

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OPERATING PERMIT TECHNICAL REVIEW DOCUMENT**

**Permitting and Compliance Division
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NW ¼ of the SE ¼ of Section 13, Township 21 North, Range 29 West, Sanders County, MT.

The following table summarizes the air quality programs testing, monitoring, and reporting requirements applicable to this facility.

Facility Compliance Requirements	Yes	No	Comments
Source Tests Required	X		Method 5, 6, 7, 9, 10, 18, 25, 26
Ambient Monitoring Required	X		PM ₁₀ Ambient Monitor
COMS Required	X		Boiler Baghouse Opacity
CEMS Required	X		Boiler NO _x and SO ₂ CEMS
Schedule of Compliance Required		X	NA
Annual Compliance Certification and Semiannual Reporting Required	X		As Applicable
Monthly Reporting Required		X	NA
Quarterly Reporting Required	X		Boiler Reporting and Coal parameters, Section III.B of Operating Permit #OP3175-06
Applicable Air Quality Programs			
ARM Subchapter 7 – Montana Air Quality Permit (MAQP)	X		MAQP #3175-09
New Source Performance Standards (NSPS)	X		40 CFR 60, Subparts A, Db, III
National Emission Standards for Hazardous Air Pollutants (NESHAPS)		X	Except 40 CFR 61, Subpart M
Maximum Achievable Control Technology (MACT)		X	
Major New Source Review (NSR)		X	NA
Risk Management Plan Required (RMP)		X	NA
Acid Rain Title IV		X	NA
State Implementation Plan (SIP)	X		General SIP
Compliance Assurance Monitoring (CAM) Plan	X		Appendix G: SO ₂ , NO _x , PM ₁₀ , and HCl

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SECTION I. GENERAL INFORMATION

A. Purpose

This document establishes the basis for the decisions made regarding the applicable requirements, monitoring plan, and compliance status of emission units affected by the operating permit proposed for this facility. The document is intended for reference during review of the proposed permit by the EPA and the public. It is also intended to provide background information not included in the operating permit and to document issues that may become important during modifications or renewals of the permit. Conclusions in this document are based on information provided in the original application submitted by Thompson River Power, LLC (TRP) (formerly Thomson River Co-Gen, LLC) on August 28, 2001, the Renewal Application submitted on February 16, 2007, and additional submittals on December 18, 2001, February 13, 2002, October 7, 2003, February 20, 2004, April 19, 2004, April 23, 2004, May 3, 2004, May 14, 2004, July 30, 2004, August 9, 2004, September 7, 2004, February 24, 2005, April 8, 2005, November 15, 2005, January 4, 2006, March 13, 2006, May 3, 2006, May 26, 2006, June 9, 2006, December 8, 2006, January 5, 2007, and December 14, 2007. On April 22, 2008, the Board of Environmental Review issued an order (BER 2006-18 AQ) that remanded TRP's permit. Subsequently, TRP submitted an application for modification on May 30, 2008 with additional information submitted on July 29, 2008, August 21, 2008, September 3, 2008, October 2, 2008, October 21, 2008, October 29, 2008, and November 10, 2008. On February 25, 2009, TRP submitted an administrative request to add a 2220-horsepower engine along with other administrative changes to the permit. Additional information regarding this request and other administrative requests were received on May 6, 2009, July 6, 2009, August 18, 2009, September 3, 2009, September 14, 2009, October 20, 2009 and October 21, 2009. On August 16, 2010, TRP notified the Department of a change in responsible official. On August 11, 2011, TRP submitted an administrative amendment to temporarily suspend ambient PM₁₀ monitoring. On February 10, 2012, TRP submitted an application for their Title V renewal.

B. Facility Location

The TRP plant is located approximately 3.7 miles east-southeast of Thompson Falls, Montana. The legal description of the site is in the NW ¼ of the SE ¼ of Section 13, Township 21 North, Range 29 West, Sanders County, Montana.

C. Facility Background Information

Montana Air Quality Permit History (MAQP)

On November 9, 2001, Thompson River Co-Gen, LLC (TRC) was issued final Montana Air Quality Permit (MAQP) #3175-00 for the construction and operation of a 12.5-megawatt (MW) capacity electrical and steam co-generation plant. The plant was permitted for a 156 Million British thermal Units per hour (MMBtu/hr) heat input capacity coal and wood-waste biomass-fired boiler and associated fuel handling, storage, and support facilities.

On September 7, 2004, the Department received a complete application for proposed modifications to the permitted TRC operations. Based on the information contained in the complete permit application, the following modifications were made under MAQP #3175-01:

- Increase in the allowable boiler baghouse emission rate (lb/hour) for particulate matter or particulate matter with an aerodynamic diameter of 10 microns or less (PM/PM₁₀). The previously permitted Best Available Control Technology (BACT) emission limit determination of 0.017 grains per dry standard cubic feet (gr/dscf) of air-flow through the boiler baghouse would remain applicable to the baghouse-controlled boiler operations. However, due to the increase in capacity air-flow through the baghouse the permit action resulted in an increased allowable PM and PM₁₀ emission rate of 5.90 lb/hr;

- Incorporation of an enforceable boiler I.D. fan flow capacity of 70,000 actual cubic feet per minute (acfm), calculated as 40,513 dry standard cubic feet per minute (dscfm);
- Increase in the facility electrical output capacity from 12.5 MW to 16.5 MW;
- Incorporation of an enforceable boiler heat input capacity limit of 192.8 MMBtu/hr and 1,688,928 MMBtu/yr. This limit would be monitored on a continuous basis using information obtained from the required coal analysis and published wood-waste fuel specifications. Based on the hourly limit, the source is below the listed New Source Review – Prevention of Significant Deterioration (NSR/PSD) heat input threshold value of 250 MMBtu/hr;
- Incorporation of an enforceable annual maximum boiler coal feed limit of 105,558 tons during any rolling 12-month time period. This limit is based on the maximum boiler heat input capacity feed rate of 192.8 MMBtu/hr and the worst case coal heating value of 8,000 Btu/lb;
- Incorporation of enforceable boiler main stack minimum requirements of 100.5 feet tall and 6 feet in diameter;
- Incorporation of an enforceable minimum coal heating value of 8,000 British thermal units per pound (Btu/lb) of coal;
- Incorporation of an enforceable maximum sulfur in coal value of 1.0% sulfur by weight;
- Incorporation of new oxides of nitrogen (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), oxides of sulfur (SO_x), and hydrochloric acid (HCl) BACT emission limits for boiler operations. The BACT analyses and determination(s) for modified boiler emissions were conducted due to the increased boiler heat input capacity. A BACT analysis and determination summary was provided in the permit analysis to MAQP #3175-01;
- Incorporation of an enforceable coal conveyor maximum capacity of 200 ton/hr for each coal handling conveyor at the TRC site;
- Incorporation of an enforceable partial (3-sided) enclosure requirement for coal conveyor loading en-route to the coal day bin S1;
- Addition of a 60 MMBtu/hr capacity diesel and/or propane-fired boiler pre-heater to the existing permitted equipment at the facility. The pre-heater would not be allowed to operate while the boiler is producing energy or the boiler fuel feed is in operation and would be limited to a maximum of 500 hours of operation per year;
- Addition of refractory curing heaters with a maximum combined heat input capacity of 60 MMBtu/hr to the existing permitted equipment at the facility. The refractory curing heaters would not be allowed to operate while the boiler is producing energy or the boiler fuel feed is in operation and each heater would be limited to a maximum of 500 hours of operation during any rolling 12-month time period;
- Modification of the permitted BACT requirement for primary coal storage within a baghouse controlled silo. Outdoor storage of coal utilizing wind fencing, earthen berm, and water spray, as necessary, to control fugitive coal storage PM/PM₁₀ emissions would replace the initial BACT determination under MAQP #3175-00. A summary of the BACT analysis used to make the new outdoor fuel storage BACT determination is contained in Section III of the permit analysis for MAQP #3175-01;
- Addition of on-site wood-waste biomass storage operations utilizing wind fencing, earthen berm, and water spray, as necessary, as BACT control of fugitive wood-waste biomass storage PM/PM₁₀ emissions. A summary of the BACT analysis used to make this BACT determination is contained in Section III of the permit analysis for MAQP #3175-01;
- Revisions to the previously permitted ash handling operations for the addition of a second ash handling bin vent under a new BACT determination. A summary of the BACT analysis used to make this BACT determination is contained in Section III of the permit analysis for MAQP #3175-01;
- Incorporation of an enforceable coal storage limit of 6,000 tons at any given time;
- Incorporation of an enforceable on-site wood-waste storage limit of 3,000 tons at any given time; and
- Incorporation of PM₁₀ ambient air quality monitoring requirements into the permit.

Also, TRC requested that the Department modify the previously permitted BACT requirement that all fuel transfer conveyors be enclosed to require that all fuel transfer conveyors must be covered. TRC constructed coal fuel conveyors incorporating a cover, which extends past the conveyor, creating, in effect, an enclosed conveying system. Further, TRC proposed the construction of a fully enclosed pneumatic conveying system for wood-waste biomass fuel. The Department determined that these conveying systems constitute enclosed fuel transfer conveyors; therefore, the Department will not modify the permit to require covered versus enclosed conveyors.

Because many of the above cited permit modifications affected the concentration of and plume rise and dispersion characteristics of pollutants resulting from modified TRC operations, the Department determined that air dispersion modeling was required to demonstrate compliance with applicable National and Montana Ambient Air Quality Standards (NAAQS/MAAQS). A summary of air dispersion modeling results is contained in Section VI, Ambient Air Quality Impacts, of the permit analysis for MAQP #3175-01.

The preliminary determination was open for public comment from October 8, 2004, through October 25, 2004. Based on comments received during the public comment period, the Department modified the preliminary determination as follows:

- Incorporation of an enforceable requirement for coal fuel chlorine and ash content reporting during all source testing (Section II.C.5);
- Correction of the ambient air impact analysis summary to indicate the correct information analyzed (Section VI of the Permit Analysis and Section 7.F of the EA);
- The dry lime scrubber BACT control requirement was referenced as a flue-gas desulfurization unit (FGD) throughout the Department decision and permit analysis for consistency and clarification of terms;
- Modification of the language contained in Section II.A.26 of the preliminary determination from the “on-site” coal storage limit of 6,000 tons to the analyzed and intended “outside” coal storage limit of 6,000 tons;
- Incorporation of increased PM₁₀ ambient air quality monitoring schedule. The Department maintains that a single ambient air quality monitor remains appropriate; however, the Department modified the ambient monitoring schedule to require sample analysis on an every 3rd day schedule year round; and
- Incorporation of an enforceable boiler steam production limit in place of the electrical megawatt production limit included in the preliminary determination (Section II.A.1).

MAQP#3175-01 replaced MAQP #3175-00.

On February 24, 2005, the Department received from TRC a notice of an administrative error contained in TRC’s MAQP #3175-01. Specifically, Section II.C, Testing Requirements, did not include a specific testing schedule for NO_x emissions from the boiler, while Section II.B clearly specified that boiler NO_x emission limits are subject to source testing. MAQP #3175-01 did include provisions enabling the Department to invoke boiler NO_x source testing; however, at the request of TRC and in the interest of providing clarification for boiler NO_x source testing requirements, the current permit action amended the permit to include the appropriate NO_x source testing schedule under the provisions of ARM 17.8.764(1)(c). The amended NO_x source-testing requirement was included in Section II.C.1 of MAQP #3175-02.

Further, on April 8, 2005, TRC submitted a request for an additional permit amendment under the provisions of ARM 17.8.764(1)(b) to change the existing Method 5 source-testing schedule for various permitted emitting units, maintain and specify the implied Method 9 source testing schedule, and accurately characterize certain emitting unit control technologies as fabric filter bin vents. In the initial application for MAQP #3175-00 and subsequent MAQP modification #3175-

01, emitting units DC-2 (Fuel Handling Bin Vent), DC-3 (Lime Silo Bin Vent), DC-4 (Fly-Ash Silo Bin Vent), and DC-6 (Bottom-Ash Silo Bin Vent) were inconsistently characterized as varied types of fabric filter dust collecting systems (i.e. baghouses, bin vents, and/or dust collectors) and inaccurately characterized as having a continuous air-flow. These units are actually fabric filter bin vents, which control particulate emissions using natural draft or simple air displacement within the associated silo, or similar unit, to provide air flow through the filter. Given this information, the Department determined that the appropriate permit limit(s) for the affected units remained 20% opacity and a grain-loading limit of 0.02 gr/dscf. In accordance with Department fabric filter bin vent testing guidance the Department determined that the appropriate compliance demonstration for these units is an initial and periodic Method 9 source testing. Therefore, under the provisions of ARM 17.8.764(1)(b), the Department is amending the permit to remove the implied initial Method 5 source test requirement for the affected units and maintain initial and periodic Method 9 source testing. However, the Department maintained the authority to require a Method 5 source test demonstration for the affected units. Further, the permit action re-characterized all affected units as bin vents throughout the permit to clarify the nature of the control device.

In addition, since TRC has accomplished various notification requirements contained in Section II.G of MAQP #3175-01, those affected notifications were removed from the permit. **MAQP #3175-02** replaced MAQP #3175-01.

On January 4, 2006, the Department received a complete application for the modification of TRC's MAQP #3175-02. The application was assigned **MAQP #3175-03**. Specifically, TRC requested various changes to applicable permit terms/conditions relating to the Babcock and Wilcox Spreader-Stoker boiler. On February 10, 2006, the Department issued a Preliminary Determination (PD) on MAQP #3175-03 for the proposed modification of the TRC air quality permit. On March 13, 2006, and subsequently on May 3, 2006, the Department received official public comment and supporting information from TRC indicating to the Department that TRC could not comply with the existing air quality permit or limits proposed in the Department's PD, some of which constituted BACT. This information was not included in the TRC permit application for #3175-03 and was not analyzed by the Department in the permit application review process and, therefore, not identified in the PD issued for public comment. Because the above-cited information indicated to the Department that TRC was unable to comply with all applicable requirements, the Department's decision was to deny TRC's application for permit #3175-03. In a letter dated May 19, 2006, the Department denied the application and indicated that if TRC wished to pursue changes to its existing air quality permit, a complete application, including all relevant information, must be submitted to the Department for review. **MAQP #3175-03** was denied and did not replace Permit #3175-02.

On June 9, 2006, the Department received a complete application for the modification of TRC's MAQP #3175-02. Based on Department review of TRC's application for permit modification, the following modifications were made to TRC's permit:

SO₂ Modifications:

- Removal of the requirement that the installed SO₂ control equipment meet or exceed 90% SO₂ reduction. Based on the equipment specific information contained in the application for permit modification, the Department determined that this efficiency was not achievable on a steady-state basis and promoted the combustion of coal fuel with a higher sulfur concentration in order to attain a higher percent reduction without additional environmental benefit;
- Modification of the SO₂ control strategy language to require a generic FGD system in place of the previously specified dry-lime scrubber SO₂ control requirement. This modification afforded TRC flexibility in choosing and installing an SO₂ control strategy capable of achieving the permitted BACT emission limits;

- Modification of the existing SO₂ BACT emission limit of 0.220 lb/MMBtu based on a 1-hr average to 0.220 lb/MMBtu based on a 30-day rolling average. Because coal sulfur content and heating value is variable, the Department determined that the 30-day rolling SO₂ BACT emission rate averaging time was appropriate in this case as it provides needed flexibility for the combustion of worst-case allowable coal on a short-term basis and assurance that the affected unit will operate through combustion of typical coals for longer term normal operations. The SO₂ BACT limit of 0.220 lb/MMBtu was the same as the existing SO₂ BACT limit under MAQP #3175-02. However, this limit was different than the SO₂ BACT limit proposed under the Department's preliminary determination on permit application #3175-03, which was subsequently denied by the Department.
- The Department determined that a secondary lb/hr BACT emission limit based on the permitted BACT emission rate in lb/MMBtu and the boiler heat input capacity was redundant; therefore, the permit action removed the previously BACT determined emission limit of 42.42 lb/hr. Because the permit action maintained an enforceable boiler heat input limit, the Department determined that the BACT determined emission limit in lb/MMBtu was protective of the permit analysis and constituted BACT.
- Inclusion of a boiler SO₂ emission limit of 155.0 lb SO₂/hr applicable during defined periods of startup and shutdown only. TRC provided a boiler startup and shutdown plan (Attachment 3) describing the operational circumstances which constitute boiler startup and shutdown. As reported in the application for the permit action, the required FGD SO₂ control equipment would be rendered ineffective until the boiler reaches an operational steam production level of approximately 70,000 pounds of steam per hour (information from Hamon Research Cottrell) or a heat input value of approximately 104 MMBtu/hr. The boiler steam load capacity was reported at 130,000 pounds of steam per hour at 192.8 MMBtu/hr. On June 7, 2006, the Department sent TRC an application deficiency letter highlighting information lacking from the application for MAQP #3175-04. In the deficiency letter, the Department asked TRC how the boiler would comply with an uncontrolled SO₂ emission limit of 155 lb/hr considering that worst-case permitted allowable coal (8000 Btu/lb and 1% sulfur) combusted at a heat input rate of 104 MMBtu/hr would result in emissions exceeding this limit. In response to the Department's letter, TRC indicated that the above-cited worst-case allowable coal is theoretical and that actual coals received from the contracted coal supplier would have higher Btu content and lower sulfur concentration than the worst-case allowable coal. TRC further indicated that more typical coal would be stockpiled on-site to ensure compliance with the start-up and shutdown uncontrolled emission limit of 155 lb/hr. Assuming combustion of TRC reported typical coal at approximately 10,200 Btu/lb and 0.7% sulfur and a boiler heat input rate of 104 MMBtu/hr (effective FGD control cut-off level), uncontrolled SO₂ emissions from the TRC stoker boiler would not exceed 155 lb/hr. The SO₂ startup and shutdown emission limit of 155.0 lb SO₂/hr was shown through modeling to be protective of the applicable ambient air quality standard(s).
- Inclusion of a worst-case 1-hour SO₂ emission limit of 72.3 lb/hr based on a 1-hr averaging period applicable at all times except during periods of startup and shutdown. Based on the information contained in the application for MAQP #3175-04, the Department determined that this action was justified, as this rate represents an 85% SO₂ control efficiency (guaranteed LSD/FGD control efficiency) when combusting permitted allowable worst-case coals and assuming a boiler heat input of 192.8 MMBtu/hr.
- Inclusion of an SO₂ continuous emissions monitoring system (CEMS) requirement. The Department determined, based on TRC's past SO₂ reduction performance, that an SO₂ CEMS is justified, especially considering the longer-term SO₂ emission limit averaging time (rolling 30-day average) deemed BACT under MAQP #3175-04.

NO_x Modifications:

- BACT-determined selective non-catalytic reduction (SNCR) and flue-gas recirculation (FGR) NO_x control requirements in combination with the existing BACT requirement for over-fire air (OFA) NO_x control.
- Modification of the existing NO_x BACT-determined emission rate of 0.178 lb/MMBtu based on a 1-hr average to 0.196 lb/MMBtu based on a rolling 30-day average. As specified in the permit, an emission limit of 0.28 lb/MMBtu would be applicable during the initial 10-day SNCR mapping/testing period prior to installation and operation of SNCR. An emission limit of 0.28 lb/MMBtu represents the TRC reported achievable NO_x emission rate assuming the BACT-determined OFA and FGR NO_x combustion controls are installed and operational during the SNCR mapping/testing period, as required by permit. Further, since the proposed SNCR NO_x control strategy in combination with the existing NO_x combustion controls (OFA/FGR) constituted BACT for NO_x emissions, the Department determined that an emission limit of 0.196 lb NO_x/MMBtu constituted BACT. This emission limit/rate represents an additional 30% reduction (SNCR manufacturers guarantee) in NO_x emissions through incorporation of SNCR, assuming the reported combustion control emission rate of 0.28 lb/MMBtu and a boiler heat input rate of 192.8 MMBtu/hr. The Department determined that a rolling 30-day average to demonstrate compliance with the BACT-determined limit was justified. The increased averaging time provided necessary flexibility due to reported variability in boiler operating temperature and related SNCR and combustion control efficiency. The NO_x BACT limit of 0.196 lb/MMBtu is different than the NO_x BACT limit proposed under the Department's preliminary determination for #3175-03, which was subsequently denied by the Department;
- Inclusion of a boiler NO_x emission limit of 74.0 lb NO_x/hr applicable during defined periods of startup and shutdown only (see Attachment 3). TRC provided a boiler startup and shutdown plan describing the operational circumstances which constitute boiler startup and shutdown. Based on information from Fuel Tech, Inc. (manufacturer of SNCR system), the SNCR unit would not be effective at a heat input rate of less than 134 MMBtu/hr. The function of the OFA and FGR is similarly reduced at lower operating loads on the boiler and is essentially shut down below approximately 90 MMBtu/hr based on the recommendations of the boilers combustion system manufacturer. Based on this information, a short term limit considering no control and maintaining compliance with the applicable ambient air quality standards was necessary in order for the TRC boiler to operate within the requirements of the permit. Assuming an uncontrolled NO_x emissions rate of 0.55 lb/MMBtu (AP-42, Section 1.1) and a boiler heat input rate of 134 MMBtu/hr (effective NO_x control cut-off level), uncontrolled NO_x emissions from the TRC stoker boiler firing subbituminous coal would be 74.0 lb/hr. Through the permit application process for this permit modification, TRC demonstrated compliance with the applicable ambient air quality standards through modeling an emissions rate of 195 lb NO_x/hr. Therefore, a NO_x emission rate of 74 lb/hr was deemed appropriate and was shown to be protective of the health-based ambient air quality standards.
- Inclusion of a worst case 1-hour average NO_x emission limit of 47.24 lb/hr applicable at all times except during periods of startup and shutdown. Based on the information contained in the application for MAQP #3175-04, the Department determined that this action was justified, as this rate represents a 30% reduction (guaranteed SNCR control efficiency) from the reported worst-case NO_x emissions rate of 0.35 lb/MMBtu, assuming a boiler heat input of 192.8 MMBtu/hr and required combustion controls (OFA and FGR).

Other Permit Modifications:

- Modification of the hourly boiler heat input limit of 192.8 MMBtu/hr to a limit of 192.8 MMBtu/hr based on a 24-hour average and maintenance of the annual boiler heat input limit of 1,688,928 MMBtu/yr. The annual heat input limit represents the reported and analyzed sustainable boiler heat input capacity of 192.8 MMBtu/hr (192.8 MMBtu/hr x 8760 hr/year).

The application for MAQP #3175-04 proposed removal of the existing short-term boiler heat input limit of 192.8 MMBtu/hr and maintenance of the annual heat input limit. TRC's application for permit modification stated that because this heat input value (192.8 MMBtu/hr) was used in the calculation establishing the boiler BACT emission limits, the affected BACT limit takes into account heat input as part of the limit itself and the limit is therefore redundant. The Department disagreed with the conclusions of this argument because there is some uncertainty as to the boiler's heat input capacity and because this heat input value has been relied upon in the analysis establishing the boiler BACT limits. In the application for MAQP #3175-04 (and supporting documentation under permit application #3175-03), TRC reported that the boiler may potentially accommodate a continuous maximum firing rate of approximately 215 MMBtu/hr. However, the analysis conducted by TRC for the permit action maintained a sustainable boiler heat input capacity of 192.8 MMBtu/hr and not 215 MMBtu/hr. Therefore, the Department determined that inclusion of a short-term enforceable heat input limit was necessary to protect the analysis conducted for the proposed boiler. Further, because the boiler's heat input was directly related to BACT emissions limits, incorporation of a short-term heat input limit provided additional and practical assurance of compliance with permit limits. Finally, because the Department's analysis relied on a boiler heat input rate of 192.8 MMBtu/hr as the sustainable steady-state boiler heat input capacity the Department determined that a 24-hour (calendar-day), rather than a 1-hour, averaging period was appropriate to demonstrate compliance with the limit in this case. To provide basis for the Department's determination on the appropriate averaging period for a sustainable boiler heat input rate, the Department used indirect guidance from USEPA related specifically to federal New Source Performance Standards applicability under 40 CFR, Part 60, Subpart D. This guidance (Applicability Determination Index Control Number 0300104) states, "the heat input rate of the steam generating unit should be based on a 24-hour full load demonstration measuring peak Btu/hr heat input after achieving steady-state conditions.";

- Removal of the steam production limit of 130,000 lb/hr. This limit was included in the previous permit(s) to protect the analyses conducted for boiler operation and control. However, the Department believes that other existing and new permit limits and conditions served this purpose and that the steam production limit was unnecessary and actually penalized TRC for potential increased efficiency;
- Removal of the boiler baghouse fan flow rate of 40,513 dscfm. This limit was included in the previous permit(s) to protect the analyses conducted for boiler operation and control. However, in concurrence with the current permit application, the Department believes that other existing and new permit limits and conditions serve this purpose.
- Inclusion of boiler startup and shutdown limits and operating conditions applicable during periods of startup and shutdown only and a boiler startup and shutdown plan describing operational circumstances which constitute boiler startup and shutdown events. The Department believes that any startup and shutdown emissions must consider the startup and shutdown process, fuels, and controls, if applicable.
- Interim cessation of PM₁₀ ambient air quality monitoring requirements until initial startup of the boiler after issuance of MAQP #3175-04, and continued operations thereafter.

The preliminary determination was subject to public comment from July 6, 2006, through August 7, 2006. Based on comments received during the public comment period, the Department modified the preliminary determination as follows:

- Removal of the boiler start-up and shutdown event notification requirement contained in Section II.N.9 of the Department's preliminary determination for MAQP #3175-04. The recordkeeping requirements contained in Section II.K.15 provided adequate compliance assurance related to start-up and shutdown event recordkeeping and notification.

The Department decision, issued on August 21, 2006, incorporated the above-cited change. On September 3, 2006, the Citizens Awareness Network, Women's Voices for the Earth, and the Clark Fork Coalition appealed the Department's decision and requested a hearing on the appeal before the Board of Environmental Review (Board). The requested hearing before the Board occurred on May 3rd, 4th, and 17th, 2007. As specified in 75-2-211(11)(b), the filing of a request for a hearing does not stay the Department's decision unless the Board issues a stay. Since the Board did not issue a stay in this case, the Department's decision became final on September 6, 2006. **MAQP #3175-04** replaced MAQP #3175-02 and a decision by the Board is forthcoming.

November 21, 2007, the Department received a written notification from TRC and TRP informing the Department of TRC's intent to transfer MAQP #3175-04 from TRC to TRP. The permit was amended to reflect that transfer of ownership. **MAQP #3175-05** replaced MAQP #3175-04.

On April 22, 2008, by decision of the Board, MAQP #3175-04 was remanded to the Department to conduct a thorough, top-down supplemental BACT analysis for periods of non-steady state operation. This permit action was a modification to MAQP #3175-04 pursuant to the Order issued by the Board in the matter of contested case number BER 2006-18 AQ. The permit modification established permit limitations, conditions and reporting requirements in accordance with the results of the startup, shutdown and ash-pulling periods top-down BACT determination submitted by TRP on May 30th with additional information received on July 29th, August 21st, September 3rd, October 2nd, October 21st, and October 29th and November 10th of 2008 pursuant to the Board order.

The following changes were made to the permit relating to Startup and Shutdown Events and Ash-Pulling Periods. In addition to the requested permit modification, the permit action also included revisions to assure compliance during non-steady state operations and ash-pulling periods.

- Incorporation of Best Management Operational Practices for Startup and Shutdown Events;
- Evaluation of BACT specifically for Startup and Shutdown Events;
- Evaluation of BACT specifically for Ash-Pulling Periods;
- Establishment of a federally enforceable boiler heat sulfur limit;
- Establishment of NO_x and SO₂ limits for Startup and Shutdown Events and Ash-Pulling Periods;
- Inclusion of a "monitoring period" to establish NO_x and SO₂ emission limits, and/or to verify existing steady-state limits during Ash-Pulling Periods; and
- Incorporation of Best Management Operating Procedures for Ash-Pulling Periods.

MAQP #3175-06 replaced MAQP #3175-05.

On February 25, 2009, TRP submitted a request to add a 2,220 horsepower (hp) emergency diesel engine/generator that would be used to supply backup electrical power to the primary boiler's feed water pumping system. The initial information and additional information received through March 4, 2009, were used to determine that this project would result in an emissions increase of less than 15 tons per year (tpy) and would meet the definition of de minimis pursuant to ARM 17.8.745.

On May 6, 2009, TRP submitted a request to make minor administrative corrections to MAQP #3175-06. The Department requested clarification on some of the corrections and this information was received from TRP on July 6, 2009, and August 18, 2009. The administrative changes included:

- Attachment 2- The Department inadvertently referred to opacity Continuous Emissions Monitoring System (CEMS) in this section, but had intended for excess monitoring and this attachment to apply to all CEMS equipment.

- Section II.H.2 of MAQP #3175-06 – TRP requested to change the total combined coal and wood waste storage to 9,000 tons at any given time. Currently, TRP is permitted for outdoor wood-waste storage of 3000 tons (at any given time) and 6000 tons for coal storage (at any given time). By allowing any combination of fuel storage, not to exceed 9000 tons (at any given time) allows TRP additional flexibility with fuel use. The Department determined that the overall storage pile area for coal and wood waste might increase slightly, but the overall combined emission increase was less than 1 ton per year. This change would meet the definition of de minimis pursuant to ARM 17.8.745. Other than the increased storage and flexibility, all other conditions remain unchanged.
- Wood-waste biomass – TRP requested that the Department change all references made to wood-waste biomass to wood-waste. Wood-waste biomass was not explicitly defined in any of previous MAQP(s); however, the Department’s analysis of wood-waste biomass and fuel properties were based on information provided in AP-42. AP-42 defines wood residue as boiler fuel burned in the form of hogged wood, bark, sawdust, shavings, chips, mill rejects, sander dust, or wood trim. The Department believes that changing wood-waste biomass to wood waste throughout the permit would not violate any rule or statute, and would not result in any changed condition, emissions or emission limit.
- Attachment 3, Boiler Startup and Shutdown Procedures – TRP requested changes to this attachment. Originally, the purpose of this document was to serve as a summary of the Best Management Operational Practice for Startup and Shutdown Events that is on file with the Department. According to TRP, some of the operational instructions are incorrect. While the Department agrees with the proposed changes, the Department requested additional information and justification. TRP was unable to provide the required information at the time of this permit action. Attachment 3 and Best Management Operational Practice for Startup and Shutdown Events on file with the Department will be addressed in the future.
- Section II.D.4 - TRP requested that the Department remove the following language: “Beginning the date of initial solid fuel (wood-waste and/or coal) feed to the boiler after issuance of MAQP #3175-06, TRP shall be allowed a 10-day operational mapping/testing period prior to installation and operation of SNCR in which to model/test the boiler for appropriate location of the SNCR equipment within the boiler furnace. SNCR shall be installed prior to any additional boiler operations following completion of the 10-day SNCR testing period.” Because TRP has completed the 10-day SNCR testing period, the Department agreed that this no longer applies.

MAQP #3175-07 replaced MAQP #3175-06.

- On October 21, 2009, TRP submitted a de minimis request to replace “wood-waste” with “wood”. Additionally, TRP requested the Department allow the solid fuel handling conveyors (C1 and C2) to also convey wood in addition to coal.
- The Department determined that use of the word “wood” in place of “wood-waste” does not create permitting issues as heats of combustion for wood-waste and wood are similar and conveyor capacity would remain restricted to 200 tons per hour. This description change from “wood-waste” to “wood” is similar to a previous TRP request to change from “wood-waste biomass” to “wood-waste”. Wood-waste biomass was not explicitly defined in any of previous MAQP(s); however, the Department’s analysis of wood-waste biomass and fuel properties were based on information provided in AP-42. AP-42 defines wood residue as boiler fuel burned in the form of hogged wood, bark, sawdust, shavings, chips, mill rejects, sander dust, or wood trim. The Department believes that wood-waste, wood-waste biomass and wood all have similar properties and that changing the description throughout the permit would not violate any rule or statute, and would not result in any changed condition, emissions or emission limit.” The OP permits previously issued to TRP thru OP #3175-04 already described “wood” as the primary wood-based fuel and it was

only the MAQP permits which distinguished “wood-waste” and “wood-waste biomass”. Therefore, TRP requested that the Department include “wood” in the MAQP making the MAQP and OP more consistent.

- On March 25, 2011, TRP requested to permanently remove the PM₁₀ ambient monitoring requirement. On July 26, 2011, the Department denied the request but indicated a temporary suspension of PM₁₀ monitoring might be considered with a formal request. In response, on August 5, 2011, TRP submitted a request to temporarily cease the ambient PM₁₀ monitoring requirements in both the MAQP #3175-07 and in Appendix F of the OP #3175-04 because the facility’s operations were temporarily suspended at the facility.

MAQP #3175-08 was issued as a department decision (DD) but due to minor date errors in the permit history, MAQP #3175-08 was not posted final.

MAQP #3175-09 incorporated the administrative changes from un-issued MAQP #3175-08 and was issued final October 19, 2011 replacing MAQP #3175-07.

Title V Operating Permit History

On August 20, 2002, TRC was issued final and effective Title V Operating Permit #OP3175-00.

On August 28, 2007, TRC was issued final and effective Title V Operating Permit #OP3175-01. This permit action was a significant modification to and renewal of TRC’s Title V Operating Permit #OP3175-00. **Operating Permit #OP3175-01** replaced Operating Permit #OP3175-00.

On December 14, 2007, the Department received a written notification from TRC and TRP informing the Department of TRC’s intent to transfer Permit #OP3175-01 from TRC to TRP. In addition, a new responsible official was named. The permit was amended to reflect this transfer of ownership. **Operating Permit #OP3175-02** replaced Operating Permit #OP3175-01.

The changes mentioned above with respect to MAQP #3175-06 and MAQP #3175-07 required a significant modification of TRP’s Title V Operating permit. Generally, this permit action incorporated startup and shutdown conditions and limits, incorporate ash-pulling conditions and limits, addition of the 2,220 hp emergency diesel engine/generator, administrative updates and to allow fuel handling conveyors to be used for coal and/or wood. **Operating Permit #OP3175-03** replaced Operating Permit # OP3175-02.

On August 16, 2010, the Department received a request from Wayzata Investment Partners (Wayzata) to notify the Department that Scott Magie was no longer the responsible official for TRP. As such, Wayzata designated John Walsh as the responsible official and Jay Kanive as the alternate responsible official. **Operating Permit #OP3175-04** replaced Operating Permit #OP3175-03.

October 21, 2009, TRP submitted a de minimis request to change all permit references made to “wood-waste” to “wood”. Additionally, TRP requested to use the solid fuel handling conveyors (C1 and C2) to convey wood. These were originally established as solid fuel handling conveyors primarily to convey coal.

On March 25, 2011, TRP requested to permanently remove ambient PM₁₀ air monitoring requirements from both the MAQP and OP. This original request was denied by the Department on July 26, 2011. On August 11, 2011, TRP requested temporary suspension of ambient PM₁₀ air monitoring whenever the facility is expected to be shut down for more than 90 days.

An updated legal description has also been incorporated into this permit action as the old legal description did not accurately reflect the actual facility location. **Operating Permit #OP3175-05** included any updates that were incorporated into the un-issued MAQP #3175-08 and MAQP #3175-09. Operating Permit #OP3175-05 replaced Operating Permit #OP3175-04.

D. Current Permit Action

On February 10, 2012, TRP submitted an application for their Title V renewal. This renewal will incorporate any new federal requirements into permit conditions and update and revise standard Department language. **Operating Permit #OP3175-06** replaces Operating Permit #OP3175-05.

E. Takings and Damage Analysis

HB 311, the Montana Private Property Assessment Act, requires analysis of every proposed state agency administrative rule, policy, permit condition or permit denial, pertaining to an environmental matter, to determine whether the state action constitutes a taking or damaging of private real property that requires compensation under the Montana or U.S. Constitution. As part of issuing an operating permit, the Department of Environmental Quality (Department) is required to complete a Taking and Damaging Checklist. As required by 2-10-101 through 2-10-105, Montana Code Annotated (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.

F. Compliance Designation

On September 14, 2005, the Department issued Violation Letter #VLKW05-11 to TRC for violations of the Clean Air Act of Montana and failure to comply with permit conditions at TRC's Thompson Falls location.

Specifically, the violation letter noted the following violations

1. Continuous Emission Monitor Systems Violations - TRC submitted no CEMS/COMS data regarding opacity or NO_x emissions for the period from December 2, 2004, (the date the Boiler began operating) through March 29, 2005, due to a data acquisition system (DAS) failure.

Additionally, TRC reported in the second quarter (April, May, and June) 2005 Excess Emission Report that the NO_x CEMS was unavailable for 37.8% of the Boiler operating time in the quarter.

2. NO_x Limits Failures - MAQP #3175-02 limited NO_x emission to: 0.178 lb/MMBtu and 34.42 lb/hr. TRC's May 27, 2005, NO_x source testing results were: 0.247 lb/MMBtu and 48.35 lb/hr.

TRC reported 748 hours of exceedances of the permitted NO_x emission limit expressed in lb/MMBtu from April 21, 2005, through May 27, 2005, before the NO_x CEMS was certified. After the NO_x CEMS was certified, TRC reported that the Boiler exceeded the NO_x lb/MMBtu permit limit 714 times between May 27, 2005, and September 16, 2005.

TRC reported 718 hours of exceedances of the permitted NO_x emission limit expressed in lb/hr from April 21, 2005, through May 27, 2005, before the CEMS was certified. After the NO_x CEMS was certified, TRC exceeded the Boiler NO_x lb/hr permit limit 581 times between May 27, 2005, and September 16, 2005.

3. SO₂ Limits Failures - MAQP #3175-02 limited SO₂ emissions to: 0.220 lb/MMBtu and 42.42 lb/hr. TRC's May 27, 2005, SO₂ source testing results were: 0.766 lb/MMBtu and 150.15 lb/hr.

MAQP #3175-02 required TRC to maintain the control efficiency of the SO₂ emission control equipment at a minimum of 90% based on a rolling 30-day average. TRC failed to determine the SO₂ control efficiency of the control equipment before May 31, 2005. TRC has not reported to the Department any data related to TRC's determination of the control efficiency of the SO₂ emission control equipment.

4. Exceedances of Boiler Heat Input Limits - MAQP #3175-02 limited the Boiler heat input to 192.8 MMBtu/hr. No data regarding the Boiler heat input limit was submitted to the Department for the time period from December 2, 2004, through March 29, 2005, due to DAS failure. TRC reported 444 hours of exceedances of the 192.8 MMBtu/hr permit limit between March 30, 2005, and September 16, 2005.
5. Exceedances of Boiler Steam Limit - MAQP #3175-02 limited the Boiler steam production to 130,000 lb/hr. No data regarding the Boiler steam production limit was submitted to the Department for the time period from December 2, 2004, through March 29, 2005, due to a DAS failure. TRC reported 60 hours of exceedances of the 130,000 lb/hr permit limit between March 30, 2005, and September 16, 2005.

6. Ambient PM₁₀ Monitor - MAQP #3175-01 (which became final on November 23, 2004) required TRC to operate a PM₁₀ ambient air quality monitoring site. TRC began operating the Boiler on December 2, 2004. TRC began operating the PM₁₀ air quality monitor on March 11, 2005. There was a time delay of over 3 months between when the air quality permit initially requiring the air quality monitoring station became final and when the monitoring station began operating.

On December 2, 2005, the Department sent TRC a letter notifying TRC that the Department initiated formal enforcement action regarding the violations described in Violation Letter #VLKW05-11.

On February 24, 2006, the Department sent TRC a letter describing proposed enforcement actions for the violations underlying Violation Letter #VLKW05-11. This letter included a calculated penalty of \$1,894,200. Subsequently, based on an independent financial evaluation of TRC's ability to pay a penalty in this case, the Department determined that TRC does not have the ability to pay a penalty greater than \$200,000, and the Department reduced its penalty demand to that amount.

On November 16, 2007, TRC and the Department entered into an Administrative Order on Consent (AOC). This AOC required TRC to remit to the Department a penalty equivalent to \$200,000 by December 31, 2007. A Supplemental Environmental Project, as described in the AOC, allowed TRC to off set (dollar-for-dollar) this final penalty amount.

TRP operated the boiler for 737 hours during the 3rd quarter of 2009 and for 66 hours during the 4th quarter of 2009. On December 18, 2009, TRP notified the Department that the boiler had been shut down for a time period in excess of one month. TRP explained that they had drained the boiler system and put a chemical dryer in the boiler drums to aid in the shut down. As of September 30, 2011, TRP remains shut down indefinitely.

TRP was last inspected on August 10, 2011. During the inspection, TRP was found to be in compliance with both applicable air quality permits that were in place at that time, MAQP #3175-07 and Title V Operating Permit #OP3175-04. Since the last inspection, TRP's MAQP has incremented to MAQP #3175-09 to reflect the last Title V update.

SECTION II. SUMMARY OF EMISSION UNITS

A. Facility Process Description

TRP operates a 16.5-MW capacity coal/wood-fired electricity and steam co-generation plant. The plant incorporates a 192.8 MMBtu/hr capacity boiler (Boiler), which produces approximately 130,000 pounds of steam per hour. Most of the steam is sent to a turbine generator for the production of electricity to be sent to the power grid with a small percentage (up to 10%) of the steam and energy produced sent directly to Thompson River Lumber Company (TRL), for use in the lumber dry kilns and general operations at the sawmill. TRP has a parasitic electricity load (use) of approximately 0.4 MW.

The relationship between TRP and TRL is symbiotic, however, because the two sources are under separate ownership and control and are covered under separate Standard Industrial Classification (SIC) codes, the two sources are considered separate sources.

The Boiler is supported by coal and wood fuel handling system(s), including outdoor fuel storage; a cooling tower; a lime handling system; an ash/fly ash handling system; and various support trucks/vehicles. The Boiler and supporting facilities incorporate various emission control devices to limit potential pollutant emissions from each source.

The Boiler uses BACT-determined OFA, FGR, and SNCR to control NO_x emissions, a combination of low sulfur coal ($\leq 1\%$ sulfur by weight) and BACT-determined Dry FGD in tandem with the boiler baghouse to control SO₂ emissions, the same BACT-determined Dry FGD and baghouse to control mercury, HCl, and other acid gas emissions, BACT-determined combustion control to limit CO emissions, a BACT-determined baghouse to control PM/PM₁₀ emissions, and BACT-determined proper design and combustion to control VOC emissions. Boiler combustion gases will first enter the Dry FGD then pass through the Boiler baghouse and eventually vent to the atmosphere through the Boiler main stack.

The Boiler fires low-sulfur coal and/or wood only, except for periods of start-up, shutdown, malfunction, and Boiler commissioning where the 60 MMBtu/hr propane or diesel fired boiler pre-heater will be in operation. The Boiler pre-heater cannot be in operation while the boiler is producing energy or the boiler solid fuel feed system is operational and the unit is limited to a maximum of 500 hours of operation during any rolling 12-month time period.

Coal is delivered by railcar and unloaded to an under-track hopper. Air displaced from the under-track hopper is vented to DC1. Some coal is stored in the under track hopper while the majority of coal is transferred from the under-track hopper, via front-end loader, to an outside storage area incorporating wind fencing, an earthen berm, and water spray, as necessary, to control fugitive dust emissions from coal storage operations. From the under-track hopper and the outdoor coal storage area, coal is transferred, via a front-end loader, to a 3-sided feed hopper and on to a 200 ton/hr capacity enclosed conveyor (C1) that transfers coal to a second 200 ton/hr capacity enclosed conveyor (C2) that unloads to an enclosed day-bin silo (S1) on top of the Boiler-house. Air displaced from the transfer between the front-end loader and the feed-hopper and the conveyor transfer points between the feed-hopper and C1 and C1 to C2 is vented to DC1 while air displaced from the transfer between C2 and S1 vents to DC2. Wood may also be transferred on C1 and C2 with venting occurring to DC1 and DC2 just as it does for coal. See more directly below related to wood handling options.

Wood is delivered to the site for storage until it is needed at the boiler. Wood is stored in an outside storage area incorporating wind fencing, an earthen berm, and water spray, as necessary, to control fugitive dust emissions from wood storage operations. From the on-site storage area, wood is

transferred, via a front-end loader, to a 200 ton/hr capacity enclosed conveyor (C1) that transfers wood to a second 200 ton/hr capacity enclosed conveyor (C2) that unloads to an enclosed day-bin silo (S1) on top of the Boiler-house. Air displaced from the transfer between the front-end loader and the feed-hopper and the conveyor transfer points between the feed-hopper and C1 and C1 to C2 is vented to DC1 while air displaced from the transfer between C2 and S1 vents to DC2. Fuel grade wood can also be pneumatically transferred through an enclosed pneumatic conveying system to the Boiler. Air entering the boiler via the wood pneumatic feed is vented directly through the boiler baghouse (DC5). The transfer of fuel from S1 to the Boiler is controlled by negative pressure from the boiler.

Lime for use in the Dry FGD is delivered by trucks and pneumatically conveyed to a 1,000-ton capacity storage silo (S3). From S3 lime is pneumatically conveyed to the Dry FGD. Air that is displaced from S3 is vented through DC3.

Combustion in the Boiler produces bottom ash and fly ash. The ash is temporarily stored in silos on site including fly-ash silo (S4) and bottom-ash silo (S5). Bottom-ash from S5 is gravity-fed through a partial enclosure (3-sided enclosure) to a truck for removal from the site while fly ash from S4 is gravity fed through a retractable load out spout to a truck for removal from the site. Air displaced from the transfer between trucks and S4 and S5 is vented to DC4 and DC6.

A cooling tower is used to dissipate heat from the boiler by using the latent heat of water vaporization to exchange heat between the process and the air passing through the cooling tower. The cooling tower uses an induced counter flow draft incorporating 3 cells. The make up rate for the cooling tower is 125 gallons per minute. Water for the cooling tower comes from the Clark Fork River. TRP uses a portion of the water rights granted to TRL to acquire the water for operations. Cooling tower water is discharged to an on-site evaporation pond.

B. Emission Units and Pollution Control Device Identification

The following table indicates all significant (potential to emit (PTE) > 5 tpy permitted sources of emissions and emission controls utilized for each emitting unit at the TRP facility:

Emitting Unit/Process	Control Device/Practice
Babcock & Wilcox Spreader Stoker Boiler (192.8 MMBtu/hr)	PM/PM ₁₀ – Baghouse (40,513 dscfm) SO ₂ – Dry FGD / Baghouse NO _x – OFA, FGR, SNCR HCl – Dry FGD / Baghouse H ₂ SO ₄ – Dry FGD / Baghouse Hg – Dry FGD / Baghouse
Fuel Storage and Handling Operations (Coal & Wood)	Enclosures, Fuel Handling Baghouse – DC1 and Fuel Handling Bin Vent Dust Collector – DC2 (2200 dscfm and 1000 dscfm, respectively)
Lime Storage and Handling Operations	Enclosures, Lime Silo Bin Vent Dust Collector – DC3 (1000 dscfm)
Ash/Fly Ash Storage and Handling Operations	Enclosures, Fly Ash Bin Vent Dust Collector – DC4 (1000 dscfm), Retractable Load-out Spout (Truck Transfer)
Boiler Pre-Heater (60 MMBtu/hr – Diesel or Propane-Fired)	500 hr/ rolling 12-month time period Operational Limit
Refractory Curing Heater(s) (60 MMBtu/hr – Propane-Fired)	500 hr/ rolling 12-month time period Operational Limit
Truck Traffic/Haul Roads	Paved Roads, Water and/or Chemical Dust Suppressant
2,220 hp Emergency Engine/Generator	200 hr/rolling 12-month time period Operational Limit

C. Categorically Insignificant Sources/Activities

The following table indicates all insignificant (PTE < 5 tpy) permitted sources of emissions and emission controls utilized for each emitting unit at the TRP facility:

Emitting Unit/Process	Control Device/Practice
Wet Cooling Tower	NA

SECTION III. PERMIT CONDITIONS

A. Emission Limits and Standards

1. The Department determined that the emission limits that apply to EU001 – the Babcock & Wilcox Spreader Stoker Boiler are as follows:
 - The boiler start-up and shutdown NO_x emission limit represents worst-case uncontrolled NO_x emissions from the boiler. Based on information from Fuel Tech, Inc. (manufacturer of SNCR system), the SNCR unit would not be effective at a heat input rate of less than 134 MMBtu/hr. The function of the OFA and FGR is similarly reduced at lower operating loads on the boiler and is essentially shut down below approximately 90 MMBtu/hr based on the recommendations of the boilers combustion system manufacturer. Assuming an uncontrolled NO_x emissions rate of 0.55 lb/MMBtu (AP-42, Section 1.1) and a boiler heat input rate of 134 MMBtu/hr (effective NO_x control cut-off level), uncontrolled NO_x emissions from the TRP stoker boiler firing subbituminous coal would be 74.0 lb/hr. The NO_x start-up and shutdown emission limit applies only during defined periods of start-up and shutdown (see Appendix H) and was shown through modeling to be protective of the applicable ambient air quality standard(s).
 - The boiler start-up and shutdown SO₂ emission limit represents worst-case uncontrolled SO₂ emissions from the boiler. The required FGD SO₂ control equipment would be rendered ineffective until the boiler reaches an operational steam production level of approximately 70,000 pounds of steam per hour (information from Hamon Research Cottrell) or a heat input value of approximately 104 MMBtu/hr. Assuming combustion of TRP reported typical coal at approximately 10,200 Btu/lb and 0.7% sulfur and a boiler heat input rate of 104 MMBtu/hr (effective FGD control cut-off level), uncontrolled SO₂ emissions from the TRP stoker boiler would be 155 lb/hr. The SO₂ startup and shutdown emission limit applies only during defined periods of start-up and shutdown (see Appendix H) and was shown through modeling to be protective of the applicable ambient air quality standard(s).
 - The PM/PM₁₀ limit was established through the required BACT analysis and determination process under the provision of ARM 17.8.752. The limit is based on a grain (gr) loading limit for the fabric filter baghouse controlling emissions from the boiler. The applicable limit is 5.90 lb/hr and 0.017 gr/dry standard cubic foot (dscf). PM/PM₁₀ emissions shall be controlled by the use of a fabric filter baghouse with a flow capacity of 40,513 dscf.
 - The opacity limit was established as a New Source Performance Standard under 40 CFR Part 60, Subpart Db and deemed to be BACT. The applicable opacity limit is 20% or greater averaged over 6 consecutive minutes except for one 6-minute period per hour of not greater than 27% opacity.
 - The NO_x limits were established through the BACT process and the requirements of ARM 17.8.749, as applicable. After installation of SNCR required under MAQP #3175-04, the applicable NO_x BACT-determined emission limit is 0.196 lb/Million British thermal unit (MMBtu) heat input based on a 30-day rolling average. Prior to installation of the SNCR unit, NO_x emissions are limited to 0.280 lb/MMBtu averaged over the initial 10-day SNCR mapping/testing period. This emission limit shall expire upon installation of SNCR. Further, except during periods of start-up and shutdown, NO_x emissions are limited to 47.24 lb/hr, based on a 1-hr average. Finally, during start-up and shutdown operations, NO_x emissions from the boiler stack shall not exceed 74.0 lb/hr. NO_x emissions shall be controlled by the use of OFA, FGR, and SNCR. Boiler start-up and shutdown provisions are contained in the Boiler Start-Up and Shutdown Procedures manual contained in Appendix H of Permit #OP3175-02.
 - The CO limit was established through the BACT process. The applicable CO limit is 49.92 lb/hr calculated on a rolling 1-hour average and 0.259 lb/MMBtu. CO emissions shall be controlled through good combustion practices.

- The SO₂ limits were established through the BACT process and the requirements of ARM 17.8.749, as applicable. The applicable SO₂ BACT-determined emission limit is 0.220 lb/MMBtu heat input based on a 30-day rolling average. Further, except during periods of start-up and shutdown, SO₂ emissions are limited to 72.3 lb/hr, based on a 1-hr average. Finally, during start-up and shutdown operations, SO₂ emissions from the boiler stack shall not exceed 155.0 lb/hr. SO₂ emissions shall be controlled by the use of a Dry FGD. Boiler start-up and shutdown provisions are contained in the Boiler Start-Up and Shutdown Procedures manual contained in Appendix H of Permit #OP3175-02.
 - The VOC limit was established through the BACT process. The applicable limit is 5.93 lb/hr calculated on a rolling 1-hour average and 0.0308 lb/MMBtu. VOC emissions shall be controlled through good combustion practices.
 - The HCl acid gas hourly and lb/MMBtu emission limits were established through the BACT process and the annual limit was established as a synthetic minor limit for MACT applicability. The applicable limits are 2.17 lb/hr calculated on a rolling 1-hour average, 9.50 tpy, and 0.01125 lb/MMBtu. HCl emissions shall be controlled by the use of a Dry FGD and a fabric-filter baghouse, in tandem.
 - H₂SO₄ emissions shall be controlled by the use of a Dry FGD and a fabric-filter baghouse, in tandem.
 - Mercury emissions shall be controlled by the use of a Dry FGD and a fabric-filter baghouse, in tandem.
2. The Department determined that the emission limits that apply to EU002 – Fuel Storage and Handling Operations (coal and wood) are as follows:
 - The PM/PM₁₀ emission limit was established through the BACT process using a grain (gr) loading limit for the fabric filter baghouse and bin vent, respectively, controlling emissions from coal and wood storage and handling operations. The applicable limit is 0.20 gr/dscf.
 - The opacity limit was established in the Administrative Rules of Montana (ARM) 17.8.304 and ARM 17.8.308. The applicable limit is 20% opacity averaged over a 6 consecutive minute period.
 3. The Department determined that the emission limits that apply to EU003 – Lime Storage and Handling Operations are as follows:
 - The PM/PM₁₀ emission limit was established through the BACT process using a grain (gr) loading limit for the bin vent dust collector controlling emissions from lime storage and handling operations. The applicable limit is 0.20 gr/dscf.
 - The opacity limit was established in ARM 17.8.304 and ARM 17.8.308. The applicable limit is 20% opacity averaged over a 6 consecutive minute period.
 4. The Department determined that the emission limits that apply to EU004 – Ash/Fly Ash Storage and Handling Operations are as follows:
 - The PM/PM₁₀ emission limit was established through the BACT process using a grain (gr) loading limit for the bin vent dust collector controlling emissions from ash/fly ash storage and handling operations. The applicable limit is 0.20 gr/dscf.
 - The opacity limit was established in ARM 17.8.304 and ARM 17.8.308. The applicable limit is 20% opacity averaged over a 6 consecutive minute period.
 5. The Department determined that the boiler pre-heater EU005 shall be fired on diesel or propane only, shall be limited to a maximum heat input capacity of 60 MMBtu/hr, shall not be operated during boiler electricity production, and shall be limited to a maximum of 500 hours of operation during any rolling 12-month time period. There are no applicable emission limits for the boiler pre-heater.

6. The Department determined that the refractory curing heater(s) EU006 shall be fired on propane fuel only, shall be limited to a maximum heat input capacity of 60 MMBtu/hr, shall not be operated during boiler electricity production, and shall be limited to a maximum of 500 hours of operation during any rolling 12-month time period. There are no applicable emission limits for the refractory curing heaters.
7. The Department determined that the applicable opacity limit that applies to EU007 – Truck Traffic/Haul Roads is 20% opacity averaged over a 6 consecutive minute period. The opacity limit was established in ARM 17.8.308.
8. The Department determined that the 2,220 hp Emergency Engine/Generator, EU008 shall be fired on low-sulfur diesel fuel only, shall only be operated during emergencies and shall be limited to a maximum of 200 hours of operation during any rolling 12-month time period. There are no applicable emission limits for the 2,220 hp Emergency Engine/Generator.

B. Monitoring Requirements

ARM 17.8.1212(1) requires that all monitoring and analysis procedures or test methods required under applicable requirements are contained in operating permits. In addition, when the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirements for testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor for all emission units. Furthermore, it does not require extensive testing or monitoring to assure compliance with the applicable requirements for emission units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. When compliance with the underlying applicable requirement for an insignificant emission units is not threatened by lack of regular monitoring and when periodic testing or monitoring is not otherwise required by the applicable requirement, the status quo (i.e., no monitoring) will meet the requirements of ARM 17.8.1212(1). Therefore, the permit does not include monitoring for insignificant emission units.

The permit includes periodic monitoring or recordkeeping for each applicable requirement. The information obtained from the monitoring and recordkeeping will be used by the permittee to periodically certify compliance with the emission limits and standards. However, the Department may request additional testing to monitor compliance with the emission limits and standards.

C. Test Methods and Procedures

The operating permit may not require testing for all sources if routine monitoring is used to determine compliance, but the Department has the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may elect to voluntarily conduct compliance testing to confirm its compliance status.

D. Recordkeeping Requirements

The permittee is required to keep all records listed in the operating permit as a permanent business record for at least 5 years following the date of the generation of the record.

E. Reporting Requirements

Reporting requirements are included in the permit for each emissions unit and Section V of the operating permit "General Conditions" explains the reporting requirements. However, the permittee is required to submit semi-annual and annual monitoring reports to the Department and to annually

certify compliance with the applicable requirements contained in the permit. The reports must include a list of all emission limit and monitoring deviations, the reason for any deviation, and the corrective action taken as a result of any deviation.

F. Public Notice

In accordance with ARM 17.8.1232, a public notice was published in the *Missoulian* newspaper on or before June 26, 2012. The Department provided a 30-day public comment period on the draft operating permit from June 27, 2012 to July 28, 2012. ARM 17.8.1232 requires the Department to keep a record of both comments and issues raised during the public participation process. The comments and issues received by July 28, 2012 will be summarized, along with the Department's responses, in the following table. All comments received during the public comment period will be promptly forwarded to TRP so they may have an opportunity to respond to these comments as well.

Summary of Public Comments

Person/Group Commenting	Comment	Department Response
Noel Weaver/Morlene Plouzek	Public Note. Why is there no public notice of this event in the county where the facility is sited?	The public notice for the draft permit was published in the <i>Missoulian</i> as it was believed that using the largest paper distribution in western Montana would provide the opportunity for more people to see and comment on the draft permit. All permits are also available on the Department website for review and are easily viewable for anyone with internet access. Certainly, the Department could include the Sanders County Ledger on future public notices.
Noel Weaver/Morlene Plouzek	Interested Party List. The Community Awareness Network and several concerned individuals signed up to be on a DEQ "interested parties" list several years ago. Since Thompson River Power has changed hands, why haven't we been informed by the state permitting agencies? Please include in your response the steps required of a person or organization to be notified	The Department does not typically carry over Interested Party Lists for more than single permit actions for specific sources as maintaining up-to-date copy lists would be very difficult. The Department will be happy to copy any interested individuals on this Title V Renewal by simply requesting that directly to the permitter at chenrikson@mt.gov .
Noel Weaver/Morlene Plouzek	Bankruptcy of Permit Holder. It has been in the news that Thompson River Power, LLC, has filed Chapter 7 Bankruptcy. Why are you working on renewing a permit for an entity that is about to dissolve?	The Department received a completed application from Thompson River Power on February 10, 2012 for their Title V Renewal. The Department is required to process these applications under Administrative Rules of Montana (ARM) 17.8.1205(2) C without regard to other company financial matters.
Noel Weaver/Morlene Plouzek	Expiration of Permit. Why does this permit warrant renewal?	The Department received a completed application from Thompson River Power on February 10, 2012 for their Title V Renewal. The Department is required to process these applications under ARM 17.8.1205(2) C Thompson River Power is required to meet all of the conditions of their permit and any non-compliance will be dealt with by the Enforcement Group within Montana DEQ.

Noel Weaver/Morlene Plouzek	Coal vs Biomass. Has the Montana Air Quality Permit been revised to accommodate all of the differences related to the use of woody biomass as a fuel source? Are all of these changes incorporated in this present permit?	The current permit in place allows both coal and wood to be used per the permit conditions. Conditions included address both the use of coal and wood as outlined within the permit conditions.
Noel Weaver/Morlene Plouzek	What evidence is there that the Thompson River Power facility can now operate in compliance with the terms of this permit?	Thompson River Power would be required to report the results of their compliance testing in the event that they operate the facility. The results of those tests would determine whether they are in full compliance with the permit conditions.

G. Draft Permit Comments

Summary of Permittee Comments

Permit Reference	Permittee Comment	Department Response
	None Received	

Summary of EPA Comments

Permit Reference	EPA Comment	Department Response
	None Received	

SECTION IV. NON-APPLICABLE REQUIREMENT ANALYSIS

Section IV of the operating permit, “Non-applicable Requirements”, contains the requirements that the Department previously determined were non-applicable.

The current action is administrative, therefore, no requests were made regarding any non-applicable requirements and additional analyses were not conducted. Section V, Future Permit Considerations, contains information regarding potentially applicable and non applicable rules which are currently being promulgated.

SECTION V. FUTURE PERMIT CONSIDERATIONS

A. MACT Standards

This facility is potentially subject to 40 CFR Part 63, Subpart DDDDD, Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT) as future regulations for this source category are promulgated. The final rule was originally published in the Federal Register on September 14, 2004, (FR, Vol 69, No. 176) and final promulgation of the original Boiler MACT was on November 12, 2004. This rule was subsequently amended, with the final rule effective February 5, 2007. However, on July 30, 2007, the Court of Appeals for the District of Columbia Circuit issued its mandate in NRDC v. EPA, vacating and remanding EPA's Boiler MACT. TRP has accepted federally enforceable HCl limits keeping potential boiler HCl limits below 10 tons per year and total HAPs emissions below 25 tons per year thereby classifying TRP as an area source. Therefore, if future MACT regulations for this source category are promulgated, TRP may be subject to area source provisions under such regulations.

40 CFR Part 63, Subpart JJJJJ has an effective date of March 21, 2012 for tune up requirements for area sources that are covered under this Subpart. EPA issued a No Action Assurance to delay the tune-up requirements until October 1, 2012, or until the effective date of a final rule reconsiders the Area Source Boiler Rule. TRP may have requirements under this Subpart depending upon final rule reconsiderations.

B. NESHAP Standards

As of the date of issuance of this permit, the Department is unaware of any currently applicable or future NESHAP Standards that may be promulgated that will affect this facility. TRP is not a major source of Hazardous Air Pollutants (HAPs); therefore, TRP is not currently subject to any Maximum Achievable Control Technology (MACT) standards under this rule.

Asbestos abatement projects and building demolition/renovation activities will be conducted in accordance with applicable asbestos regulatory requirements. Those regulatory requirements include, but are not limited to 29 CFR Part 1926.1101; 40 CFR Part 763 Sections 120, 121, 124, and Subpart E; 40 CFR 61, Subpart M; State of Montana Asbestos Control Act 75-2-501 through 519 MCA, and State of Montana Occupational Health Rules ARM 17.74.301 through 406. State-accredited asbestos abatement personnel shall conduct the abatement of regulated asbestos-containing materials. Asbestos-containing waste materials shall be transported properly and disposed of in a State-approved landfill.

C. NSPS Standards

The Babcock & Wilcox Spreader Stoker Boiler (EU001) is subject to the applicable requirements of 40 CFR 60, Subpart Db.

The 2,220 hp Emergency Engine/Generator is subject to 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE). This rule indicates that NSPS requirements apply to owners or operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE is manufactured after April 1, 2005, and is not a fire pump engine. The 2,220 hp emergency/backup diesel generator was manufactured after April 1, 2005; therefore TRP is subject to this subpart. Additionally, 40 CFR 60, Subpart A, General Provisions, apply to all equipment or facilities subject to a NSPS. As of September 9, 2011, the Department is unaware of any other currently applicable or future NSPS Standards that may be promulgated that will affect this facility.

D. Risk Management Plan

As of the date of issuance of this permit, this facility does not exceed the minimum threshold quantities for any regulated substance listed in 40 CFR Part 68.115 for any facility process. Consequently, this facility is not required to submit a Risk Management Plan.

If a facility has more than a threshold quantity of a regulated substance in a process, the facility must comply with 40 CFR Part 68 requirements no later than June 21, 1999; 3 years after the date on which a regulated substance is first listed under 40 CFR Part 68.130; or the date on which a regulated substance is first present in more than a threshold quantity in a process, whichever is later.

E. CAM Applicability

An emitting unit located at a Title V facility that meets the following criteria listed in ARM 17.8.1503 is subject to Subchapter 15 and must develop a CAM Plan for that unit:

- The emitting unit is subject to an emission limitation or standard for the applicable regulated air pollutant (other than emission limits or standards proposed after November 15, 1990, since these regulations contain specific monitoring requirements);
- The emitting unit uses a control device to achieve compliance with such limit; and
- The emitting unit has potential pre-control device emission of the applicable regulated air pollutant that is greater than major source thresholds.

TRP submitted a CAM Plan for the following pollutants: SO₂, NO_x, PM₁₀, and HCl. TRP's CAM Plan is located in Appendix G of the Title V OP.

F. PSD and Title V Green house Gas Tailoring Rule

On May 7, 2010, EPA published the "light duty vehicle rule" (Docket # EPA-HQ-OAR-2009-0472, 75 FR 25324) controlling greenhouse gas (GHG) emissions from mobile sources, whereby GHG became a pollutant subject to regulation under the Federal and Montana Clean Air Act(s). On June 3, 2010, EPA promulgated the GHG "Tailoring Rule" (Docket # EPA-HQ-OAR-2009-0517, 75 FR 31514) which modified 40 CFR Parts 51, 52, 70, and 71 to specify which facilities are subject to GHG permitting requirements and when such facilities become subject to regulation for GHG under the PSD and Title V programs.

Under the Tailoring Rule, any PSD action (either a new major stationary source or a major modification at a major stationary source) taken for a pollutant or pollutants other than GHG that was not final prior to January 2, 2011, will be subject to PSD permitting requirements for GHG if the GHG increases associated with that action were at or above 75,000 tpy of carbon dioxide equivalent (CO₂e). Similarly, if such action were taken, any resulting requirements would be subject to inclusion in the Title V Operating Permit. Starting on July 1, 2011, PSD permitting requirements will be triggered for modifications that are determined to be major under PSD based on GHG emissions alone, even if no other pollutant triggered a major modification. In addition, sources that exceed the 100,000 tpy CO₂e threshold under Title V will be required to obtain a Title V Operating Permit if they were not already subject.

Based on information provided by TRP and calculations performed by the Department, TRP's potential emissions for the current listed emitting units exceed the GHG major source threshold of 100,000 tpy of CO₂e for both Title V and PSD under the Tailoring Rule. This permit action confirms that TRP will be a Title V Source for GHGs but since the facility has not operated since 2009 is not required to address GHG emissions at this time. However, TRP will be subject to GHG mandatory reporting requirements when operations continue and also may be subject to GHG requirements when modifications occur.