Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

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July 28, 2011

Mr. Dan Claridge
Thompson River Lumber Company
Thompson Falls Sawmill
P.O. Box 279
Thompson Falls, MT 59873

Dear Mr. Claridge:

Montana Air Quality Permit #4643-00 is deemed final as of July 28, 2011, by the Department of Environmental Quality (Department). This permit is for a sawmill. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Vickie Walsh
Air Permitting Program Supervisor
Air Resources Management Bureau
(406) 444-3490

Jenny O'Mara
Environmental Engineering Specialist
Air Resources Management Bureau
(406) 444-1452

VW:JO:KW
Enclosures

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #4643-00

Thompson River Lumber Company
Thompson Falls Sawmill
P.O. Box 279
Thompson Falls, MT 59873

July 28, 2011

MONTANA AIR QUALITY PERMIT

Issued to: Thompson River Lumber Company
Thompson Falls Sawmill
P.O. Box 279
Thompson Falls, MT 59873

MAQP #4643-00
Application Complete: 05/17/2011
Preliminary Decision Issued: 06/24/2011
Department Decision Issued: 07/12/2011
Permit Final: 07/28/2011
AFS# 089-013

A Montana air quality permit (MAQP), with conditions, is hereby granted to Thompson River Lumber Company (TRL) pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.740 *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Permitted Equipment:

TRL owns and operates an existing sawmill. Permitted equipment at TRL includes: a Wood-fired boiler with a maximum steam production of 40,000 pounds hour (lb/hr) or 60 million British thermal units per hour (MMBtu/hr) equipped with an electrified filter bed in series with multi-cyclones; two propane boilers (Cleaver Brooks and York Shipley, both boilers have a design capacity of 14.654 MMBtu/hr); lumber drying kilns (with a capacity of drying up to 55,000 thousand board feet per year (Mbdft/yr); sawmill building and associated equipment; planer and chipper load-out operations with associated cyclones. A more detailed description of the permitted equipment is contained in Section I.A of the permit analysis.

B. Plant Location

TRL's sawmill operation is located in Section 13, Township 21 North, Range 29 West, in Thompson Falls, Sanders County.

SECTION II: Limitations and Conditions

A. Emission Limitations

1. TRL shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

2. TRL shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

3. TRL shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.4 (ARM 17.8.749).

4. Hurst Wood-Fired Boiler

   a. Boiler capacity shall not exceed 40,000 pounds per hour (lb/hr) steam based on a heat input capacity of 60 million British thermal units per hour (MMBtu/hr) based on a 1-hour average (ARM 17.8.749).

b. Boiler must have a minimum stack exhaust height of at least 75 feet from ground level (ARM 17.8.749).

c. Boiler shall not combust more than 6.25 tons per hour of bark and/or wood during any rolling 24-hour time period (ARM 17.8.749).

d. Particulate emissions from the boiler shall be controlled by multi-cyclone mechanical collector followed by an electrified filter bed (EFB) (ARM 17.8.752).

e. Emissions from the gravel media cleaning process shall be controlled by the EFB media baghouse (ARM 17.8.749).

f. Boiler emissions of particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}) shall be limited to (ARM 17.8.752):
   i. 0.065 pounds per million British thermal units (lb/MMBtu); and
   ii. 3.90 pounds per hour (lb/hr), based on 1-hour average.

g. Boiler emissions of particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$) shall be controlled by implementing best management practices and limited as follows (ARM 17.8.752):
   i. 0.065 lb/MMBtu; and
   ii. 3.90 lb/hr (based on 1-hour average).

h. Boiler emissions of oxides of nitrogen (NOx) shall be controlled by proper boiler design and operation, and using good combustion practices. NOx emissions shall be limited to (ARM 17.8.752):
   i. 0.30 lb/MMBtu; and
   ii. 18.0 lb/hr (based on 1-hour average).

i. Boiler emissions of carbon monoxide (CO) shall be controlled by proper boiler design and operation, and using good combustion practices (ARM 17.8.752).

j. Visible emissions from the boiler shall be limited to 20% opacity (ARM 17.8.304).

5. York Shipley and Cleaver Brooks Boiler

a. TRL shall only combust propane in the York Shipley Boiler and the Cleaver Brooks Boiler (ARM 17.8.752).

b. The stack height on each boiler shall be a minimum of 28 feet from ground level (ARM 17.8.749).

c. Visible emissions from the boiler shall be limited to 20% opacity (ARM 17.8.304).

d. Both boilers shall utilize good combustion practices and be equipped with economizers to recover heat and to reduce fuel consumption (ARM 17.8.752).

6. TRL shall limit the hours of operation of the 100 brake horsepower (bhp) (0.7 MMBtu/hr) diesel-fired, fire water pump to no more than 150 hours per year during any rolling 12-month time period (ARM 17.8.749).

7. TRL shall comply with all applicable standards and limitations, and the applicable operating, reporting, recordkeeping, and notification requirements contained in 40 Code of Federal Regulations (CFR) 63, Subpart JJJJJJ (40 CFR 63, Subpart JJJJJJ and ARM 17.8.749).

8. Combined Sawmill and Planer Process

   a. Visible emissions from all emission points contained in the combined sawmill and planer process shall each be limited to 20% opacity averaged over 6 consecutive minutes (ARM 17.8.304).

   b. Chipper operations shall occur in an enclosed in a building, and all chips and sawdust shall be transported using a pneumatic system (ARM 17.8.752).

   c. A cyclone shall be used to control particulate emissions from the chip operation (ARM 17.8.752).

   d. Planer operations shall occur in an enclosed building (ARM 17.8.752).

   e. A cyclone shall be used to control particulate emissions from the planer operation (ARM 17.8.752).

B. Testing Requirements

1. TRL shall test the Wood-Fired boiler using wood and/or bark, for CO and NOx concurrently, to monitor compliance with the emission limits and/or conditions contained in Section II.A.4 (h) and Section II.A.4 (i). The initial performance source test must be conducted within 60 days of achieving the maximum production rate, at which the affected facility will be operated, but not later than 180 days after initial startup of the boiler. After the initial source test, testing shall continue on an every 4-year basis or according to another testing/monitoring schedule as may be approved by the Department in writing (ARM 17.8.105 and ARM 17.8.749).

2. TRL shall test the Wood-Fired boiler for PM_{10} to monitor compliance with the emission limit contained in Section II.A.4 (f). The initial performance source test must be conducted within 60 days of achieving the maximum production rate, at which the affected facility will be operated, but not later than 180 days after initial startup of the boiler, or according to another testing/monitoring schedule as may be approved by the Department in writing (ARM 17.8.105 and ARM 17.8.749).

3. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

4. The Department may require further testing (ARM 17.8.105).

D. Operational Reporting Requirements

1. TRL shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit conditions or limitations (ARM 17.8.505).

Source	Units
Hurst Wood-fired Boiler	Pounds of steam produced and tons of hog-fuel combusted
Diesel-fired water pump	Hours of operation
Sawmill Process	Tons of logs processed per year
Sawmill Chipper	Tons of chips per year
Chipper Cyclone	Tons of chips per year
Planer Shavings Bin	Tons of planer shavings handled
Debarkers	Tons of logs

2. TRL shall document, by month, the following information for the kilns. By the 25th day of each month, TRL shall total the emissions from the kiln for the previous month. The following information for each of the previous months shall be submitted along with the annual emission inventory:

   a) wood species and amount dried (in MBdFt)).

   b) HAP emissions shall be reported as lb HAP/MBdFt.

   c) Volatile Organic Compounds (VOC) emissions shall be reported as lb VOC/MBdFt.

   For the dry kilns, the calculation of VOC and HAP emissions shall be based on the species of wood, the amount of wood dried, and the most current emissions factors available, or site-specific kiln emission data (ARM 17.8.749).

3. TRL shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit***, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

4. All records compiled in accordance with this permit must be maintained by TRL as a permanent business record for at least five years following the date of the measurement, must be available at the plant site for inspection by the Department and must be submitted to the Department upon request (ARM 17.8.749).

E. Notification

TRL shall provide the Department with written notification of the following dates within the specified time periods (ARM 17.8.749):

1. Beginning actual construction of the Wood-Fired Boiler within 30 days after actual construction has begun; and

2. Actual start-up date of the Wood-fired boiler within 15 days after the actual start-up of the unit.

Section III: General Conditions

A. Inspection – TRL shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment Continuous Emissions Monitoring System (CEMS) and Continuous Emission Rate Monitoring System (CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if TRL fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving TRL of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401 *et seq.*, MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by TRL may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit Analysis
Thompson River Lumber Company
MAQP #4643-00

I. Introduction/Process Description

A. Permitted Equipment

Thompson River Lumber Company (TRL) owns and operates a wood products facility. Permitted equipment at TRL includes: a 1988 Hurst Wood-fired boiler (Model HR500) with a maximum steam production of 40,000 pounds per hour (up to 60 million British thermal units per hour (MMBtu/hr)) that is equipped with multi-cyclones followed by an electrified filter bed; two propane fired boilers, Cleaver Brooks and York Shipley, each boiler is rated at 14.654 MMBtu/hr; three lumber drying kilns; sawmill building and associated equipment; and planer and chipper load-out operations with associated cyclones. The fugitive dust emission sources include, but are not limited to, debarkers, hog fuel and chips handling, and vehicle traffic.

B. Source Description

TRL is an existing sawmill operation located in Section 13, Township 21 North, Range 29 West, in Thompson Falls, Sanders County.

C. Response to Comments

Person/Group Commenting	Permit Reference	Comment	Department Response
TRL	Section II.A4.c	TRL inadvertently submitted an incorrect annual combustion rate for the Wood-fired Boiler. The corrected rate is 6.25 tons of hog fuel per hour (maximum) which is 54,750 tons per year.	The Department corrected the permit condition.
TRL	Section III.H	TRL requested clarification regarding the York Shipley Boiler and when construction would need to be completed pursuant to the MAQP. TRL requested that the boiler not subject to construct within 3 years of a final air quality permit.	Pursuant to ARM 17.8.762, construction or installation must begin, or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and must proceed with due diligence until the project is complete or the permit shall expire. According to TRL's consultant, TRL may choose not to construct the York Shipley boiler and expressed concern that the entire permit would expire if they did not construct this piece of equipment. However, only that portion of the permit would expire after 3 years. Therefore, the Department did not make any changes to the MAQP.
TRL	Permit Analysis, Section III.H.2.e	TRL notified the Department of a clerical error.	The Department agrees and corrected the clerical error noted with respect to 40 CFR 61, Subparts A and JJJJJJ.

TRL	Permit Analysis, BACT Analysis for Mill Building	TRL notified the Department that the bark hog equipment has never been used and is not currently inside a building (as was presented in the application). However, TRL plans to locate this equipment inside a building.	The Department acknowledges this comment, but did not make any changes to the MAQP.
TRL	Permit and Permit Analysis	TRL commented that second cyclone on the planer bins are not capped (as was presented in the application). This cyclone is used to transport planer chips and does not necessarily need to be capped. TRL provided additional information on the planer chips and cyclone which were not included in the application. In the application, TRL included the planer chips with the shavings under fugitive emissions but were not included in the air dispersion modeling. However, this error is not expected to alter the dispersion modeling.	The Department corrected the reference to the second cyclone cap in the BACT analysis, and updated the BACT analysis with the information provided by the applicant. The Department also updated the emission inventory by adding the Planer Chipper Cyclone (results in less than 0.25 tpy total emissions). The Department agrees this would have little effect to the dispersion modeling.

II. Applicable Rules and Regulations

The following are partial quotations of some applicable rules and regulations, which apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available upon request from the Department of Environmental Quality (Department). Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1, General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices), and shall conduct test, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   TRL shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2, Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204, Ambient Air Monitoring
2. ARM 17.8.210, Ambient Air Quality Standards For Sulfur Dioxide
3. ARM 17.8.211, Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212, Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213, Ambient Air Quality Standard for Ozone
6. ARM 17.8.214, Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220, Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221, Ambient Air Quality Standard for Visibility
9. ARM 17.8.222, Ambient Air Quality Standard for Lead
10. ARM 17.8.223, Ambient Air Quality Standard for PM_{10}
11. ARM 17.8.230, Fluoride in Forage

TRL must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3, Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions are taken to control emissions of airborne particulate matter. (2) Under this rule, TRL shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this rule.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates by reference 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). TRL is not considered an NSPS affected facility under 40 CFR Part 60 and therefore is not subject to the requirements of the following subpart.

   40 CFR 60, Subpart Dc, Standard of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. This subpart applies to any boiler with a heat input capacity of less than 100 MMBtu/hr, but greater than 10 MMBtu/hr. Although all three boilers meet the heat input capacity requirement, this subpart does not apply to any of boilers because they were all constructed before June 9, 1989.

8. ARM 17.8.341 Emission Standards for Hazardous Air Pollutants. This section incorporates, by reference, 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (NESHAP). Since the emission of HAPs from the TRL facility is less than 10 tons per year for any individual HAP and less than 25 tons per year for all HAPs combined, the TRL facility is not subject to the provisions of 40 CFR Part 61.

9. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:

   40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAPs Subpart as listed below.

   40 CFR 63, Subpart JJJJJJ, National Emission Standards for Hazardous Air Pollutants for area sources: Industrial, Commercial, and Institutional Boilers. An owner or operator of an industrial, commercial, or institutional boiler as defined in §63.11237 that is located at, or is part of, an area source of hazardous air pollutants and is subject to this subpart. An affected source is an existing source if the source commenced construction or reconstruction of the affected source on or before June 4, 2010. TRL's boilers were constructed before June 4, 2010 and therefore, would be considered an existing source subject to this subpart.

D. ARM 17.8, Subchapter 4 – Stack Height and Dispersion Techniques, including, but not limited to:

1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.402 Requirements. TRL must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The proposed height of the new or modified stack(s) for TRL is below the allowable 65-meter GEP stack height.

E. ARM 17.8. Subchapter 5 - Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. TRL submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

F. ARM 17.8, Subchapter 7, Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. TRL has a PTE greater than 25 tons per year of particulate matter, particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), oxides of nitrogen (NO_x), carbon monoxide (CO), and volatile organic compounds (VOCs); therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1)This rule requires that a permit application be submitted prior to installation, modification, or use of a source. TRL submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. TRL submitted an affidavit of publication of public notice for the March 24, 2011, issue of the Sanders County Ledger, a newspaper of general circulation in the Town of Thompson Falls in Sanders County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is contained in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving TRL of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

11. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

12. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility’s emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

13. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

G. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications—Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

H. ARM 17.8, Subchapter 12, Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

   a. PTE > 100 tons/year of any pollutant;

   b. PTE > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

   c. PTE > 70 tons/year of PM_{10} in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #4643-00- for TRL, the following conclusions were made:

   a. The facility's PTE is less than 100 tons/year.

   b. The facility's PTE is less than 10 tons/year for any individual HAP and less than 25 tons/year for all HAPs.

   c. This source is not located in a serious PM_{10} nonattainment area.

   d. This facility is not subject to any current NSPS.

   e. This facility is subject to NESHAP standards (40 CFR 61, Subparts A and JJJJJJ).

   f. This source is not a Title IV affected source.

   g. This source is not a solid waste combustion unit.

   h. This source is not an EPA designated Title V source.

   Based on these facts, the Department determined that TRL will be a minor source of emissions as defined under Title V. The Department determined that TRL is not subject to the Title V operating permit program.

III. BACT Analysis

A BACT determination is required for each new or modified source. TRL shall install on the new or modified source the maximum air pollution control capability, which is technically practicable and economically feasible, except that BACT shall be utilized.

A BACT analysis was submitted by TRL in permit application #4643-00. The BACT analysis addresses some available methods of controlling PM_{10}, $PM_{2.5}$, NOx and CO emissions from the boiler. The Department reviewed these methods, as well as previous BACT determinations for similarly permitted sources. The following text provides a summary of the BACT analysis submitted by TRL in the application and the Department's BACT determination(s) based on the information provided.

Wood-Fired Boiler Background Information

TRL is proposing to purchase an existing Wood-fired boiler designed to produce 40,000 pounds of steam per hour while burning wood and bark. The proposed boiler is equipped with a multi-cyclone mechanical collector followed by an electrified filter bed.

This BACT analysis is provided for PM_{10}, $PM_{2.5}$, NOx and CO emissions from the Wood-fired boiler. Research in the RACT/BACT/LEAR clearinghouse (RBLC) has also been incorporated into the analysis. Table 1 contains a list of comparable BACT determinations from RBLC. All of the boilers listed in the table are fired with wood and/or bark. If no BACT determination was listed for an individual pollutant, the table indicates 'na'.

The RBLC includes BACT limits designated as filterable PM_{10}, indicating that the limit only applies to filterable PM_{10} and not to condensable PM_{10}. The PM_{10} control technology is indicated where the information was available. There are no BACT determinations available for $PM_{2.5}$ emissions for Wood-fired boilers in the RBLC.

Table 1. BACT Determinations for Biomass Boilers as Listed in the RBLC

RBLC No.	Boiler Size (MMBtu/hr)	CO BACT Limit (lb/MMBtu)	NOx BACT Limit (lb/MMBtu)	FPM_{10} BACT Limit (lb/MMBtu)
TN-0159	69.3	na	0.25	na
VT-0028	29.5	na	na	0.091 (baghouse)
AR-0075	64.3	0.475	0.3	0.08 (ESP)
AL-0213	3 @ 29.5	na	0.5	na
AR-0065	29.63	0.3	0.3	0.24 (multiclones)
LA-0126	2 @ 58.3	na	0.9	na

BACT Analysis for PM_{10}/$PM_{2.5}$ – Wood-Fired Boiler

A variety of particulate control technologies are available for removing particulate from the Wood-fired boiler exhaust. The following control technologies have been evaluated in this BACT analysis:

- mechanical collectors (multi-cyclones);
- wet scrubber;
- fabric filter baghouse;
- electrostatic precipitator (ESP); and
- electrified filter bed (EFB).

General percent efficiency information is available in the engineering literature, which provides some indication of the differences between the effectiveness of various control technologies. The table below summarizes the control efficiencies of these technologies based on the ICAC information. The source of the EFB control information is discussed following the table. $PM_{2.5}$ collection efficiency from a wet scrubber is not discussed in the literature, and has been estimated to be equal to the $PM_{2.5}$ control efficiency for a mechanical collector.

Table 2. Removal Efficiency

Technology	PM_{10} Removal Efficiency	$PM_{2.5}$ Removal Efficiency	Source
Mechanical Collectors	90%	70%	ICAC
Wet Scrubbers	90%	70% (est.)	ICAC
Fabric Filters	99+%	99+%	ICAC
Electrostatic Precipitator	99+%	99+%	ICAC
Electrified Filter Bed (EFB)	99+%	99+%	EPA MACT Database*

Wet scrubbers, baghouses and ESPs are generally used in series with a mechanical collector system. The mechanical collector removes the bulk of the large particulate and reduces the loading on the secondary control equipment. Use of a mechanical collector or multi-cyclones, alone, would not provide adequate control and was not considered further in this analysis.

Wet scrubbers are not commonly used on new installations. A wet scrubber would create an additional waste water stream, which could be considered an unacceptable environmental consequence at the Thompson Falls location. Additionally, the wet scrubbers used on Wood-fired boilers are venture scrubbers and these typically have pressure drops of up to 15 inches of water causing an increase in energy consumption. Because wet scrubbers result in an additional waste stream and an increased energy use, the wet scrubber was not evaluated further.

Fabric filter baghouses are not commonly installed on Wood-fired boilers because of the fire risk. The filter bags can become caked with a layer of wood ash containing unburned carbon. If a spark escaped the multi-cyclones, it could very easily start a fire in the baghouse. Use of a baghouse on a Wood-fired boiler would require use of an abort stack to be triggered whenever a spark was detected or the spark detector equipment was being cleaned. Because of the fire risk and the need for a baghouse bypass system, use of a fabric filter baghouse was not considered further.

The EFB is a unique control device, whereas an ESP is a type of device manufactured by various companies. EFB's are more commonly used on process heaters and less commonly on boilers. However, the source test included in the permit application indicates that the EFB emission rates from the proposed system are comparable to ESP emission rates.

The proposed boiler that TRL plans to purchase includes an EFB (in the purchase price of the boiler). Therefore, TRL did not evaluate the separate cost of the EFB control equipment. EFB and ESP both use electrostatic charges to collect particulate matter and have similar control efficiencies. Based on industry information and the BACT information presented, it is expected that an ESP could be specified with a guaranteed PM_{10} emission rate of 0.08 lb/MMBtu.

TRL proposed a BACT $PM_{2.5}/PM_{10}$ emission limit of 0.065 lb/MMBtu (and 3.90 lb/hour, based on a 1-hour average), which TRL assumes will include filterable and condensable PM_{10} emissions. By including filterable and condensable emissions, TRL believes this is a more stringent BACT limit than that indicated in the RBLC.

Therefore, the Department determined that installation and proper operation of multi-cyclones followed by an EFB and a $PM_{2.5}/PM_{10}$ emission limit equivalent to 0.065 lb/MMBtu (and 3.90 lb/hour, based on a 1-hour average) constitutes BACT. TRL would also be required to comply with 40 CFR 63, Subpart JJJJJJ. This rule would require that boiler operators meet a work practice standard or a management practice by performing a boiler tune-up every 2 years. The work practice standards required by this rule would ensure that $PM_{10}/PM_{2.5}$ emissions from the TRL Wood-fired boiler would be controlled as much as practicable.

<u>BACT Analysis for NOx – Wood-fired Boiler</u>

NO_X emissions can be controlled through combustion controls and/or flue gas scrubbing. As an introduction to the detailed discussion of NO_X control technologies, it is useful first to review the mechanisms by which NO_X is formed in the exhaust from a Wood-fired boiler. NO_X refers to the cumulative emissions of nitric oxide (NO), nitrogen dioxide (NO_2), and trace quantities of other species. NO_X emissions from combustion processes are typically more than 95 percent NO with the remainder being primarily NO_2. Once the flue gas leaves the stack, however, most of the NO is oxidized in the atmosphere to create NO_2 in a process that can take several hours to complete. The extent to which the NO is oxidized to NO_2 is a function of a number of meteorological variables, including ambient ozone levels.

The two primary mechanisms for formation of NO_X are: thermal NO_X and fuel NO_X. Thermal NO_X refers to the NO_X formed through high-temperature oxidation of the nitrogen found in the combustion air. The primary factors contributing to an increased thermal NO_X formation rate are the same factors contributing to complete combustion of fuel: combustion temperature, residence time, and mixing or turbulence. Regardless of the fuel being combusted, thermal NO_X generally becomes a significant factor at combustion temperatures of approximately 2,200 degrees Fahrenheit (ºF), with exponential increases in formation rate at higher temperatures.

Fuel NO_X refers to the NO_X formed by the conversion of fuel-bound nitrogen to NO_X during combustion. Fuel NO_X accounts for a major portion of the total NO_X emissions from the combustion of nitrogen containing fuels, such as coal and wood waste. A variety of factors, including the combustion temperature, fuel-air stoichiometric ratio, and wood characteristics (moisture, volatile matter, and nitrogen) are believed to contribute to the fuel NO_X formation mechanism.

Based on an evaluation of recent BACT determinations and review of the RBLC, TRL proposed a BACT NOx emissions rate for the proposed boiler equivalent to 0.30 lb/MMBtu. The proposed NOx emission rate was based on boiler design without add-on controls. However, the following add-on controls for NOx emissions were considered: Flue Gas Recirculation (FGR)/Overfire Air (OFA); Selective Non-catalytic Reduction (SNCR); and Selective Catalytic Reduction (SCR).

FGR, low NOx burner (LNB) and OFA all describe NOx combustion techniques that reduce the formation of NOx emissions in the boiler. Modern boilers incorporate some, or all, of these technologies to achieve emission rates comparable to that being proposed for TRL's Wood-fired boiler. Although all of the technologies listed above are considered feasible, an alternative boiler design is not expected to yield any additional reduction in NOx emissions. Further, review of the RBLC database supports the fact that, as proposed, the boiler NOx emissions would be comparable with other sources (see Table 1 above). Because FGR/OFA would not be expected to show improved emissions over the proposed NOx emission rate of 0.30 lb/MMBtu, FGR/OFA was not evaluated further.

SNCR and SCR: each control technology is ranked according to its NOx removal efficiency. According to the EPA Control Cost Manual, SNCR provides 30% to 50% NOx reduction in typical field applications. For this analysis, a control efficiency of 40% has been assumed. According to EPA's Control Cost Manual, a control efficiency of 60 to 90% is expected from SCR. Since the base case is a low emissions boiler, an additional control efficiency of 60% was chosen by TRL.

The rate of the SNCR reduction reaction determines the amount of NOx removed from the flue gas. The important design and operational factors that affect the reduction of NOx by an SNCR system include:

- Reaction temperature range;
- Residence time available in the optimum temperature range;
- Degree of mixing between the injected reagent and the combustion gases;
- Uncontrolled NOx concentration level;
- Molar ratio of injected reagent to uncontrolled NOx; and
- Ammonia slip.

The NOx reduction reaction occurs within a specific temperature range where adequate heat is available to drive the reaction. At lower temperatures, the reaction kinetics are slow and ammonia passes through the boiler (ammonia slip). At higher temperatures, the reagent oxidizes and additional NOx is generated. The temperature window is dependent on the reagent utilized. The reagent is injected into the boiler in regions where the combustion gas temperature is within the specified range. Installation of SNCR requires the boiler design to accommodate the SNCR equipment at the installation point.

Residence time is the amount of time the reactants are present within the upper area of the furnace and convective passes. Increasing the residence time available for mass transfer and chemical reactions generally increases the NOx removal. The amount of residence time depends on the dimensions of the boiler gas path and the volumetric flow rate of the flue gas along the boiler gas path. These design parameters are optimized for boiler operations, not the SNCR process. Because of these boiler design requirements, the residence time in the boiler is not always ideal for the SNCR process.

SNCR capital and installation costs were evaluated based on EPA's SNCR fact sheet and the EPA Control Cost Manual, Table 1.4. Initial capital cost for SNCR installations on boilers larger than 100 MMBtu/hr contained in on the EPA fact sheet is $1,200-$3,500 per MMBtu/hr (inflated to 2010 dollars using calculator on dollartimes.com). The high-end value was used because this is a small boiler and the incremental cost would assumed to be higher. The EPA Control Cost Manual includes indirect installation and project costs based on the formulas (in Table 1.4 of the SNCR chapter) within that document. The total cost of SNCR installation is shown below.

Chemical cost is the primary contributor to annual SNCR operation and maintenance costs. Chemical consumption is determined by the uncontrolled NOx generation rate, removal requirement, and boiler capacity/utilization. When purchasing liquid urea and at moderate removal efficiencies, operating costs are approximately $134 to $670 (per MMBtu/hr), in 2011 dollars. The $670 per MMBtu/hr has been used for the analysis.

Since SCR is used almost exclusively on coal and gas-fired units, the cost information is not directly applicable to a Wood-fired boiler. Given this, TRL did not use the complex cost calculations in EPA's Control Cost Manual because it would require too many assumptions and would not provide a valid analysis or reasonable cost estimate. The *Institute of Clean Air Companies (ICAC)* SCR committee estimated the capital cost of SCR to be $65.6/kW in 1992. That is roughly equal to the cost of $20,000/MMBtu/hr, in 1992 dollars, as reported in the EPA NOx guidance. For the proposed boiler the initial capital cost, adjusted to 2011 dollars would be:

$32,000/MMBtu/hr * 60 MMBtu/hr = $1,920,000

Operating costs for SCR were presented in the 1994 ICAC White Paper as $1,000 per ton of NO_2 removed, which would be $1,500 in 2011. The Table below provides a derivation for the cost of each NOx control technology, with the capital costs annualized over a 10-year period at an 8% rate of return. TRL provided the table below as cost comparison on per ton basis for the NOx control alternatives, based on the information provided above.

The data indicates that the cost per ton of pollutant removed for add-on NOx control technologies is very high. SCR and SNCR were eliminated as BACT for the following reasons:

Control Technology	**% Reduction**	**Emissions Reduction (tons/year)**	**Calculations**
Selective Catalytic Reduction	60%	47.3	78.8 tons/yr * .6
Selective Non-Catalytic Reduction	40%	31.5	78.8 tons/yr * .4
Proposed Boiler			78.8 tons/yr
SNCR Parameter	SNCR Calculations		
Boiler Heat Input Rate	60 MMBtu/hr		
Estimated SNCR Capital and Installation Cost	$3,500/MMBtu/hr * 60 MMBtu/hr = $210,000 direct costs $86,000 indirect costs $296,000 total installed costs		
Capital Recovery Cost 10-Years at 8%	$296,000 * (.08)/(1-(1.08^{-10}))= $44,000/yr		
Annual O&M Costs	$670/MMBtu/hr * 60 MMBtu/hr = $40,200/yr		
SCR Parameter	SCR Calculations		
Boiler Heat Input Rate	60 MMBtu/hr		

Control Technology	% Reduction	Emissions Reduction (tons/year)	Calculations
SCR Capital and Install Cost	$32,000/MMBtu/hr * 60 MMBtu/hr = $1,920,000		
Capital Recovery Cost 10-Years at 8%	$\$1,920,000 * (.08)/(1-(1.08)^{-10}) = \$286,000/yr$		
O&M Control Costs	$1,500/ton of NO_2 removed		

Control Alternative	Emissions Reduction (tons/year)	Annual Capital Cost	Annual O & M Costs	Annual Control Cost (over base cost) ($/ton)
No Additional Controls		Base	Base	Base
SNCR	31.5	$44,000	$40,200	$2,700/ton
SCR	47.3	$268,000	$1,500/ton	$7,500/ton

Therefore, after evaluation of the previously discussed information, the Department determined that proper design and operation of the boiler, along with good combustion practices and an emission limit of 0.30 lb/MMBtu (and 18.0 lb/hour, based on a 1-hour average) constitutes BACT.

Previously, a source test was completed on this boiler with the proposed controls confirms that the boiler has low NOx and CO emissions when maintained and operated properly. Additionally, the Department added NOx source test requirements in order to monitor compliance with the permitted NOx BACT emission limit.

BACT Analysis for CO – Wood-Fired Boiler

The following control strategies were determined to be available control strategies for the Boiler: post combustion oxidation; and proper design and good combustion techniques.

Although various specialized technologies exist, fundamentally, oxidizers, or incinerators, use heat to destroy CO in the gas stream. Incineration is an oxidation process that ideally breaks down the molecular structure of an organic compound into carbon dioxide and water vapor.

Temperature, residence time, and turbulence of the system affect CO control efficiency. A thermal incinerator generally operates at temperatures between 1,450°F and 1,600°F. Catalytic incineration is similar to thermal incineration; however, catalytic incineration allows for oxidation at temperatures ranging from 600 to 1,000°F. The catalyst systems that are used are typically metal oxides such as nickel oxide, copper oxide, manganese dioxide, or chromium oxide. Noble metals such as platinum and palladium may also be used. Due to the high temperatures required for complete destruction, fuel costs can be expensive and fuel consumption can be excessive with oxidation units. To lower fuel usage, regenerative thermal oxidizers (RTOs) or regenerative catalytic oxidizers (RCOs) can be used to preheat exhaust gases.

As previously described, oxidation of post combustion gases invokes various technical problems including the need for high combustion temperatures and subsequent increased fuel use. Oxidation for CO removal from wood waste boiler emissions is not considered feasible because the initial CO concentration in the hog fuel boiler exhaust would be too low for the removal technology to work efficiently. Therefore, the Department determined that oxidation of post-combustion gases does not constitute BACT, in this case.

In an ideal combustion process, all of the carbon and hydrogen contained within the fuel are oxidized to carbon dioxide (CO_2) and water. The emission of CO in a combustion process is the result of incomplete organic fuel combustion.

Reduction of CO can be accomplished by controlling the combustion temperature, residence time, and available oxygen. Normal combustion practice at the TRL facility will involve maximizing the heating efficiency of the fuel in an effort to minimize fuel usage. This efficiency of fuel combustion will also minimize CO formation.

In summary, the Department analyzed the use of proper design and combustion and oxidation of post combustion gases as possible CO control strategies for the Boiler. The Department determined that proper design and good combustion practices constitutes BACT for the control of CO emissions from the Boiler. This is within the range of other recently permitted similar sources identified in the RBLC. Further, the Department is confident that the periodic CO source testing will adequately monitor compliance with the permitted BACT limit; TRL would also be required to comply with 40 CFR 63, Subpart JJJJJJ.

BACT Analysis for Lumber Drying Kilns

In 2008, TRL experienced fires that destroyed the existing boilers and damaged the existing kilns. TRL repaired the old kilns, and also installed an additional kiln in anticipation of the steam to be supplied from the cogeneration facility (TRP). TRL installed temporary propane-fired boilers to operate the kilns until the co-generation steam supply was available. TRP never reached full operation to provide steam for TRL's kilns, so the kiln capacity has never been available. TRL's old kilns were repaired after the fire, but are still classified as an existing source. Therefore BACT analysis is only required for the 104' double track kiln, which is considered a new source of emissions.

Dry kiln, generally, emit small amounts of particulate matter, usually condensable, and wood-based VOC compounds. Currently, the pollutants are carried in the high-moisture air that exhausts from a series of vents at the top of the kiln building. Vent openings are adjusted as needed to control the temperature and moisture content of the kiln air. Boiler steam is enclosed in closed-loop heat exchangers and does not exhaust from the kiln vents. Any VOC control technology would require that all of the dryer kiln vents be ducted to a single emission point, which would be a large expense.

Particulate matter emissions from dry kilns are very low, and most likely consist of condensed VOC compounds. Therefore, the BACT analysis for dry kilns will only discuss VOC control. Kiln VOC emissions vary with species, board size and initial wood moisture content. And, the emissions variability impacts the efficiency of control technologies.

Information for VOC destruction technology was taken from the EPA OAQPS Control Cost Manual. Destruction efficiencies of various VOC control equipment are based on the destruction of all volatile compounds. Many of the volatile compounds that are easily destroyed are lighter than the VOC's emitted from wood fiber. Therefore, the control efficiencies for various technologies have been adjusted to better reflect wood products industry applications. VOC removal is generally achieved by oxidation (incineration).

Thermal incineration technology can be direct flame technology (flare) or regenerative incineration technology. Because of the high moisture content and dilute VOC concentration from the kilns, a great deal of additional heat would be needed to destroy VOC's. Therefore, the use of incinerators without energy recovery capabilities is not considered.

TRL provided by the following discussion, regarding VOC control technology which was copied from the ICAC website.

Thermal oxidation is the process of oxidizing combustible materials by raising the temperature of the material above its auto-ignition point in the presence of oxygen, and maintaining it at high temperature for sufficient time to complete combustion to carbon dioxide and water. Time, temperature, turbulence (for mixing), and the availability of oxygen all affect the rate and efficiency of the combustion process. These factors provide the basic design parameters for VOC oxidation systems. There are three basic types of thermal oxidation systems: direct flame, recuperative, and regenerative.

Direct flame systems or flares rely on contact of the waste stream with a flame to achieve oxidation of the VOCs. These systems are the simplest thermal oxidizers and the least expensive to install, but require the greatest amount of auxiliary fuel to maintain the oxidation temperature, thus entailing the highest operating cost. Flares are useful for destruction of intermittent streams.

Recuperative thermal oxidation systems use a tube or plate heat exchanger to preheat the effluent stream prior to oxidation in the combustion chamber. Thermal recovery efficiencies typically are limited to 40-70% to prevent auto-ignition in the heat exchange package, which could damage the package. Supplemental fuel therefore is usually required to maintain a high enough temperature for the desired destruction efficiency. Recuperative systems are more expensive to install, than flares, but have lower operating costs.

Regenerative thermal oxidation systems typically incorporate multiple ceramic heat exchanger beds to produce heat recovery efficiencies as high as 95%. An incoming gas stream passes through a hot bed of ceramic or other material, which simultaneously cools the bed and heats the stream to temperatures above the auto-ignition points of its organic constituents. Oxidation thus begins in the bed, and is completed in a central combustion chamber, after which the clean gas stream is cooled by passage through another ceramic heat exchanger. Periodically the flow through the beds is reversed, while continuous flow through the unit is maintained. Regenerative thermal oxidation systems are the most expensive thermal oxidizers to build, but the added capital expense is offset by savings in auxiliary fuel.

Many of the VOC compounds from wood drying are heavy and may condense on a catalyst bed, causing fouling. Therefore, regenerative thermal oxidation is not considered feasible for wood products' VOC control. Direct flame oxidation and recuperative thermal oxidation both require reheating of the gas stream. TRL does not have access to natural gas, and obtaining another fuel/combustion source to operate the oxidations units to further control VOCs could result in additional energy use.   TRL eliminated the use of oxidation because combustion would require additional fuel to eliminate a small amount (up to 27.86 tpy) of kiln VOCs and the effects would be undesirable.

Dry kiln exhaust has high moisture content, and dilute concentrations of wood-based VOCs. Piping this exhaust to a single stack and reheating it to burn off VOCs would not be efficient and would have a net environmental detriment due to the additional fuel needed.   Therefore, all control technologies mentioned above were eliminated from consideration.

Additionally, a search of the RBLC database indicates that the operation of kilns without VOC controls is the only economically feasible approach and is consistent with industry practice for other new kiln projects. Therefore, the Department has determined that no-additional controls constitutes BACT, in this case.

BACT Analysis for Propane-Fired Boilers

After the boiler plant fire, TRL installed the Cleaver Brooks boiler which is fired on propane. In the summer of 2010, TRL purchased the York Shipley boiler which is also fired on propane. TRL has never installed or operated the York Shipley boiler. However, once the hog fuel boiler is installed and operational, TRL does not plan to run the propane-fired boilers.

Propane, commonly referred to as liquefied petroleum gas (LPG), consists of propane, propylene, butane and butylenes. Propane is generally considered a "clean fuel" because combustion rarely results in visible emissions.

NOx emissions from propane-fired boilers could theoretically be controlled by FGR, SNCR or SCR. However, according to AP-42, the only control system developed for LPG combustion that has been demonstrated on a small commercial boiler, is FGR.   Because the boiler is an existing boiler that is being transferred to TRL, the boiler would require a retrofit. Retrofitting FGR onto existing boilers requires installation of ductwork, re-circulation fans, air foils for re-circulated flue gas, and combustion air and controls for variable load operation.   Because each boiler's potential to emit, operating at full-capacity, results in minimal emissions of approximately 10 tons of NOx per year, retrofitting the boiler would result in significant cost and little benefit.

Although a cost analysis was not provided for any of the above listed control technologies, TRL believes based on the minimal NOx emissions, further controls would be cost-prohibitive. TRL believes that the BACT analysis provided for the Wood-fired boiler would also support the analysis for the propane-fired boilers.

TRL proposed an economizer as the best control for NOx emissions from the propane-fired boiler. TRL proposed to equip both boilers with economizers to recover heat and reduce fuel consumption. Exhaust heat from combustion typically leaving the stack and exits into the atmosphere would instead be transferred from the exhaust stream by means of an economizer.

Given the fact that TRL's NOx BACT analysis for the Wood-fired boiler (a much larger boiler with higher emissions) resulted in requiring proper design and along with good combustion as BACT, the Department determined that the cost of add-on emission control equipment would be significantly higher than the Wood-fired boiler and therefore was not considered further.

SO_2 emissions from the propane-fired boilers are formed from oxidation of sulfur in the propane. The amount of SO_2 emitted is directly proportional to the amount of sulfur in the fuel. Generally speaking, the combustion process for propane is similar to that of natural gas. TRL estimated the sulfur content of commercial propane at 185 part per million weight (ppmw). TRL evaluated burning propane with lower sulfur content, however, TRL has limited options for purchasing propane. These propane boilers result in minimal SO_2 emissions (less than 11 tpy) and any add-on controls would be cost prohibitive. Additionally, RBLC does not list any SO_2 BACT determinations for propane combustion sources, and AP-42 only evaluates controls for NOx. Therefore, no additional control constitutes BACT for the SO_2 emissions.

In summary, the Department determined that the installation of economizers in conjunction with proper design, proper operation and good combustion practices constitutes BACT for the propane boilers.

BACT Analysis for Mill Equipment

The existing sawing operations are located in the sawmill building. The sawmill operations pre-date the permitting rules and are considered existing/grandfathered equipment and were not evaluated further.

Raw Log Processing

Fugitive PM_{10} and $PM_{2.5}$ emissions are generated during raw log processing. Emission sources include the debarker, bark hog, and hogged bark transfer and storage. Loading equipment is used to transport the hogged bark to the boiler area. The debarker also pre-dates Montana's permitting rules and is considered existing/grandfather equipment and therefore, a BACT analysis was not required.

The bark hog is located inside the hog building, which provides 90% control of particulate emissions. Hogged bark is transported from the hog building to the boiler area using loading equipment. Fugitive emissions from this operation would be required to adhere to reasonable precautions limitations. Fugitives would also be minimized by controlling vehicle speed and minimizing fuel drop height. Based on the relatively low potential emissions from the hog building, the Department determined that no additional control, constitutes BACT.

Sawmill Processes

The chipper is enclosed in a building, and the chips are collected with a pneumatic system. The combination of enclosure and negative air is estimated to provide 99% control of fugitive dust.

A pneumatic conveyor transfers the sawdust from the building to the outdoor sawdust truck bin. The air from the pneumatic conveyor enters the sawdust bin along with the sawdust. A pneumatic conveyor is also used to move the sawmill chips to the chip cyclone or to a railroad chip car. Pneumatic conveyors are fully enclosed, so the material is protected from the elements and there is virtually no generation of fugitive dust. Due to the relatively low potential particulate emissions, the Department determined that other control options would be economically infeasible and would provide no added benefit. Therefore, operating the chipper in an enclosed building where chips and sawdust are transported using pneumatic system (with 99% efficiency) is considered BACT.

Operation of a cyclone to collect particulate matter from the chip operation was the only technically feasible option considered by TRL. The existing chip bin cyclone handles green chips. Emissions from the cyclone are low because the material being handled is green and has high moisture content. The chips are also in large pieces so they generate very little fugitive dust per ton. TRL believes that chipper cyclone emissions could not be significantly reduced by the addition of control equipment. Therefore, the Department has determined that operation of a cyclone to collect particulate matter from the chipper is technically feasible and constitutes BACT.

Sawdust and chips are deposited into truck bins for truck loading. Haul trucks back under the bins, and the bins open at the height of the truck sides to dump. The bin bottom opens to each side, and blocks wind from reaching the sawdust or chips. The high truck sides and bin dumping mechanism provide good control of fugitive dust emissions. The only other control available for this operation would be installation of sides along the truck bins to better block the wind. Side panels can create a safety concern by blocking the view and escape route of workers in the area. Generally, sawmills use a single side panel in windy areas. The TRL mill is not exposed to high winds, so addition of a side panel on the truck bins is not expected to reduce fugitive emissions further and was eliminated from consideration. Therefore, the Department determined that no additional controls constitutes BACT for truck bins and truck loading operations.

Planer Processes

The planers and associated equipment are located in the planer mill building. Air quality within the planer building is controlled with negative air, so there are no estimated fugitive emissions from the building. Planer shavings are transported pneumatically from the planer building to a cyclone on the shavings bin. The cyclone separates the shavings from the air stream and drops them into the bin.

A second cyclone on the planer shavings bins is used to transport planer chips and discharges the air stream from the pneumatic transport through the cyclone exhaust. Fugitive PM_{10} and $PM_{2.5}$ emissions occur when the planer chips and shavings are loaded into trucks. Fugitive emissions could be reduced by installation of a panel on one side of the bin. However as discussed above, side panels can create a safety concern by blocking the view and escape route of workers in the area. Generally speaking, sawmills use a single side panel in windy areas. The TRL mill is not exposed to high winds, so addition of a side panel on the truck bins is not expected to reduce fugitive emissions further and was eliminated from consideration.

As previously stated, planers and associated equipment are contained in a building. The building is controlled with negative air, so there are no estimated emissions from the building. Therefore, because building enclosures are considered an effective, technically practical, and economically feasible control option for sources of this type, the Department determined that building enclosure constitutes BACT for these sources.

BACT Analysis for the Planer Shavings Cyclone

The planer shavings cyclone functions as process equipment because it is "bulk loaded". A pneumatic stream carrying shavings enters the cyclone. Shavings drop out of the air stream through centrifugal force and are deposited in the shavings bin. The air used for pneumatic transport exhausts from the cyclone. Estimated PM_{10} emissions from the planer shavings cyclone are 8.3 tpy.

Particulate matter entrained in the cyclone exhaust could be cleaned with the addition of a baghouse downstream. No other emissions control, such as wet scrubber or ESP, would even be considered downstream of a dry material handling cyclone. Therefore, the only available add-on control technology considered would be a baghouse.

A baghouse of the size needed to handle the cyclone exhaust would be very large. Cost information for a planer shavings baghouse has been obtained from EPA's baghouse cost fact sheet (http://www.epa.gov/ttn/catc/dir1/ff-pulse.pdf). The cost information presented is for a pulse-jet cleaned fabric filters of standard design, under typical operating conditions. Costs in the fact sheet are presented in 2002 dollars and have been inflated to 2010 dollars using the calculator at www.dollartimes.com. The costs are for the baghouse only and do not include ductwork or fans. Costs for the baghouse are based on volume flowrate, expressed as standard cubic feet per minute (scfm).

Capital cost for the baghouse is $6 to $26 per scfm, and operation and maintenance (O&M) costs are $5 to $24 per scfm, annually. The planer shavings baghouse is a straight-forward installation with no difficult operating conditions, so the lower end of the cost estimate was used. A multiplier of 125% is included to account for the costs of ducting and fans.

Capital cost for the baghouse would be:
$6/scfm * 20,000 scfm * 125% = $150,000 in 2002 dollars ($183,000 in 2010 dollars).

Annualized cost, at an 8% rate of return for 10 years would be: $183,000 * 0.149 = $27,300/yr

Operating and maintenance costs for the baghouse would be:
$5/scfm * 20,000 scfm = $100,000 in 2002 dollars, $122,000 in 2010 dollars.

TRL did not consider baghouse efficiency. TRL determined it would not be appropriate in this application because the incoming air stream is lightly loaded. Baghouse emissions were calculated based on the available guaranteed emission rate, which was assumed (by TRL) to be 0.005 grains per standard cubic foot (gr/scf).

Baghouse emissions are calculated as follows:
0.005 gr/scf * 20,000 dscfm * 1 lb/7000 gr * 60 min/hr * 8760 hr/yr / 2000 lb/ton = 3.75 tpy.

Estimated cyclone emissions are 8.3 tpy, so the baghouse could provide a reduction of 4.55 tpy. The combined annualized capital cost and O&M cost for the baghouse is $149,000 and the cost per ton of particulate matter removed is $32,800 per ton.

The cost per ton of particulate matter removed by adding a baghouse to the planer shavings cyclone would be $32,800 per ton. This cost is far above the industry norm and additional energy would be consumed with minimal environmental benefit. Therefore, a baghouse in tandem with the cyclone was not considered BACT and was removed from consideration.

Therefore the Department determined that operation of a cyclone to collect particulate matter from the planer operation is technically feasible and would be considered BACT, in this case.

IV. Emission Inventory

Emissions (tons per year)

Source	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SOx	VOC	HAP
Hurst (Wood-fired) Boiler	17.08	17.08	17.08	78.84	78.84	6.57	4.47	10.36
Cleaver Boiler (propane-fired)	.49	.49	.35	5.26	9.11	1.04	.70	.12
York Boiler (propane-fired)	.49	.49	.35	5.26	9.11	1.04	.70	.12
Lumber Drying Kilns	N/A	N/A	N/A	N/A	N/A	N/A	27.75	4.72
Diesel-Fired Water Pump	N/A	N/A	N/A	.05	.23	.02	.02	N/A
Planer Shavings Cyclone	8.3	8.3	.8	N/A	N/A	N/A	N/A	N/A
Chipper Cyclone	.83	.41	.04	N/A	N/A	N/A	N/A	N/A
Planer Chipper cyclone	0.14	0.07	0.01	N/A	N/A	N/A	N/A	N/A
EFB Media Baghouse	0.9	0.9	0.8	N/A	N/A	N/A	N/A	N/A
Total Emissions (excluding fugitives)	**28.23**	**28.16**	**19.43**	**89.41**	**97.29**	**8.67**	**33.64**	**15.32**

Fugitive Emissions (tons per year)

Fugitves	PM	PM_{10}	$PM_{2.5}$	CO	NOx	SOx	VOC	HAP
Debarkers	1.98	1.09	.11	N/A	N/A	N/A	N/A	N/A
Barkhog	.29	.17	.02	N/A	N/A	N/A	N/A	N/A
Hog Fuel Truck or Rail Car Loading or Hog Fuel Pile	.84	.42	.04	N/A	N/A	N/A	N/A	N/A
Indoor Sawmill	.35	.20	.02	N/A	N/A	N/A	N/A	N/A
Indoor Sawmill Chipper	.03	.02	.002	N/A	N/A	N/A	N/A	N/A
Sawdust Bin Truck Load-out	1.03	.52	.05	N/A	N/A	N/A	N/A	N/A
Chip Truck or Rail Car Loading	.83	.41	.04	N/A	N/A	N/A	N/A	N/A
Indoor Planer	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Planer Shavings Bin Truck Load-out	.50	.25	.02	N/A	N/A	N/A	N/A	N/A
Total	**5.85**	**1.99**	**0.302**	----	---	---	---	---

Note: The fugitive emission inventory is on file with the Department.

Hurst Boiler (Wood-fired)

Boiler rated production:	40000	lb steam/hr	(per company)
Operating Hours:	8760	hr/yr	
Steam Conversion:	1400	Btu/lb steam	
Heat Input Requirement:	60.00	MMBtu/hr	(company information)

PM Emissions
Emission Factor: 0.065 lb/MMBtu (BACT Limit)
Calculations: 0.065 lb/MMBtu * 60 MMBtu/hr * 8760 hr/yr * 0.0005 tons/lb = 17.08 tons/yr

PM10 Emissions
Emission Factor: 0.065 lb/MMBtu (BACT Limit)
Calculations: 0.065 lb/MMBtu * 60 MMBtu/hr * 8760 hr/yr * 0.0005 tons/lb = 17.08 tons/yr

PM2.5 Emissions
Emission Factor: 0.065 lb/MMBtu (BACT Limit)
Calculations: 0.065 lb/MMBtu * 60 MMBtu/hr * 8760 hr/yr * 0.0005 tons/lb = 17.08 tons/yr

CO Emissions
Emission Factor: 0.3 lb/MMBtu (BACT Limit)
Calculations: 0.3 lb/MMBtu * 60 MMBtu/hr * 8760 hr/yr * 0.0005 tons/lb = 78.84 tons/yr

NOx Emissions
Emission Factor: 0.3 lb/MMBtu (BACT Limit)
Calculations: 0.3 lb/MMBtu * 60 MMBtu/hr * 8760 hr/yr * 0.0005 tons/lb = 78.84 tons/yr

SOx Emissions
Emission Factor: 0.025 lb/MMBtu (AP-42, Table 1.6-2, 9/2003)
Calculations: 0.025 lb/MMBtu * 60 MMBtu/hr * 8760 hr/yr * 0.0005 tons/lb = 6.57 tons/yr

VOC Emissions
Emission Factor: 0.017 lb/MMBtu (AP-42, Table 1.6-3, 9/2003)
Calculations: 0.017 lb/MMBtu * 60 MMBtu/hr * 8760 hr/yr * 0.0005 tons/lb = 4.47 tons/yr

HAP Emissions see HAP emission inventory on file with the Department 10.36 tons/yr

Cleaver Boiler (propane combustion)

Heating value:	14.654	MMBtu/hr
Operating hours:	8760	hrs/year
Propane heat content:	91.5	MMBtu/1000 gallons of propane
Propane Use:	160	gallons/hour

PM Emissions

Emission Factor:	0.0007 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.0007 lb/gallon * 160 gallons/hour * 8760 hr/yr * 0.0005 tons/lb =		0.49 tons/yr

PM10 Emissions

Emission Factor:	0.0007 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.0007 lb/gallon * 160 gallons/hour * 8760 hr/yr * 0.0005 tons/lb =		0.49 tons/yr

PM2.5 Emissions

Emission Factor:	0.0005 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.0005 lb/gallon * 160 gallons/hour * 8760 hr/yr * 0.0005 tons/lb =		0.35 tons/yr

CO Emissions

Emission Factor:	0.0075 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.0075 lb/gallon * 160 gallons/hour * 8760 hrs/year * 0.0005 tons/lt		5.26 tons/yr

NOx Emissions

Emission Factor:	0.013 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.013 lb/gallon * 160 gallons/hour * 8760 hrs/year * 0.0005 tons/lb =		9.11 tons/yr

SOx Emissions

Emission Factor:	0.00148 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.00148 lb/gallon * 160 gallons/hour * 8760 hrs/year * 0.0005 tons/lb		1.04 tons/yr

VOC Emissions

Emission Factor:	0.001 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.001 lb/gallon * 160 gallons/hour * 8760 hrs/year * 0.0005 tons/lb =		0.70 tons/yr

HAP Emissions *see HAP emission inventory on file with the Department* *0.12tons/yr*

York Boiler (propane combustion)

Heating value:	14.654	MMBtu/hr
Operating hours:	8760	hrs/year
Propane heat content:	91.5	MMBtu/1000 gallons of propane
Propane Use:	160	gallons/hour

PM Emissions

Emission Factor:	0.0007 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.0007 lb/gallon * 160 gallons/hour * 8760 hr/yr * 0.0005 tons/lb =		0.49 tons/yr

PM10 Emissions

Emission Factor:	0.0007 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.0007 lb/gallon * 160 gallons/hour * 8760 hr/yr * 0.0005 tons/lb =		0.49 tons/yr

PM2.5 Emissions

Emission Factor:	0.0005 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.0005 lb/gallon * 160 gallons/hour * 8760 hr/yr * 0.0005 tons/lb =		0.35 tons/yr

CO Emissions

Emission Factor:	0.0075 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.0075 lb/gallon * 160 gallons/hour * 8760 hrs/year * 0.0005 tons/lb =		5.26 tons/yr

NOx Emissions

Emission Factor:	0.013 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.013 lb/gallon * 160 gallons/hour * 8760 hrs/year * 0.0005 tons/lb =		9.11 tons/yr

SOx Emissions

Emission Factor:	0.00148 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.00148 lb/gallon * 160 gallons/hour * 8760 hrs/year * 0.0005 tons/lb		1.04 tons/yr

VOC Emissions

Emission Factor:	0.001 lb/gallon	(AP-42, Table 1.5-1, 7/2008)	
Calculations:	0.001 lb/gallon * 160 gallons/hour * 8760 hrs/year * 0.0005 tons/lb =		0.70 tons/yr

HAP Emissions *see HAP emission inventory on file with the Department 0.12 tons/yr*

TRL's Production:

All calculations were based on the following lumber production estimates:

Sawmill Chipper	16,500 tons of chips per year
Sawdust load out	20,625 tons of sawdust per year
Dry Kilns	55,000 mbdft/year
Planer Shavings	9,900 tons of shavings per day
Logs Used	198,000 tons of logs/year (estimate based on a lumber recovery factor of 3.6)

Lumber drying kilns

Note: VOC emissions were derived using a weighted average of VOC emission factors and wood species (grand fir, douglas fir, ponderosa pine, lodgepole pine)

VOC Emission Factor: 1.01 lb VOC/ MBdft (weighted avg, company information)
Max Annual drying rate: 55,000 MBdft/yr (company information)
Calculation: 55,000 MBdft/yr * 1.01 lbs VOC/MBdft * 1 tons/2000 lb = 27.75 tons/yr

HAP emissions, *see HAP emission on file with the Department* 4.72 tons/yr

Cyclones

PLANER SHAVINGS CYCLONE

		8760	hours per year, PTE	
		20000	dscfm	
PM/PM10 :				
	Emission Factor:	0.011	gr/dscf	(Idaho DEQ Emission Factor)
	Emissions:	8.3	tpy	(company info, guide for Wood Industry)
		1.89	lb/hr	High Eff. Cyclone
PM2.5:	Emission Factor:	0.0011	gr/dscf	(company assumes PM2.5 is 10% of PM10)
	Emissions:	0.8	tons/year	for non-combustion sources
		0.19	lbs/hr	

CHIPPER CYCLONE

		16,500	Tons of Chips/year	
		20	hours per day	
		306	days/yr	
PM:	Emission Factor:	0.1	lbs/ton	(reference: Oregon DEQ, Permit AQGP-010)
	Emissions:	0.83	tons/year	
		0.22	lbs/hr , 24-hour average	
PM10:	Emission Factor:	0.05	lbs/ton	(reference: Oregon DEQ, Permit AQGP-010)
	Corrected Factor:	0.41	tons/year	
	Emissions:	0.11	lbs/hr , 24-hour average	
PM2.5:	Emission Factor:	0.005	lbs/ton	(company assumes PM2.5 is 10% of PM10)
	Emissions:	0.04	tons/year	
		0.011	lbs/hr , 24-hour average	

PLANER CHIPPER CYCLONE

		2,750	Tons of Chips/year	
		20	hours per day	
		306	days/yr	
PM:	Emission Factor:	0.1	lbs/ton	(reference: Oregon DEQ, Permit AQGP-010)
	Emissions:	0.14	tons/year	
		0.04	lbs/hr , 24-hour average	
PM10:	Emission Factor:	0.05	lbs/ton	(reference: Oregon DEQ, Permit AQGP-010)
	Corrected Factor:	0.07	tons/year	
	Emissions:	0.02	lbs/hr , 24-hour average	
PM2.5:	Emission Factor:	0.005	lbs/ton	(company assumes PM2.5 is 10% of PM10)
	Emissions:	0.01	tons/year	
		0.002	lbs/hr , 24-hour average	

Diesel-fired Water Pump

353 Detroit Diesel (100 horsepower)
Heat input: 700,000 Btu/hr
Diesel use: 766 gallons/year

Hours of Operation: 150 hours per year (per company)

PM / PM10				
	Emission Factor:	2.20E-03	lb/hp-hr	(AP-42, Section 3.3, Table 3.3-1)
	Emissions:	0.00	tons/year	
		0.01	lb/hr	24 hr running 1 hour per day
PM2.5	Emission Factor:	1.76E-03	lb/hp-hr	(company est. 80% of PM10 from engine)
	Emissions:	0.00	tons/year	
		0.007	lb/hr	24 hr running 1 hour per day
Sulfur Dioxide:				
	Emission Factor:	2.05E-03	lb/hp-hr	(AP-42, Section 3.3, Table 3.3-1)
	Emissions:	0.02	tons/year	
		0.21	lb/hr	
NOx				
	Emission Factor:	3.10E-02	lb/hp-hr	(AP-42, Section 3.3, Table 3.3-1)
	Emissions:	0.23	tons/year	
		3.10	lb/hr	
VOC				
	Emission Factor:	2.51E-03	lb/hp-hr	(AP-42, Section 3.3, Table 3.3-1)
	Emissions:	0.02	tons/year	
		0.25	lb/hr	
CO				
	Emission Factor:	6.68E-03	lb/hp-hr	(AP-42, Section 3.3, Table 3.3-1)
	Emissions:	0.05	tons/year	
		0.67	lb/hr	

V. Existing Air Quality

The air quality classification for the immediate area is “Unclassifiable or Better than National Standards” (40 CFR Part 81.327) for all pollutants. The closest nonattainment area is the Thompson Falls PM_{10} nonattainment area. The boundary is approximately 1.2 miles (2.0 kilometers (km)) from the proposed facility. Modeling conducted for the project demonstrates that operation of the facility will not adversely impact the Thompson Falls PM_{10} nonattainment area. The current permit action will not result in further impacts to the affected nonattainment area.

VI. Air Quality Impacts

The facility is located about 4.5 kilometers (2.8 miles) southeast of Thompson Falls city limits, Montana, in Section 13, Township 21N, and Range 29W. The total facility property is approximately 0.7 square kilometers (163 acres). The air quality classification of the area surrounding the facility is “Unclassifiable/Attainment” for all air quality criteria pollutants (40 CFR Part 81.327). The Thompson Falls PM_{10} nonattainment area is approximately 2.0 kilometers (km) or 1.2 miles west of the facility. The closest Class I areas are the Flathead Indian Reservation, about 36.3 kilometers (22.6 miles) east of the site and the Cabinet Mountains Wilderness Area, which is located about 44.0 km (27.3 miles) northwest of the site.

Thompson River Power, LLC (MAQP #3175-07), is located adjacent to the TRL facility. Due to its close proximity to TRL, the emissions from TRP were also included in the National Ambient Air Quality Standards (NAAQS) and Montana Ambient Air Quality Standards (MAAQS) analyses. Modeling was conducted for $PM_{10,}$ $PM_{2.5}$, and for NOx.

<u>Meteorology:</u> The Consultant processed a total of nine years of surface met data with AERMET: Kalispell Glacier Park International Airport (1988 – 1992) and Missoula Johnson-Bell Field Airport (1989 – 1992). For the upper air, the Spokane International Airport data (1988 – 1992) was processed. However, 40 CFR 51 Appendix W, Guideline to Air Quality Models (Appendix W), recommends five

years of complete and representative met data should be used with AERMOD modeling so the application of the Missoula met data was questionable; furthermore, in some cases, the Consultant used all nine years. The Consultant explanation was that all possible combination of met conditions had been modeled. For consistency with Appendix W, the Department used the five years of Kalispell data when required (NAAQS/MAAQS).

The Department provided the 1-hour and annual default NO_2 background concentrations, 40 and 6 g/m^3, respectively, to the Consultant. All of the correct background concentrations were applied in the appropriate analysis.

Significant Impact Level (SIL): The significant impact level (SIL) analysis serves as a screening tool to identify the impacts from the proposed source emissions only. If the impact from a project emissions is less than a SIL, the impacts can be considered de minimums or trivial. If the SIL is exceeded, all nearby industrial emission sources need to be included for further modeling within the radius of impact (ROI) plus 50 km.

The highest concentration is selected from the modeling results for comparison to the corresponding SIL, except for $PM_{2.5}$ (24-hour and annual) and NOx (1-hour) which is discussed below. No background concentrations are added in this type of analysis.

AERMOD MODELING RESULTS

Class II SIL: The results of the SIL analysis is presented in Table 1. The highest modeled concentrations were listed in this table unless noted otherwise. The Kalispell Glacier Park International Airport (KAL) meteorological year that produced these results is noted in parentheses, if applicable.

Table 1. TRL Class II Significant Impact Level AERMOD Modeling.

Pollutant	Averaging Period	Modeled Concentration (µg/m^3)[1, 2]	Class II SIL (µg/m^3)	Significant? (Y/N)	Radius of Impact (km)[3]
CO	1-Hour	188 (KAL 1989)	2,000	N	NA[4]
	8-Hour	37.8 (KAL 1988)	500	N	NA
PM_{10}	24-Hour	54.9 (KAL 1990)	5	Y	2.1
	Annual	12.6 (KAL 1992)	1	Y	1.1
$PM_{2.5}$	24-Hour	8.49 (KAL 1988)	1.2	Y	5.0
	Annual	1.88 (KAL 1992)	0.3	Y	1.3
NO_x	1-Hour	90.0[5]	7.547[6]	Y	34.4
	Annual	10.3 (KAL 1988)	1	Y	2.1

1. µg/m^3 = micrograms per cubic meter.
2. All selected concentrations were high-first-high (H1H), except otherwise noted.
3. km = kilometer(s).
4. NA = Not Applicable.
5. Oris NO2Post AERMOD post-processor was used to calculate the highest 24-hour $PM_{2.5}$ concentration at a receptor over the 5 years of Kalispell met data.
6. USEPA interim SIL, based on 4% of the 1-hour NO_2 NAAQS.

The NAAQS/MAAQS Analyses and modeling results for $PM_{2.5}$, PM_{10} and NO_X are shown below in Table 2.

Table 2. TRL/TRP NAAQS/MAAQS Compliance Results.

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)[1,2]	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Percent of NAAQS (%)	MAAQS ($\mu g/m^3$)	Percent of MAAQS (%)
PM_{10}	24-Hour	57.9	34	91.9	NA[3]	NA	150	61.3
	Annual	14.7	13	27.7	50	55.4	50	55.4
$PM_{2.5}$	24-Hour	6.9	22[4]	28.9	35	82.6	NA	NA
	Annual	1.9	6.8[5]	8.7	15	58.0	NA	NA
NO_x	1-Hour	97.1	40	137.100	188.679	72.7	564	24.3
	Annual	6.97	6	12.97	100	13.0	94	13.8

1. $\mu g/m^3$ = micrograms per cubic meter.
2. NAAQS/MAAQS = National Ambient Air Quality Standard/ Montana Ambient Air Quality Standard.
3. NA = Not Applicable.
4. The Consultant erroneously calculated and applied a 20 $\mu g/m^3$ concentration.
5. The Consultant erroneously calculated and applied a 7 $\mu g/m^3$ concentration.

Table 3, shows the Department's results of modeled impact on the PM_{10} NAA.

Table 3. MDEQ AERMOD TRL Modeled Impacts on the PM_{10} NAA.

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)[1,2]	NAA Significance Level ($\mu g/m^3$)	Percent of Level (%)
PM_{10}	24-Hour (MSO 1992)	4.81	5	96.2
	Annual (MSO 1990)	0.27	1	27.0

1. $\mu g/m^3$ = micrograms per cubic meter.

The air within the TRP property boundary was considered ambient air with respect to the TRL emissions. Table 4 represents the results of TRL's modeled impacts.

Table 4. AERMOD TRL Modeled Impacts on TRP Ambient Air.

Pollutant	Averaging Period	Modeled Concentration ($\mu g/m^3$)[1]	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS[2] ($\mu g/m^3$)	Percent of NAAQS (%)	MAAQS[3] ($\mu g/m^3$)	Percent of MAAQS (%)
PM_{10}	24-Hour	25.24 - KAL	34	59.24	NA[4]	NA	150	39.5
	Annual	6.50 - KAL	13	19.50	50	39.0	50	39.0
$PM_{2.5}$	24-Hour	5.00 - KAL	22	27.00	35	77.1	NA	NA
	Annual	1.42 - KAL	6.8	8.22	15	54.8	NA	NA

1. $\mu g/m^3$ = micrograms per cubic meter.
2. NAAQS = National Ambient Air Quality Standard.
3. MAAQS = Montana Ambient Air Quality Standard.
4. NA = Not Applicable.

SUMMARY

Class II SIL: The TRL facility emissions were insignificant for CO, but significant for PM10, PM2.5, and NOx.

NAAQS/MAAQS: Including the TRP facility emissions, compliance was demonstrated for all NAAQS/MAAQS. The greatest impact was from the combined 24-hour $PM_{2.5}$ emissions, which were about 83% of the corresponding NAAQS, followed by the 1-hour NOx emissions, which was 73% of the corresponding NO_2 NAAQS. The 24-hour PM_{10} TRL emissions consumed about 96% of the NAA significance level, and the 24-hour $PM_{2.5}$ TRL emissions were about 77% of the corresponding NAAQS on the TRP property.

VII. Ambient Air Impact Analysis

Based on past modeling, the Department has determined that TRL operating in compliance with MAQP #4643-00 is expected to maintain compliance with all applicable standards. Modeling has also shown that the project is not expected to adversely impact the Thompson Falls PM_{10} nonattainment area.

VIII. Takings or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

IX. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Thompson River Lumber (TRL)

Montana Air Quality Permit Number: 4643-00

Preliminary Determination Issued: June 24, 2011
Department Decision Issued: July 12, 2011
Permit Final: July 28, 2011

1. *Legal Description of Site*: TRL's operation is located in Section 13, Township 21 North, Range 29 West, in Thompson Falls, Sanders County.

2. *Description of Project*: TRL owns and operates a wood products facility. Permitted equipment at TRL includes: a Wood-fired boiler (1988 Hurst hogged fuel boiler, Model HR500) with a maximum steam production of 40,000 pounds hour (60 MMBtu/hr) equipped with a electrified filter bed in series with multi-cyclones; two propane boilers (Cleaver Brooks and York Shipley); lumber drying kilns; sawmill building and associated equipment; and planer and chipper load-out operations with associated cyclones. The fugitive dust emission sources include, but are not limited to, debarkers, hog fuel and chips handling, and vehicle traffic.

3. *Objectives of Project*: The objective of the project would be to permit new and existing equipment and the existing sawmill.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because TRL demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in MAQP #4643-00.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. *The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites			X			Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

Any impacts resulting from the proposed project to terrestrial and aquatic life and habitats would be minor because all proposed activities would take place within the defined property boundary, at an existing industrial site. Further, minor impact to the surrounding area from the air emissions (see Section VI of the permit analysis) would be realized due to dispersion of pollutants.

Terrestrials (such as deer, antelope, rodents, and insects) would use the general area of the facility. The area around the facility would be fenced to limit access to the facility. The fencing would likely not restrict access from all animals that frequent the area, but it may discourage some animals from entering the facility property. Further, because other industrial sources, including the Thompson River Power Company (TRP) and a solid waste disposal facility are located directly adjacent to the proposed TRL property boundary, terrestrials that routinely inhabit the area are accustomed to the industrial character of the site. Therefore, any impacts to terrestrial and aquatic life and habits due to the proposed operation would have minor and typical impacts.

B. Water Quality, Quantity and Distribution

Any impacts resulting from the proposed project to water quality, quantity, and distribution would be minor because all proposed activities would take place within the defined TRL property boundary, an existing industrial site. Further, minor impact to the surrounding area from the air emissions (see Section VI of the permit analysis) would be realized due to dispersion of pollutants. Overall, any impacts to water quality, quantity, and distribution from TRL's proposed permit would be minor.

C. Geology and Soil Quality, Stability and Moisture

Any impacts resulting from the proposed project to geology and soil quality, stability, and moisture would be minor because all proposed activities with respect to limits and practices associated would take place within the defined TRL property boundary, an existing industrial site. Further, minor impact to the surrounding area from the air emissions (see Section VI of the permit analysis) would be realized due to dispersion of pollutants.

D. Vegetation Cover, Quantity, and Quality

The Department contacted the Montana Natural Heritage Program (MNHP) in an effort to identify any species of special concern associated with the proposed site location. Search results concluded there are several in the area. The area, in this case, would be defined by the township and range of the TRL, with an additional one-mile buffer. The species of special concern identified by MNHP include the Diamond Clarkia, a vascular plant. However, any impacts resulting from the proposed project to vegetation cover, quantity, and quality would be minor because the MAQP is for an existing facility. Further, minor impact to the surrounding area from the air emissions (see Section VI of the permit analysis) would be realized due to dispersion of pollutants.

E. Aesthetics

Minor impacts to the aesthetic nature of the area would result from the proposed permit because all proposed activities would take place within the TRL, an existing industrial site. Any changes in operational practices to minimize those emissions may be visible from locations around the TRL site. However, the TRL is a previously disturbed industrial location near Thompson River Power and a solid waste transfer station. Any aesthetic impacts would be minor and consistent with current industrial land use of the area.

The facility is visible from MT Highway 200 (approximately ¼ mile to the north), a small residential subdivision (approximately ¾ mile west/southwest), an individual residence (approximately ½ mile west), and may be visible from the Clark Fork River (approximately ¼ mile south and located in the river valley below the proposed site). Overall, any impacts to the aesthetic nature of the project area from TRL's proposed permit would be minor.

F. Air Quality

The air quality impacts from the current permit action would be minor because MAQP #4643-00 would include conditions and limitations for the source.

In addition, the Department determined, based on the ambient air quality dispersion modeling analysis conducted for MAQP #4643-00, that the operation of the TRP under the conditions associated with MAQP #4643-00 would not cause or contribute to a violation of any ambient air quality standard. The Clean Air Act, which was last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set NAAQS for pollutants considered harmful to public health and the environment (Criteria Pollutants: carbon monoxide (CO), NOx, Ozone (O_3), Lead (Pb), PM_{10}, $PM_{2.5}$ and SO_2). In addition, Montana has established equally protective or, in some cases, more stringent standards for these pollutants termed Montana Ambient Air Quality Standards (MAAQS). The Clean Air Act established two types of NAAQS, Primary and Secondary. Primary Standards set limits to protect public health, including, but not limited to, the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary Standards set limits to protect public welfare, including, but not limited to, protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The air quality classification for the immediate area of proposed TRL operation is considered "Unclassifiable or Better than National Standards" (40 CFR 81.327) for all pollutants. The closest nonattainment area is the Thompson Falls PM_{10} nonattainment area located approximately 1.2 miles (2.0 kilometers (km)) from the TRL site location.

Overall, any impacts to the air quality of the project area from TRL's proposed permit, including construction activities, normal operations resulting in air emissions, and deposition of air emissions would be minor and in compliance with all applicable MAAQS and NAAQS.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The Department contacted the Montana Natural Heritage Program (MNHP) in an effort to identify any species of special concern associated with the proposed site location. Search results concluded there are several in the area. The area, in this case, would be defined by the township and range of the TRL, with an additional one-mile buffer. The species of special concern identified by MNHP include the Lewis' woodpecker, Clark's Nutcracker, Lake trout, and the millipede. MNHP also listed several 'sensitive species' that might potentially locate, including the Westslope Cuttthroat Trout, Fringed Myotis, Townsend's Big-eared Bat, Gray Wolf, Grizzly Bear, Fisher, and the Wolverine. Additionally, the Bull Trout and the Canada Lynx were listed a 'special status' that might potentially located in the area.

The TRL site has historically been used for industrial/commercial purposes. Because industrial operations have been ongoing within the existing facility for an extended period of time and potential permitted emissions from TRL show compliance with all applicable air quality standards, it is unlikely that any of these species of special concern would be affected by the proposed project. Overall, any impacts to any unique endangered, fragile, or limited environmental resources would be minor.

H. Demands on Environmental Resource of Water, Air and Energy

Demands on environmental resources of water, air, and energy would be minor. As previously discussed, the proposed permit would allow an increase allowable air emissions of NOx and SO_2; however, air dispersion modeling demonstrated compliance with the MAAQS/NAAQS. Therefore, any impacts to air resources in the area would be minor and would be in compliance with applicable standards. Any impacts to the local air resource would be minor as demonstrated through the ambient air quality impact analysis conducted for the proposed permit modification.

Regarding impacts to the environmental resource of water, this permit action does not include any increase in the demand for water. Therefore, any impacts to the demand for water resources in the affected area associated with TRL would be minor.

With respect to energy, TRL's proposed boilers would allow for more efficient operation of the sawmill and kilns. Additionally, TRL had previously operated a boiler for this purpose, prior to the fire at the facility. Therefore, this permit action would not change, in general, the overall amount of power used or produced.

Overall, any impacts to the demands on the environmental resources of water, air, and energy from TRL's proposed permit would be minor.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites near the proposed project area, the Department contacted the Montana Historical Society, State Historic Preservation Office (SHPO). It is SHPO's position that any structure over fifty years of age would be considered historic and would be potentially eligible for listing on the National Register of Historic Places. If any structures are to be altered and are over fifty years old we would recommend that they be recorded and a determination of their eligibility be made. Because TRL would not disturb or alter any structure over fifty years of age, SHPO determined that there would be a low likelihood that cultural properties would be impacted. Therefore, SHPO believes that a recommendation for a cultural resource inventory is unwarranted at this time. However, should structures need to be altered or if cultural materials be inadvertently discovered during this project SHPO should be contacted and the site investigated.

J. Cumulative and Secondary Impacts

Overall, any cumulative and secondary impacts from the proposed permit on the physical and biological resources of the human environment in the immediate area would be minor due to the fact that the predominant use of the surrounding area would not change as a result of the proposed project. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #4643-00.

8. *The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores			X			Yes
B	Cultural Uniqueness and Diversity			X			Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities			X			Yes
G	Quantity and Distribution of Employment			X			Yes
H	Distribution of Population			X			Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals			X			Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores
B. Cultural Uniqueness and Diversity

The proposed permit would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) or impact the cultural uniqueness and diversity of the area because the current permit action takes place at an existing facility. TRL operation would essentially remain the same except that the facilities potential to emit has exceeded the permit threshold. Therefore the facility requested a Montana Air Quality Permit. As a result, the predominant use of the surrounding area would not change as a result of the permit action. In addition, the overall industrial nature of the surrounding area, as a whole, would not be altered by the proposed TRL permit, as the area currently facilitates other industrial sources including the TRP's operation and a solid waste transfer station both of which are located directly adjacent to the TRL site, as well as an existing gravel pit in the greater surrounding area.

C. Local and State Tax Base and Tax Revenue

Any impacts to the local and state tax base and tax revenue would be minor because TRL would remain responsible for all appropriate state and county taxes imposed upon the business operation. By obtaining an air quality permit, TRL would not be required to hire and does not expect an increase in employees. Therefore, the Department believes there would be minor changes to the local and State Tax Base and Tax Revenue.

D. Agricultural or Industrial Production

The current permit action would not displace or otherwise affect any agricultural land or practices. TRL would continue to operate the existing sawmill. The sawmill experienced a fire a few years ago that took out their boiler. Adding boilers to the facility, requires TRL to obtain an air quality permit. Overall, the sawmill would become more efficient with the increased boiler capacity. The Department believes there would be no change to agricultural or industrial production in the area. r

E. Human Health

There would be minor potential effects on human health due to minimized air emissions. In addition, MAQP #4643-00 would include conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

As detailed in Section 7.F of this EA, the Clean Air Act established two types of NAAQS, Primary and Secondary. Primary Standards set limits to protect public health, including, but not limited to, the health of "sensitive" populations such as asthmatics, children, and the elderly. Under MAQP #4643-00, TRL conducted an ambient air quality impact analysis demonstrating that TRL operations would comply with all applicable ambient air quality standards thereby protecting human health. Overall, the Department determined that any impact to public health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed permit and overall TRL operations would not affect access to any recreational or wilderness activities in the area. The TRL operation is an existing sawmill operation and the location of the facility would remain the same. The area is comprised of private property with no public access and would continue in this state. Therefore, the Department believes there would be minor, if any, changes to access to and quality of recreational and wilderness activities.

G. Quantity and Distribution of Employment
H. Distribution of Population

The current permit action would result in no impacts to the quantity and distribution of employment in the area and/or the distribution of population in the area because the project would not require any additional employees.

I. Demands for Government Services

Demands on government services from the proposed permit would be minor because TRL would be required to procure the appropriate permits (including a state air quality permit) and any permits for the associated activities of the project. Further, compliance verification with those permits would also require minor services from the government.

As the TRL site is within an existing industrial location, employee water and sewage disposal facilities would continue as they have in the past. Overall, any demands on government services resulting from the proposed permit would be minor.

J. Industrial and Commercial Activity

The current permit action would not result in an overall change in facility's purpose; therefore, the proposed permit action would not impact any industrial or commercial activity in the area beyond those impacts already realized by TRL's operation. The Department believes the permit would not result in a change to industrial or commercial activity in the area.

K. Locally Adopted Environmental Plans and Goals

The City of Thompson Falls is a PM_{10} nonattainment area. However, the PM_{10} nonattainment area boundary is located approximately 1.2 miles (2.0 kilometers (km)) from the TRL facility. TRL conducted an ambient air quality impact analysis demonstrating that TRL operations would comply with all applicable ambient air quality standards thereby protecting human health. The Department is unaware of any other locally adopted Environmental plans or goals. The state air quality standards would protect air quality at the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from the proposed permit on the economic and social resources of the human environment in the immediate area would be minor due to the fact that the predominant use of the surrounding area would not change as a result of the proposed project. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #4643-00.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of sawmill and associated equipment. MAQP #4643-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

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