

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

**Permitting and Compliance Division
1520 E. Sixth Avenue
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Thompson River Co-Gen, L.L.C.
285 – 2nd Avenue West North
Kalispell, MT 59901

SW ¼ of the NW ¼ of the NE ¼ of Section 13, Township 21 North, Range 29 West, Sanders County,
MT.

UTM Coordinates - Zone 11, Easting 631.6 kilometers (km), and Northing 5270.6 km.

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, 10, 18, 25
Ambient Monitoring Required		X	NA
COMS Required	X		Boiler Baghouse Opacity
CEMS Required	X		Boiler NO _x Emissions
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		Coal Analysis Summary
Applicable Air Quality Programs			
ARM Subchapter 7 Preconstruction Permitting	X		Permit #3175-00
New Source Performance Standards (NSPS)	X		40 CFR 60, Subpart Db
National Emission Standards for Hazardous Air Pollutants (NESHAPS)		X	Except 40 CFR 61, Subpart M
Maximum Achievable Control Technology (MACT)	X		Potentially - 40 CFR 63, Subpart DDDDD
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	NA

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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 emissions 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 Co-Gen, LLC (TRC) on August 28, 2001, and additional submittals on December 18, 2001, and February 13, 2002.

B. Facility Location

The TRC plant is located approximately 3.7 miles east-southeast of Thompson Falls, Montana. The legal description of the site is in the SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 13, Township 21 North, Range 29 West, Sanders County, Montana. The approximate universal transverse mercator (UTM) coordinates are Zone 11, Easting 631.6 kilometers (km), and Northing 5270.6 km.

C. Facility Background Information

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 105, MCA, the Department has conducted a private property taking and damaging assessment and has determined there are no taking or damaging implications. The checklist was completed on March 11, 2002.

On February 13, 2002, TRC submitted a complete Title V operating and preconstruction permit application for the construction and operation of the facility.

D. Compliance Designation

The facility has not yet been constructed. Construction and subsequent operation in accordance with Operating Permit #OP3175-00 and Preconstruction Permit #3175-00 may commence at the time of permit issuance.

SECTION II. SUMMARY OF EMISSION UNITS

A. Facility Process Description

TRC operates a 12.5 megawatt (MW) coal/wood waste bio-mass fired electricity and steam co-generation plant. The plant incorporates a 156 MMBtu/hr capacity Babcock & Wilcox Spreader Stoker Boiler (Boiler) capable of producing approximately 125,000 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, Inc. (TRL), for use in the lumber dry kilns and general operations at the sawmill. TRC will have a parasitic load (use) of approximately 0.4 MW.

The relationship between TRC and TRL is symbiotic, however, because the two sources are under separate ownership and control; are not considered contiguous and adjacent; and are covered under separate Standard Industrial Classification (SIC) codes, the two sources are considered separate sources.

The Boiler is supported by a coal and wood-waste bio-mass fuel handling system, a cooling tower, a lime handling system, an ash/fly ash handling system, and various support trucks/vehicles. The Boiler will incorporate various emission control devices to limit potential pollutant emissions from the source.

The Boiler will use over-fire air (OFA) to control NO_x emissions, a combination of low sulfur coal and a dry lime scrubber to control SO₂ emissions, combustion control to limit CO emissions, a baghouse to control PM/PM₁₀ emissions, and proper design and combustion to control volatile organic compound (VOC) emissions. Boiler combustion gases will first enter the dry lime scrubber then pass through the Boiler baghouse and eventually vent to the atmosphere through the Boiler baghouse stack.

The Boiler will fire low-sulfur coal and/or wood waste bio-mass only. Coal will be delivered by railcar and unloaded to an under-track hopper. Air displaced from the under-track hopper will be vented to DC1. From the under-track hopper the fuel will be transferred to a 100 ton/hr capacity enclosed conveyor (C1) which will transfer coal to a second 100 ton/hr capacity enclosed conveyor (C2) which will unload to a 25,000 ton capacity fuel storage silo (S1). Air displaced from the transfer between C1 and C2 will be vented to DC1 while air displaced from the transfer between C2 and S1 will vent to DC2. Additionally, wood waste bio-mass will be transferred to S1 via an enclosed conveyor (C3). Air displaced from the transfer between C3 and S1 will be vented to DC2. S1 will unload to an enclosed 70 ton/hr capacity conveyor (C4) which will transfer fuels to a day bin (S2) atop the Boiler-House. Air displaced from the transfer between S1 and C4 will be vented to DC1 while the transfer from C4 to S2 will be enclosed and controlled by negative pressure from the Boiler. S2 will feed fuel to the Boiler for operational firing. The transfer of fuel from S2 to the Boiler will also be controlled by negative pressure from the boiler.

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

Combustion in the Boiler will produce bottom ash and fly ash. The ash will be temporarily stored in silos on site including bottom ash silo (S4) and fly ash silo (S5). Bottom ash will be sluiced from S4 to a truck for removal from the site while fly ash from S5 will be 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 will be vented to DC4.

A cooling tower will be 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 will come from the Clark Fork River. TRC will use a portion of the water rights granted to TRL to acquire the water for operations. Cooling tower water will be discharged to an on-site evaporation pond.

B. Emission Units and Pollution Control Device Identification

The following table indicates all significant (PTE > 5 TPY) permitted sources of emissions and emission controls utilized for each emitting unit at the TRC facility:

Emitting Unit/Process	Control Device/Practice
Babcock & Wilcox Spreader Stoker Boiler (156 MMBtu/hr)	PM/PM ₁₀ – Baghouse (31,685 dry standard cubic feet per minute (dscfm) capacity) SO ₂ – Dry Lime Scrubber NO _x – OFA
Fuel Storage and Handling Operations (Coal)	Enclosures, Fuel Handling Baghouse – DC1 (2200 dscfm)
Fuel Storage and Handling Operations (Wood Waste Bio-Mass)	Enclosures, Fuel Handling Bin Vent Dust Collector – DC2 (1000 dscfm)
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)
Truck Traffic/Haul Roads	Paved Roads, Water and/or Chemical Dust Suppressant.

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 TRC 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 Particulate Matter (PM) / Particulate Matter with an aerodynamic diameter less than 10 μ m (PM₁₀) limit was established using source test and engineering estimate information from Carter and Burgess, Inc. (C&B Information). The limit is based on a grain (gr) loading limit for the fabric filter baghouse controlling emissions from the boiler. The applicable limit is 4.62 lb/hr and 0.017 gr/dry standard cubic foot (dscf).
 - The opacity limit was established as a New Source Performance Standard under 40 CFR Part 60, Subpart Db. The applicable opacity limit is 20%.
 - The Oxides of Nitrogen (NO_x) limit was established using C&B information. The applicable NO_x limit is 34.32 lb/hr calculated on a rolling 30-day average and 0.22 lb/Million British Thermal Unit (MMBtu) heat input.
 - The Carbon Monoxide (CO) limit was established using C&B information. The applicable CO limit is 49.92 lb/hr and 0.32 lb/MMBtu.
 - The Sulfur Dioxide (SO₂) limit was established using C&B information. The applicable SO₂ limit is 46.80 lb/hr and 0.30 lb/MMBtu.
 - The Volatile Organic Compound (VOC) limit was established using estimates from EPA approved AP-42 emission factors for coal and wood waste combustion. The applicable limit is 5.93 lb/hr and 0.038 lb/MMBtu.
2. The Department determined that the emission limits that apply to EU002 – Fuel Storage and Handling Operations (coal) are as follows:
 - The PM/PM10 emission limit was established using a grain (gr) loading limit for the fabric filter baghouse controlling emissions from coal 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 – Fuel Storage and Handling Operations (wood waste bio-mass) are as follows:
 - The PM/PM10 emission limit was established using a grain (gr) loading limit for the bin vent dust collector controlling emissions from wood waste bio-mass fuel 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 – Lime Storage and Handling Operations are as follows:
 - The PM/PM10 emission limit was established 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.

5. The Department determined that the emission limits that apply to EU005 – Ash/Fly Ash Storage and Handling Operations are as follows:
 - The PM/PM10 emission limit was established 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.
6. The Department determined that the applicable opacity limit that applies to EU006 – Truck Traffic/Haul Roads is 20% opacity averaged over a 6 consecutive minute period. The opacity limit was established in ARM 17.8.308.

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 a 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 emissions 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 five 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 17.8.132, a public notice was published in the *Sanders County Ledger* newspaper on April 11, 2002. The Department provided a public comment period on the draft operating permit from April 11, 2002, through May 13, 2002. 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 May 13, 2002, would be summarized, along with the Department's responses, in the following table. All comments received during the public comment period would be promptly forwarded to TRC so they may have an opportunity to respond to these comments as well. The Department did not receive any public comment during the public comment period.

G. Draft Permit Comments

The Department did not receive any comments during the public comment period.

SECTION IV. NON-APPLICABLE REQUIREMENT ANALYSIS

Pursuant to ARM 17.8.1221, TRC requested a permit shield for all non-applicable regulatory requirements and regulatory orders identified in Attachment B of the TRC Supplemental Information for the Thompson River Co-Gen LLC Operating Permit Application. The supplemental information was submitted to the Department on December 18, 2001.

The following table outlines those requirements that TRC had identified as non-applicable in the permit application but, after Department review, will not be included in the operating permit as non-applicable. The table includes both the applicable requirement and reason that the Department did not identify this requirement as non-applicable.

Rule Citation	Reason
40 CFR 50 40 CFR 51 40 CFR 53 40 CFR 54 40 CFR 56 40 CFR 58 40 CFR 67 40 CFR 71 40 CFR 81 ARM 17.8.130 ARM 17.8.730 ARM 17.8.732	Although these rules contain requirements for the regulatory authorities and not major sources, these rules can be used as authority to impose specific requirements on a major source.
40 CFR 52,	These rules do not have specific requirements and may or may not be relevant to a major source and should never be listed in the applicable or non-applicable requirements.
40 CFR 62 40 CFR 69 40 CFR 70	These rules do not have specific requirements and are always relevant to a major source and should never be listed in the applicable or non-applicable requirements.
40 CFR 66 40 CFR 68 ARM 17.8.514 ARM 17.8.515 ARM 17.8.708 ARM 17.8.731 ARM 17.8, Subchapter 8 ARM 17.8, Subchapter 9 ARM 17.8, Subchapter 10 ARM 17.8, Subchapter 11 ARM 17.8, Subchapter 13 ARM 17.8, Subchapter 14	These rules are procedural and have specific requirements that may become relevant to a major source during the permit span.
ARM 17.8.204 – ARM 17.8.205 ARM 17.8.326	These rules are applicable to the source and may contain specific requirements for compliance.
ARM 17.8.1203	These rules consist of either a statement of purpose, applicability statement, regulatory definitions or a statement of incorporation by reference. These types of rules do not have specific requirements associated with them.

<p>40 CFR 60, Subpart Ca 40 CFR 60, Subpart FF 40 CFR 60, Subpart JJ 40 CFR 60, Subpart OO 40 CFR 60, Subpart YY and Subpart ZZ 40 CFR 60, Subpart CCC 40 CFR 60, Subpart EEE 40 CFR 60, Subpart MMM 40 CFR 60, Appendix E 40 CFR 60, Appendix H 40 CFR 61, Subpart G 40 CFR 61, Subpart S 40 CFR 61, Subpart U 40 CFR 61, Subpart X 40 CFR 61, Subpart Z 40 CFR 61, Subpart AA 40 CFR 61, Subpart CC 40 CFR 61, Subpart EE 40 CFR 63, Subpart J and Subpart K 40 CFR 63, Subpart P 40 CFR 63, Subpart S 40 CFR 63, Subpart V 40 CFR 63, Subpart Z through Subpart BB 40 CFR 63, Subpart FF 40 CFR 63, Subpart HH 40 CFR 63, Subpart LL through Subpart NN 40 CFR 63, Subpart UU 40 CFR 63, Subpart WW through Subpart III 40 CFR 65 40 CFR 79 40 CFR 80 40 CFR 83 – 40 CFR 84 40 CFR 98 – 40 CFR 99 ARM 17.8.104, ARM 17.8.107 through ARM 17.8.109, ARM 17.8.112 through ARM 17.8.119, ARM 17.8.122 through ARM 17.8.129, ARM 17.8.133 through ARM 17.8.139, ARM 17.8.203 ARM 17.8.303 ARM 17.8.305 through ARM 17.8.307, ARM 17.8.311 through ARM 17.8.314, ARM 17.8.317 through ARM 17.8.319, ARM 17.8.327 through ARM 17.8.329, ARM 17.8.335 through ARM 17.8.339 ARM 17.8.502, ARM 17.8.503, ARM 17.9.506 through ARM 17.8.509, ARM 17.8.512, ARM 17.8.513, ARM 17.8.603, ARM 17.8.607 through ARM 17.8.609, ARM 17.8.703, ARM 17.8.709, ARM 17.8.711 through 714, ARM 17.8.803, ARM 17.8.718, ARM 17.8.719, ARM 721 through ARM 729</p>	<p>These rules have been reserved and/or do not currently exist.</p>
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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. The final rule is scheduled for promulgation on May 15, 2002. EPA is requiring facilities that may be subject to any proposed MACT to submit a 2-part application. The Department has developed the following guidance for facilities in the State of Montana. Part 1 of the application should include the following information and must be submitted to the Department by May 15, 2002.

- Identify the facility and provide a brief description of the facility's main operations. This should include the name and location of the facility (physical location of the facility).
- Identify the potentially applicable MACT standard(s) (40 CFR 63, Subpart DDDDD) and the specific emitting unit(s) that the standard(s) may apply to.

TRC submitted the appropriate Part 1 application on May 14, 2002.

B. NESHAP Standards

As of April 11, 2002, the Department is unaware of any currently applicable or future NESHAP Standards that may be promulgated that will affect this facility.

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 1926.1101; 40 CFR 763 Sections 120, 121, 124, and Subpart E; 40 CFR Part 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.

As of April 11, 2002, 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 this April 11, 2002, this facility does not exceed the minimum threshold quantities for any regulated substance listed in 40 CFR 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 68 requirements no later than June 21, 1999; three years after the date on which a regulated substance is first listed under 40 CFR 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.