approval application for the purposes of satisfying IDAPA 58.01.01.213.02.a. The purpose for the informational meeting is to provide information about the proposed project to the general public. Refer to IDAPA 58.01.01.213.01.c.

We drew up plans to announce and hold the Informational meeting well in advance of the permit application. The copy of the Affidavit of Publication and the announcement in the June 12th

Adams County Record, the local county newspaper in Appendix C documents the scheduled June 24 informational meeting at the facility's office. All meeting plans and documentation are designed to meet IDAPA 58.01.01.213 requirements.

y Submit Ambient Air Quality Modeling Protocol. It is required that an ambient air quality modeling protocol be submitted to DEQ at least two (2) weeks before the pre-permit construction approval application is submitted.

The air quality modeling protocol was submitted to IDEQ on May 14. All IDEQ comments and recommendations in the protocol review were incorporated into the final modeling analysis submitted.

y Written DEQ Approved Protocol. Written DEQ approval of the modeling protocol must be received before the pre-permit construction approval application is submitted. Refer to IDAPA 58.01.01.213.01.c.

We received IDEQ written approval for our modeling protocol June 3. Copies of IDEQ's written approval are included in Appendix E of the application. We also documented our responses to IDEQ comments in the protocol approval in that appendix.

II. Application Content

Application content should be prepared using the checklist below. The checklist is based on the requirements contained in IDAPA 58.01.01.213 and DEQ's Pre-Permit Construction Approval Guidance Document.

y Pre-Permit Construction Eligibility and Proof of Eligibility. Pre-permit construction approval is available for minor sources and for minor modifications only. Emissions netting and emissions offsets are not allowed to be used. A certified proof of pre-permit construction eligibility must be submitted with the pre-permit construction approval application. Refer to IDAPA 58.01.01.213.01.

The facility Emission Inventory, in Tables 5-1 and 5-2 and in more detail in Appendix D, shows that facility-wide emissions are well below the 250 ton per year criteria pollutant major source category for this non-designated facility, and continuing to reach the 100 ton per year threshold for Title V major sources for CO only as the result of currently permitted activities. Facility HAP emissions are minimal, and do not approach the HAP major source threshold of 25 tons/yr. That emission inventory also shows that the proposed increase in emissions as a result of the proposed action would not reach major modification thresholds. Therefore, this proposed action is a non-major modification. As such, the facility is eligible for the Pre-Permit Construction process being requested here.

y Request to Construct Before Obtaining a Permit to Construct. A letter requesting the ability to construct before obtaining the required permit to construct must be submitted with the pre-permit construction approval application. Refer to IDAPA 58.01.01.213.01.c.

The facility's request for Pre-Permit Construction approval is clearly stated in the subject line and first paragraph of the cover letter accompanying this application, and in the introduction to the application before Section 1.

y Apply for a Permit to Construct. Submit a Permit to Construct application using forms available on DEQ's website

The main text of this application meets those requirements.

y Permit to Construct Application Fee. The permit to construct application fee must be submitted at the time the original pre-permit construction approval application is submitted. Refer to IDAPA 58.01.01.224.

The $1000 application fee is included in the application package.

y Notice of Informational Meeting. Within ten (10) days after the submittal of the pre-permit construction approval application, an information meeting must be held in at least one location in the region where the stationary source will be located. The information meeting must be made known by notice published at least ten (10) days before the information meeting in a newspaper of general circulation in the county in which the stationary source will be located.

A copy of this notice, as published, must be submitted with the pre-permit construction approval application. Refer to IDAPA 58.01.01.213.02.a.

As mentioned above, a copy of the announcement in the June 12th Adams County Record in Appendix C documents the scheduled June 24 Informational meeting.

y Process Description(s). The process or processes for which pre-permit construction approval is requested must be described in sufficient detail and clarity such that a member of the general public not familiar with air quality can clearly understand the proposed project. A process flow diagram is required for each process for which pre-permit construction approval is requested. Refer to IDAPA 58.01.01.213.01.c.

See the Introduction section of this application for a description of what we're applying for, and Section 2 for the process description.

A brief summary of the process(es) proposed: The proposed action consists of the addition of three Wellons double track dry kilns on the east side of the facility alongside the lumber storage yard, in addition to the three existing lumber dry kilns. Lumber from the sawmill would be dried in the kilns (existing and new), then shipped offsite for final planing and delivery preparation. We do not request any change in cumulative annual throughput though the lumber dry kilns, so no change in potential annual emissions, only spreading the existing allowable lumber drying across six kilns rather than the currently existing and permitted three kilns. There would be little to no change in short term kiln throughput rates; those rates are controlled by sawmill production rate and available steam, especially because of the significant amount of steam to being a cold kiln up to heat.

y Equipment List. All equipment that will be used for which pre-permit construction approval is requested must be described in detail. Such description includes, but is not limited to, manufacturer, model number or other descriptor, serial number, maximum process rate, proposed process rate, maximum heat input capacity, stack height, stack diameter, stack gas flow rate, stack gas temperature, etc. All equipment that will be used for which pre-permit construction approval is requested must be clearly labeled on the process flow diagram. Refer to IDAPA 58.01.01.213.01.c.

All existing equipment is documented in the Tamarack Tier I and PTC / Tier II permits. The proposed action would add three Wellons double track dry kilns. The new equipment proposed is discussed in the detailed process descriptions in Section 1, and documented in the IDEQ EU forms in Appendix A and in the facility emission inventory in Appendix D. Appendix B provides a detailed equipment list.

y Scaled Plot Plan. It is recommended that a scaled plot plan be included in the pre-permit construction approval application and must clearly label the location of each proposed process and the equipment that will be used in the process.

Section 6 includes documentation on the plot plan and supporting documentation provided to meet IDEQ form PP requirements. Figures in the Modeling Report in Section 6 show the facility location on a USGS topographic map, and the model sources and claim boundary on UTM coordinates. .

y Proposed Emissions Limits and Modeled Ambient Concentration for All Regulated Air Pollutants. All proposed emission limits and modeled ambient concentrations for all regulated air pollutants must demonstrate compliance with all applicable air quality rules and regulations. Regulated air pollutants include criteria air pollutants (PM_{10}, SO_x, NO_2, O_3, CO, lead), toxic air pollutants listed pursuant to IDAPA 58.01.01.585 and 586, and hazardous air pollutants listed pursuant to Section 112 of the 1990 Clean Air Act Amendments (go to http://www.epa.gov/ttn/atw/188polls.html). Describe in detail how the proposed emissions limits and modeled ambient concentrations demonstrate compliance with each applicable air quality rule and regulation. It is requested that emissions calculations, assumptions, and documentation be submitted with sufficient detail so DEQ can verify the validity of the emissions estimates. Refer to IDAPA 58.01.01.213.01.c.

Section 7 of this application provides the air quality modeling report, which was prepared consistent with the IDEQ-approved Modeling Protocol. All existing facility processes are unaffected by the proposed action, so no new permit or throughput limits are proposed for any existing equipment or process. As documented in Section 8, the only permit limits proposed are to extend are the current cumulative kiln throughput limit of 76 MMbf/year across 6 kilns instead of the current 3. Documentation in Appendix D documents process considerations that limit throughput to levels at or below those proposed in the emission inventory.

y Restrictions on Source's Potential To Emit

The Potential To Emit for all existing facility sources and processes would be unchanged by the proposed action, except for the change in location of some of the lumber dry kiln emissions, so no change in or addition of restrictions is proposed. Documentation in Section 8 show a proposed cumulative kiln throughput limit of 76 MMbf/yr. Appendix D documents PTE calculations consistent with the existing permit limits and the proposed kiln throughput limits..

y List all Applicable Requirements. All applicable requirements must be cited by the rule or regulation section/subpart that applies for each emissions unit. Refer to IDAPA 58.01.01.213.01.c.

Section 4 documents all applicable regulatory requirements, and compliance of the proposed action with those limits.

y Certification of Pre-Permit Construction Approval Application. The pre-permit construction approval application must be signed by the Responsible Official and must contain a certification signed by the Responsible Official. The certification must state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. Refer to IDAPA 58.01.01.213.01.d and IDAPA 58.01.01.123.

The required certifications are included on Form GI in Appendix A of this application.

y Submit the Pre-Construction Approval Application. Submit the pre-permit construction approval application to the following address:

Air Quality Program Office – Application Processing
Department of Environmental Quality
1410 North Hilton
Boise, ID 83706-1255

Attachment 2

Department of Environmental Quality - Air Quality Division
Toxic Air Pollutant (TAP) Preconstruction Compliance Application Completeness Checklist

I. Actions Needed Before Submitting Application

X☐ Refer to the Rule. Read the Demonstration of Preconstruction Compliance with Toxic Standards contained in IDAPA 58.01.01.210 (Rules Section 210) Rules for the Control of Air Pollution in Idaho (Rules). Toxic air pollutants (TAPs) are regulated in accordance with Rules Section 210 only from emission units constructed or modified on or after July 1, 1995.

Determine if a new (constructed after June 30, 1995) emission unit has the potential to emit a TAP listed in IDAPA 58.01.01.585 (Rules Section 585) or IDAPA 58.0101.586 (Rules Section 586). Potential toxic air pollutants can be determined by reviewing commonly available emission factors, such as EPA's AP-42, or calculating emissions using a mass balance. For TAPs that are emitted but not listed in Rules Section 585 and 586, contact the Air Permit Hotline at 877-5PERMIT.

Will the new or modified source result in new or increased potential emissions of TAPs?

X☐ Yes. If yes, continue to section II.

II. Application Content

If a new source has the potential to emit a TAP, or if a modification to an existing source increases the potential to emit of a TAP, then one of the following methods (A-J) of demonstrating TAP preconstruction compliance must be documented for each TAP. Standard methods are one of A-C. The applicant may also use one of the specialized methods in D-J. Fugitive TAP emissions shall be included in the analysis. The compliance methods are based on the requirements of Rules Section 210. Applicants are often able to demonstrate preconstruction TAP compliance using a combination of methods A and **B (B used in this application)**.

Emission Calculations

Emissions calculation methodologies used are dependent on whether a specific TAP is a non-carcinogen or a carcinogen and whether the compliance method chosen from the list below calls for controlled or uncontrolled emissions. Non-carcinogens are regulated based on a 24-hour averaging period and emission rates used for comparison to the non-carcinogen screening emissions level (EL) should be the maximum controlled or uncontrolled emissions quantity during any 24-hour period divided by 24. Carcinogens are regulated as a long term increment and emission rates used for comparison to the carcinogen EL should be the maximum controlled or uncontrolled emissions quantity during any 1 year period divided by 8760.

Modeling Analyses

Atmospheric dispersion modeling is required when controlled TAP emissions rates exceed ELs. Modeling analyses should be conducted in accordance with IDAPA 58.01.01.210.03. Quantification of Ambient Concentrations and the State of Idaho Air Quality Modeling Guideline (http;//www.deq.idaho.gov/air/data_reports/publications.cfm#model). For non-carcinogen 24-hour increments, compliance is demonstrated using the maximum modeled 24-hour-averaged concentration from available meteorological data (typically a five-year data set). For carcinogen long-term increments, compliance is demonstrated using the maximum modeled average concentration for the duration of the data set (one-year to five-year data set).

A submitted modeling report should clearly specify modeled emissions rates and results. All electronic model input files should be submitted, including BPIP input files.

Poly aromatic Hydrocarbons

Questions often arise regarding polyaromatic hydrocarbons as they are listed in Rules Section 586 of the Rules. The following two points are provided for clarification.

1) The following group of 7 PAH's (i.e. named POM), shall be combined and considered as one TAP equivalent in potency to benzo(a)pryrene:

   Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a, h) anthrancene, chrysene, indeno(1,2,3,-cd) pyrene, benzo (a) pyrene

2) All other PAH's are considered as a single pollutant and the emission of each is compared the PAH increment listed in Rules Section 586.

Compliance Methods

Fill in letter(s) (A-J) from the list below for TAP compliance demonstration method(s) used: B.

A. TAPs Compliance Using Uncontrolled Emissions (Rules Section 210.05)

☐ Calculate the uncontrolled emissions (Rules Section 210.05) of each TAP from new emissions units. Uncontrolled emission rates are emissions at maximum capacity without the effect of physical or operational limitations. See Quantification of Emission Rates (Rules Section 210.02). Show calculations and state all assumptions.

☐ Calculate the increase of TAP emissions from modified emissions units. Show calculations and state all assumptions. The increase in emissions for a modified emission unit is determined by subtracting the potential to emit the TAP before the modification from the uncontrolled potential to emit after the modification. In conducting this analysis please note the following for TAP emission rate increase determinations:

Uncontrolled emission rates after the modification are emissions at maximum capacity without the effect of physical or operational limitations.

When determining the emissions increase from existing permitted emissions units the emission rate before the modification is equivalent to the emission limits contained in the permit for the TAPs or, if there no emission limits in the permit, by determining what the emission rate is under the physical or operational limitations contained in the permit.

☐ Aggregate the uncontrolled emissions for each TAP from all new emissions units with the increase in emissions from all modified emissions units.

☐ If the aggregated emissions increase for each TAP from the new and modified units, as determined above, are less than or equal to the respective TAP screening emissions level (EL) then preconstruction compliance with toxic standards has been demonstrated and no further analysis is required. Submit a table comparing the uncontrolled emissions rate to the applicable EL.

If aggregated emissions are greater than the respective screening emissions level (EL) for any pollutants, use another compliance demonstration method for those pollutants, such as methods B, C, or D.

B. TAP Compliance Using Uncontrolled Ambient Concentration (Rules Section 210.06)

X☐ Determine the uncontrolled emissions of each TAP from new emission units and the increase in emissions from all modified emissions units as described above in compliance Method A. Show calculations and state all assumptions.

X☐ Model the uncontrolled emissions of each TAP from new emissions units and the increase in emissions from all modified emissions units.

X☐ If the uncontrolled ambient concentration is less than or equal to the acceptable ambient concentration increment listed in Rules Section 585 and 586 no further procedures for demonstrating preconstruction compliance will be required for that TAP as part of the application process. Submit a table comparing uncontrolled ambient concentrations to the applicable acceptable ambient concentration.

C. TAP Compliance Using Controlled Ambient Concentrations (Rules Section 210.08)

☐ Determine the controlled emissions from new emissions units and the controlled emission increase from modified emissions units. Show all calculations and state all assumptions, including the control methods.

☐ Model the controlled emissions of each TAP from new emissions units and the increase in controlled emissions from all modified emissions units.

TAP emissions levels (EL) included in Rules Section 585 and 586 are derived based on generic modeling. If the sum the of emissions from new and modified sources is below the EL compliance is demonstrated without the need to conduct site-specific dispersion modeling.

☐ If the controlled ambient concentration from emission increases from new emissions units and modified emissions units is less than the applicable acceptable ambient concentration no further procedures for demonstrating preconstruction compliance are required.

☐ The Department shall include an emission limit for the TAP in the permit to construct that is equal to or, if requested by the applicant, less than the emission rate that was used in the modeling (Rules Section 210.08.c).

In some instances the Department may consider a throughput limit or other inherently-limiting operational restriction in a permit as an effective emission limit for the TAP, rather than including a specific emission rate limit.. Note that the applicant may model uncontrolled emissions as described in compliance Method B in an attempt to avoid TAPs emissions limitations.

D. TAPs Compliance for NSPS and NESHAP Sources (Rules Section 210.20)

☐ If the owner or operator demonstrates that the TAP emissions from the source or modification is regulated by 40 CFR Part 60, 40 CFR Part 61 or 40 CFR Part 63, no further procedures for demonstrating preconstruction compliance will be required for that TAP.

☐ Provide a demonstration that the TAP is regulated under 40 CFR Part 60, 40 CFR Part 61 or 40 CFR Part 63. This demonstration must be specific for each TAP emitted.

E. TAP Compliance Using Net Emissions (Rules Section 210.09)

An applicant may use TAP net emissions to show preconstruction compliance; however this analysis may require more work than some of the others procedures available to demonstrate preconstruction compliance. When netting, all emissions increases and decreases of the TAP that have occurred within five years must be included in the analysis as described below.

☐ Determine the net emission increase for a TAP. A net emissions increase shall be an emission increase from a particular modification plus any other increase and decreases in actual emissions at the facility that are creditable and contemporaneous with particular modification (Rules Section 210.09). Show all calculations and state all assumptions.

☐ A creditable increase or decrease in actual emissions is contemporaneous with a particular modification if it occurs within five (5) years of the commencement of the construction or modification (Rules Section 210.09.a).

Actual emissions are (Rules Section 006.03):

- ☐ In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two year period which precedes the particular date and which is representative of normal source operation. The Department shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, productions rates, and types of materials processed, stored, or combusted during the selected time period.

- ☐ The Department may presume that the source-specific allowable emissions for the unit are equivalent to actual emissions of the unit.

☐ For any emission unit (except electric utility steam generating units) that has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

☐ Do not include emissions increases from emission units that have an uncontrolled emission rate that is 10% or less than the applicable screening emission level (EL) in Rules Section 585 and 586 (Rules Section 007.09.c.ii) and do not include emission increases from environmental remediation sources (Rules Section 007.09.c.iii). Show all calculations and state all assumptions.

☐ If the net emission increase is less than or equal to the applicable screening emissions level (EL) listed in Rules Section 585 and 586, no further procedures for demonstrating preconstruction compliance will be required (Rules Section 210.09.c).

☐ The Department shall include emission limits and other permit terms for the TAP in the permit to construct that will assure that the facility will be operated in the manner described in the preconstruction compliance demonstration (Rules Section 210.09.d).

In some instances the Department may consider a throughput limit or other inherently-limiting operational restriction in a permit as an effective emission limit for the TAP. rather than including a specific emission rate limit..

F. TAP Compliance Using Net Ambient Concentration (Rules Section 210.10)

☐ Determine the emission increase from the new source or modification, and all other creditable emission increases and decrease using the methods described above in compliance Method E.

☐ Model the emissions increases and decreases for each TAP. Modeling TAP decreases is accomplished by using negative valued emissions rates in the model input.

☐ If the net ambient concentration is less than or equal to the applicable ambient concentration increment listed in Rules Section 585 and 586, no further procedures for demonstrating preconstruction compliance are required.

☐ The Department shall include emission limits and other permit terms for the TAP in the permit to construct that will assure that the facility will be operated in the manner described in the preconstruction compliance demonstration (Rules Section 210.10.d).

In some instances the Department may consider a throughput limit or other inherently-limiting operational restriction in a permit as an effective emission limit for the TAP, rather than including a specific emission rate limit..

G. TAP Compliance Using T-RACT Ambient Concentration for Carcinogens (Rules Section 210.12)

The applicant may use T-RACT to demonstrate preconstruction compliance for TAPs listed in Rules Section 586 only.

T-RACT is an emissions standard based on the lowest emission of TAPs that a particular source is capable of meeting by application of control technology that is reasonably available, as determined by the Department, considering technological and economic feasibility. If control technology is not feasible, the emission standard may be based on the application of a design, equipment, work practice or operational requirement, or combination thereof (Rules Section 007.16).

T-RACT Submittal Requirements

☐ The applicant shall submit the following information to the Department identifying and documenting which control technologies or other requirements the applicant believes to be T-RACT (Rules Section 210.14).

The technical feasibility of a control technology or other requirements for a particular source shall be determined considering several factors including but not limited to:

☐ Process and operating procedures, raw materials and physical plant layout.

☐ The environmental impacts caused by the control technology that can not be mitigated, including but not limited to, water pollution and the production of solid wastes.

☐ The energy requirements of the control technology.

The economic feasibility of a control technology or other requirement, including the costs of necessary mitigation measures, for a particular source shall be determined considering several factors including, but not limited to:

☐ Capital costs.

☐ Cost effectiveness, which is the annualized cost of the control technology divided by the amount of emission reduction.

☐ The difference in costs between the particular source and other similar sources, if any, that have implemented emissions reductions.

☐ Compare the source's or modification's approved T-RACT ambient concentration to the applicable acceptable ambient concentration increment listed in Rules Section 586 multiplied by a factor of 10. If the sources approved T-RACT concentration is less than or equal to 10 times the applicable acceptable ambient concentration increment listed in Rules Section 586, no further procedures for demonstrating preconstruction compliance will be required.

☐ If an application is submitted to the Department without T-RACT and determined complete, and T-RACT is later determined to be applicable the completeness determination of the application will be revoked until a supplemental application is submitted and determined complete. When the supplemental application is determined complete, the timeline for agency action shall be reinitiated (Rules Section 210.13.b).

☐ If the Department determines that the source has proposed T-RACT, the Department shall develop emission standards to be incorporated into a permit to construct.

In some instances, the Department may consider a throughput limit or other inherently limiting operational restriction in a permit as an effective emission limit for the TAP, rather than including a specific emission rate limit..

IDEQ precedent accepts reasonable operation of lumber dry kilns as T-RACT, as verified by numerous previous permit decisions including for this facility in 2009. The required documentation to support T-RACT determination is included in Section5 of this application

H. TAP Compliance Using the Short Term Source Factor (Rules Section 210.15)

☐ For short term sources, the applicant may utilize a short term adjustment factor of ten (10) only for a carcinogenic pollutant listed in Rules Section 586. For a carcinogen listed in Rules Section

586 multiply either the applicable acceptable ambient concentration increment or the screening emission rate (EL), but not both, by ten (10) to demonstrate preconstruction compliance (Rules Section 210.15).

☐ A short term source is any new stationary source or modification to an existing source, with an operational life no greater than five (5) years from the inception of any operations to cessation of actual operations (Rules Section 210.15).

I. TAP Compliance for Environmental Remediation Sources (Rules Section 210.16)

☐ For remediation sources subject to or regulated by the Resource Conservation and Recovery Act and the Idaho Rules and Standard for Hazardous Waste, or the comprehensive Environmental Response, Compensation and Liability Act or a consent order, if the estimated ambient concentration is greater than the acceptable ambient impact increment listed in Rules Section 585 and 586, Best Available Control Technology shall be applied and operated until the estimated uncontrolled emission from the remediation source are below the applicable acceptable ambient concentration increment (Rules Section 210.16).

J. TAP Compliance Using Offset Ambient Concentration (Rules Section 210.11)

☐ Contact the Department prior to proposing to utilize Offset Ambient Concentrations to demonstrate preconstruction compliance.

☐ Emission offsets must satisfy the requirements for emission reduction credits (Rules Section 460).

- The proposed level of allowable emissions must be less than the actual emissions of the emissions units providing the offsets (Rules Section 460.01).
- An air quality permit must be issued that restricts the potential to emit of the emission unit providing the offset.
- Emission reduction imposed by local, state or federal regulations or permits shall not be allowed.

☐ Compare the source's or modifications approved emission offset ambient concentration to the applicable acceptable ambient concentration listed in Rules Section 585 and 586. If the source's or modifications approved offset concentration is less than the acceptable ambient concentration listed in Rules Section 585 and 586, no further procedures for demonstrating preconstruction compliance will be required.

☐ The Department shall include emission limits and other permit terms for the TAP in the permit to construct that will assure that the facility will be operated in the manner described in the preconstruction compliance demonstration (Rules Section 210.10.d).