

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY  
OPERATING PERMIT TECHNICAL REVIEW DOCUMENT #TRD3185-00**

**Permitting and Compliance Division  
1520 E. Sixth Avenue  
P.O. Box 200901  
Helena, Montana 59620-0901**

**Rocky Mountain Power, LLC  
Hardin Generating Station  
Northwest ¼ of Section 12, Township 1 South, Range 33 East, in Big Horn County, MT  
2575 Park Lane, Suite 200  
Lafayette, CO 80026**

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

<b>Facility Compliance Requirements</b>	Yes	No	Comments
Source Tests Required	X		Including methods 5, 6, 7, 8, 10, 18, 25, 26A, 201A, 202
Ambient Monitoring Required		X	
COMS Required	X		Opacity: PC-Boiler Operations
CEMS Required	X		NO <sub>x</sub> , SO <sub>x</sub> , and O <sub>2</sub> or CO <sub>2</sub> : PC-Boiler Operations
Schedule of Compliance Required		X	
Annual Compliance Certification and Semiannual Reporting Required	X		As Applicable
Monthly Reporting Required		X	
Quarterly Reporting Required	X		As Applicable
<b>Applicable Air Quality Programs</b>			
ARM Subchapter 7 Preconstruction Permitting	X		Permit #3185-04
New Source Performance Standards (NSPS)	X		40 CFR 60, Subpart A, Subpart Da, and Subpart Y
National Emission Standards for Hazardous Air Pollutants (NESHAPS)		X	Except for 40 CFR 61, Subpart M
Maximum Achievable Control Technology (MACT)		X	
Major New Source Review (NSR) – includes Prevention of Significant Deterioration (PSD) and/or Non-attainment Area (NAA) NSR	X		
Risk Management Plan Required		X	
Acid Rain Title IV	X		40 CFR Part 72 through Part 75
Compliance Assurance Monitoring (CAM)	X		Permit Renewal Applicability
State Implementation Plan (SIP)	X		General State SIP

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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 U.S. Environmental Protection Agency (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 Rocky Mountain Power, Inc. (RMPI) on January 31, 2002, and additional submittals by RMPI and Rocky Mountain Power, LLC (RMP) on October 15, 2003; April 30, 2004; August 17, 2004; October 4, 2004; December 20, 2005; July 26, 2007; August 6, 2007; August 28, 2007; and October 5, 2007.

### B. Facility Location

The RMP facility is located approximately 1.2 miles northeast of the town of Hardin in the Northwest ¼ of Section 12, Township 1 South, Range 33 East, in Big Horn County, Montana.

### C. Facility Background Information

RMP operates a nominal 116-gross megawatt (MW) coal-fired electrical power generation facility approximately 1.2 miles northeast of Hardin, Montana. The facility consists of a pulverized coal-fired boiler (PC-Boiler) and a steam turbine, which drives a 135 MVA class nameplate electric generator to produce a nominal 116-gross MW of electric power (approximately 11-MW of the power produced is used for plant auxiliary power). Other equipment includes a cooling tower, a temporary auxiliary boiler, and associated material handling and storage systems for coal, lime, and ash.

#### Montana Air Quality Permit History

On June 11, 2002, **Permit #3185-00** was issued to RMPI to construct a 113-MW electrical power generation facility approximately 1.2 miles northeast of Hardin, Montana. The facility would consist of a PC-boiler and a steam turbine, which would drive an electric generator to produce a nominal 113-MW of electric power (8.5-MW of the power produced would be used by RMP).

On November 29, 2003, **Permit #3185-01** was issued to allow RMPI to move the plant location by 610 meters, 10 degrees clockwise from North; reduce the sulfur dioxide (SO<sub>2</sub>) emission rate limit; reduce the boiler stack height; correct boiler exhaust temperature; add hydrogen chloride (HCl) and hydrogen fluoride (HF) emission limits; and include short term emission limits for SO<sub>2</sub>. The legal description of the facility's location would remain the same except it will be in the Northwest ¼ of Section 12 rather than the Southwest ¼ of Section 12. The location of all buildings, property boundaries, and emission sources would remain unchanged relative to each other. The boiler stack height was changed from the previously permitted level of no less than 350 feet to at least 250 feet above ground level. The boiler exhaust temperature was assumed to be 325 degrees Fahrenheit (° F) in Permit Application #3185-00, but would actually be approximately 160° F. The permit was amended to include enforceable limits on HCl and HF emissions to ensure that the Hardin facility remained an area source (as opposed to a major source) with respect to Hazardous Air Pollutants (HAPs). In addition, short-term limits on SO<sub>2</sub> were included in the permit to protect short-term ambient air quality standards and increments. No emission increases would result from the amendment, however, RMPI provided modeling to support the facility move, stack height change, and boiler exhaust temperature correction. Permit #3185-01 replaced Permit #3185-00.

On May 16, 2005, **Permit #3185-02** was issued to RMPI for proposed modifications to the existing facility. On April 30, 2004, the Department of Environmental Quality-Air Resources Management Bureau (Department) received a permit application from RMPI, requesting a change in the permitted control equipment on the PC-Boiler for SO<sub>2</sub> and particulate matter with an aerodynamic diameter less than 10 micrometers (PM<sub>10</sub>) emissions and changes in the facility's material handling systems, cooling system, and plant layout. The previously permitted system for SO<sub>2</sub> and PM<sub>10</sub> emissions included a wet Venturi scrubber operated in conjunction with a multiclone. RMPI proposed replacement of the system with a lime spray-dryer absorber (SDA) followed by a fabric filter baghouse (FFB). Changes in the cooling system and consequential increases in potential PM<sub>10</sub> emissions triggered review under the New Source Review Prevention of Significant Deterioration (PSD) of Air Quality program. The increased emissions resulted in a potential increase in the level of total dissolved solids (TDS) in the cooling system feed water, a more accurate water balance (which minimizes the amount of water discharged to evaporation ponds), and the previously overestimated cooling tower mist eliminator control efficiency, which could not be guaranteed in the previous configuration. In addition, RMPI requested to correct the applicable HF limit that was established under Permit #3185-01. Previously established limits associated with oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), and Volatile Organic Compound (VOC) emissions from the Boiler were not reviewed in this action because the proposed modifications would not affect them. The application was deemed complete on October 4, 2004.

In response to comments received on the Department's Preliminary Determination (PD) on Permit #3185-02, several emission limits changed: SO<sub>2</sub> from 0.12 pounds per million British Thermal Units (lb/MMBtu) on a rolling 30-day average to 0.11 lb/MMBtu on a rolling 30-day average, filterable particulate matter (PM)/PM<sub>10</sub> from 0.015 lb/MMBtu to 0.012 lb/MMBtu, and mercury (Hg) from 3.54 lb per trillion Btu (lb/TBtu) to 5.8 lb/TBtu with a testing plan to evaluate the feasibility of lowering that limit. In addition, a total PM/PM<sub>10</sub> limit (that includes filterable and condensable fractions) was added. Additional discussion regarding these changes was included in Section III – Best Available Control Technology (BACT) Determination, of the Department's Decision (DD) on this permit.

The DD on Permit #3185-02 was appealed to the Montana Board of Environmental Review (BER) by RMPI, the Montana Environmental Information Center, William J. Eggers III, Margaret J. S. Eggers, and Tracy Small. A settlement agreement was signed by all parties (including the Department) and approved in a BER order signed on May 6, 2005. The order included the following changes (in summary):

- Clarification that if water is used for dust suppression on unpaved portions of access roads, parking lots, and general plant area only clear, non-oily water that contains no regulated hazardous waste shall be used.
- 18-month optimization periods for SO<sub>2</sub> and PM<sub>10</sub> during which temporary emission limits would apply. Following the 18-month optimization periods, the SO<sub>2</sub> (including control efficiencies) and PM<sub>10</sub> limits would revert back to the BACT limits established in the DD of Permit #3185-02. Through a permit application, RMPI was allowed to demonstrate to the Department that other limits would be appropriate using information from the optimization periods.
- A 36-month demonstration period for Hg emissions during which RMPI would make the Hardin facility available as a test facility for Hg controls. By the end of that 36-month demonstration period, RMPI would install and operate an activated carbon injection system or equivalent technology for Hg control. An 18-month optimization period for the Hg control system would follow. Prior to the end of the 18-month optimization period, RMPI would submit an application to the Department with information from that Hg optimization period to determine an appropriate Hg BACT emissions limit.

In addition, in an unrelated action, the Department changed the rule reference on the requirement in the permit to comply with 40 Code of Federal Regulations (CFR) 60, Subpart Da from the Administrative Rules of Montana (ARM) 17.8.749 to ARM 17.8.340 and 40 CFR 60, Subpart Da. The change reflected information provided by RMPI (that was not available prior to the issuance of the DD) that reconstruction as defined under 40 CFR 60.15 had occurred for the PC-Boiler. This change was not a substantive change, and was made for convenience purposes. Permit #3185-02 replaced Permit #3185-01.

On December 20, 2005, the Department received a complete permit application from RMPI to add a temporary auxiliary 11.8 MMBtu/hr boiler necessary for startup of the PC-boiler. The temporary auxiliary boiler would provide supplemental heat when the PC-boiler is operating on natural gas for activities such as steam blows or freeze protection during tuning or startup of the Boiler. Once startup has progressed to the point that the PC-Boiler is fired on coal, there will be no need for the auxiliary boiler. The auxiliary boiler would not be operated at the same time the PC-boiler is combusting coal, therefore overall potential emissions at the facility would not increase. **Permit #3185-03** replaced Permit #3185-02.

On March 16, 2007, RMPI submitted a Montana Air Quality Permit (MAQP) application for a modification to MAQP #3185-03. The application was deemed complete on August 3, 2007, upon RMPI's submittal of additional information. Specifically, RMPI requested the following actions: 1) specify that the current SO<sub>2</sub> short-term emission limit of 182.6 pounds per hour (lb/hr) does not apply during periods of PC-Boiler startup and shutdown and during SDA atomizer change-outs; 2) establish an alternate SO<sub>2</sub> short-term emission limit for periods of PC-Boiler startup and shutdown and SDA atomizer change-outs; 3) define startup, shutdown, and SDA atomizer change-out periods and establish any related conditions; 4) request that the optimization period requirement for PC-Boiler SO<sub>2</sub> emissions control efficiency be established as a permanent MAQP condition; and 5) replace the temporary PM/PM<sub>10</sub> and SO<sub>2</sub> emission limits established to apply during a defined optimization period with the post-optimization-period limits expressed in MAQP #3185-03.

In addition, on June 26, 2007, RMPI notified the Department of a pending merger with and into Rocky Mountain Power, Inc. (a Delaware Company (RMPD)) and RMPD's intent to transfer MAQP #3185-03 to RMP upon closing. On August 3, 2007, the Department received notification that the merger had closed. Therefore, the current permit action also transfers the MAQP from RMPI to RMP.

Further, the Department placed a 3-hour SO<sub>2</sub> limit on the PC-Boiler stack to minimize visibility impacts, which also reduced impacts to the 3-hour SO<sub>2</sub> increment. The Department based the proposed 3-hour limit on RMP's past operating data.

Lastly, while RMP is subject to the applicable requirements of the Acid Rain Program contained in 40 CFR 72-78, the program is implemented under Title V of the Federal Clean Air Act. Therefore, the Department removed the condition requiring RMP to comply with the Acid Rain Program from the MAQP (ARM 17.8, Subchapter 8). Removing the requirement does not alleviate RMP from the responsibility of complying with the program and the requirement will be included in RMP's Title V Operating Permit (ARM 17.8, Subchapter 12), upon issuance. Removing the requirement for RMP to comply with the acid rain program simply clarifies that the Department's authority to implement the acid rain program is contained in ARM 17.8, Subchapter 12 (Title V Operating Permit Program). In addition, the monitoring requirements contained in 40 CFR 72-78 remain as applicable requirements in the MAQP. **Permit #3185-04** replaced Permit #3185-03.

#### **D. Taking and Damaging 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 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 August 1, 2007.

#### **E. Compliance Designation**

On December 1, 2006, the Department sent RMPI a violation letter (#BLHR06-26) for violations of the Clean Air Act of Montana. In particular, RMPI's Third Quarter 2006 Excess Emission Report showed violations of the 6-minute opacity limit, 250 times; the permitted SO<sub>2</sub> 1-hour limit, 93 times; and the permitted 1-hour CO emission limit, 27 times.

On February 28, 2007, the Department sent RMPI a violation letter (#VLHR07-05) for violations of the Clean Air Act of Montana. The Fourth Quarter 2006 Excess Emission Report showed that RMPI exceeded the 6-minute opacity limit, 272 times; the permitted SO<sub>2</sub> 1-hour limit, 23 times; and the permitted 1-hour CO emission limit, 23 times. The fourth quarter SO<sub>2</sub> exceedances constituted a High Priority Violation (HPV).

On July 10, 2007, the Department sent a violation letter (#VLHR07-20) to RMPI for violations of the Clean Air Act. During the first quarter of 2007, RMP documented 98, 1-hour incidents during which the SO<sub>2</sub> stack emission rate exceeded the 182.6 lb/hr emission limit. In addition, the Department noted that given the frequency, number, magnitude and duration of opacity exceedances experienced at RMPI during the first quarter of 2007, RMPI failed to apply good pollution control practices for minimizing emissions. On October 17, 2007, the Department sent a violation letter (#VLHR07-23) to RMP for violations of the Clean Air Act of Montana. In particular, RMP had 23, 1-hour SO<sub>2</sub> exceedances during the second quarter of 2007; and 15, 1-hour SO<sub>2</sub> exceedances during the third quarter of 2007. However, as of October 25, 2007, all violations have been resolved, RMPI agreed to pay administrative penalties.

Because RMP is a new source, no formal inspection of the facility has yet to occur. However, an inspection is scheduled in the spring of 2008.

## SECTION II. SUMMARY OF EMISSION UNITS

### A. Facility Process Description

RMP operates a nominal 116 MW electrical power generation facility approximately 1.2 miles northeast of Hardin, Montana. The facility consists of a pulverized coal-fired (PC-boiler) boiler and a steam turbine, which drives a 135 MVA class nameplate electric generator to produce a nominal 116-gross MW of electric power (11-MW of the power produced will be used on average by RMP for plant auxiliary power), and associated equipment. The following equipment is permitted for this facility:

1. 1,304 MMBtu/hr PC-Boiler (with associated steam turbine and electric generator) with a 250-foot stack.

The permitted boiler is a 1968 wet-bottom, wall-fired boiler manufactured by Mitchell of the United Kingdom. The boiler is configured with 3 pulverizers and 12 burners with opposed firing. The maximum nominal heat input rate to the boiler will be 1,304 MMBtu/hr, which produces up to approximately 900,000 pounds of steam per hour. Natural gas is used to fire the boiler during periods of start-up. During normal operations, the boiler is fueled with pulverized coal.

Boiler combustion gases (flue gases) are routed to a Selective Catalytic Reduction (SCR) unit for control of NO<sub>x</sub>. From the SCR unit, the flue gases are routed to a dry flue gas desulfurization (FGD) system (specifically characterized as a SDA) that uses a lime reagent for control of SO<sub>2</sub>. Other acid gases including sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), HCl and HF, and ionic Hg are removed as a co-benefit control. An FFB is located downstream of the SDA for PM control. Additional pollutants such as Hg, trace metals, and radionuclides are also be removed as a co-benefit control if present in the particulate form. From the FFB, the flue gas exit to the atmosphere.

2. Cooling tower

A wet cooling tower is used to dissipate the heat from the steam turbine using the latent heat of water vaporization to exchange heat between the process and the air passing through the cooling tower. The proposed cooling tower is induced, counter flow draft design equipped with cellular (honeycomb) drift eliminators. The maximum make-up water rate for the proposed cooling tower is approximately 1,400 gallons per minute (gpm) and water comes from the Bighorn River. There is no direct discharge to the state waters from the operation of this cooling tower. Blow-down is treated to maximize water recovery. Treatment includes a reverse osmosis unit followed by a condensate polisher (de-ionizer) and a small dehydrator. Discharge from the blow-down is reduced to less than 30 gpm, and is discharged to the makeup system for the lime slurry, and injected into the SDA. If the discharged water cannot be immediately used, it is stored in a surge tank until it can be reused within the system.

3. Coal Handling Systems

Coal delivery trucks deliver coal to an enclosed truck unloading station. The enclosure is a self-supported, metal-clad building with gravity louvers on the sidewalls and automated doors at the entry and exit ends for maximum containment of airborne PM. The building is sufficient size to fully contain a delivery truck, trailer, and pup. Gravity-operated louvers on the enclosure walls provide openings for the design volume of airflow removed by a dust collection system provided for the building. When one of the enclosure doors is opened, the dampers close, and air is drawn through the door openings only. The overhead doors are interlocked such that only one door can be open at a time.

The trucks unload coal into below-grade receiving hoppers sized to accept the complete discharge from a trailer and pup. A grizzly with 6-inch square openings is provided on the hopper to prevent oversize materials from entering and plugging the conveying equipment. A rubber seal boot partially encloses the grizzly and hopper top to minimize fugitive dust emissions during the unloading process. Two variable speed stockout feeders transfer coal from the unloading hoppers onto an inclined-covered, belt conveyor.

Fugitive dust collection for coal truck unloading operations are provided by a dust collector (RCF-BH-001) with a required efficiency of 0.01 grains per dry standard cubic foot (gr/dscf) and a fan that provides a nominal air flow rate of 50,000 actual cubic feet per minute (acfm). Coal dust is collected by the baghouse and is pneumatically conveyed to a coal storage silo. Ductwork connects the dust collector to the building enclosure, hopper rubber seal boot, and feeder transfer point hoods. Inflow air through the enclosure louvers or doors maintains a clean work environment within the enclosure. Inflow air through the hopper facilitates fugitive emissions collection during coal unloading. Additional ventilation is provided at the conveyor transfer points. Ventilation design provides for positive ventilation (negative draft) of the building under worst-case conditions with one door fully open.

The stockout conveyor conveys coal from the receiving hoppers to the top of an active coal storage silo. The silo discharges at the bottom via a reclaim feeder to a covered belt conveyor. This reclaim-conveyor transfers coal from the silo to coal bunkers located within the generation building. A fabric filter bin vent (RCF-BV-002) located on top of the silo controls dust emissions from silo loading with a maximum design outlet grain loading of 0.01 gr/dscf and 7,500 acfm air flow. It also controls fugitive dust emissions from material transfers between the reclaim feeder and reclaim conveyor. Dust pulsed from the bin vent fabric filters falls directly into the silo.

#### 4. Lime Handling Systems:

As previously mentioned, the proposed facility uses a lime SDA to control SO<sub>2</sub> and certain HAP emissions. Lime is delivered by truck at a rate of approximately 1 truck per day. Lime is used at a rate of approximately 2,200 lb/hr.

Pebble lime for the SDA is pneumatically unloaded from delivery trucks into a storage silo. The storage silo is equipped with a fabric filter bin vent (FGT-BV-001) to collect fugitive dust generated during loading. The bin vent is limited to a maximum outlet grain loading of 0.01 gr/dscf (with a nominal airflow rate of 1,000 acfm). The bottom of the lime storage silo is enclosed and houses the lime screw feeder, slaker equipment, screw equipment, screw conveyor, and agitated slurry storage tank.

#### 5. Ash and Spent Lime Handling Operations

Combustion of coal in the boiler produces ash. Bottom ash from the boiler and ash collected from the economizer is mixed with water and fed via a system of conveyors to a load-out bunker located outside of the generation building. Front-end loaders transfer the wetted material to trucks for transport off-site. Particulate emissions from these operations to the atmosphere are negligible since the materials are wet. A pneumatic conveying system collects fly ash and spent lime from the SDA and boiler baghouse. It transfers material to one of two storage silos. SDA material feeds to an FGD ash silo. Material from the baghouse is first directed to a recycle ash silo. Once this silo is filled, the material is routed to the FGD ash silo.

Particulate emissions resulting from loading the recycle ash silo are controlled by a fabric filter bin vent located on top of the silo. The bin vent (WMH-BV-002) is limited to a maximum outlet grain loading of 0.01 gr/dscf (with a nominal airflow rate of 2,000 acfm). Material collected in the recycle ash silo are mixed with cooling tower blowdown water and fed to the SDA.

Material not required for recycle is conveyed to the FGD ash silo. Particulate emissions resulting from silo loading are controlled by a fabric filter bin vent located on top of the silo. The bin vent (WMH-BV-003) is limited to a maximum outlet grain loading of 0.01 gr/dscf (with a nominal airflow rate of 2,000 acfm). Material is discharged from the silo to a screw feeder for either wet or dry loadout into trucks or railcars. An elevated structure supports the silo and loading equipment, allowing trucks and railcars to access beneath. The loadout equipment is enclosed within a silo skirt. The dry loading spout is ventilated to the silo's bin vent.

6. Water Treatment Reagents Handling

Lime and soda ash are stored in separate silos for use in the water treatment system. Each silo is equipped with a bin vent to collect fugitive dust generated during lime loading. The bin vents (RWS-BV-001 – lime and RWS-BV-002 – soda ash) are limited to a maximum outlet grain loading of 0.01 gr/dscf (with a nominal airflow rate of 1,000 acfm).

7. Temporary Auxiliary Boiler

The temporary auxiliary boiler is used to provide supplemental heat when the PC-Boiler is operating on natural gas for activities such as steam blows or freeze protection during tuning or startup of the Boiler. The facility does not have a permanent auxiliary boiler to supply supplement steam during periods of downtime, so a temporary portable auxiliary boiler is used. The auxiliary boiler is trailer-mounted boiler with a capacity of 10,000 pounds per hour of steam (approximately 11.8 MMBtu/hr). The boiler is rated for a maximum of 85 gallons per hour of No. 2 fuel oil at full load. The auxiliary boiler will be used for initial warming of the system at the maximum rate of 10,000 pounds per hour. During start up of the forced draft and induced draft fans the auxiliary boiler are used at low loads to prevent freezing in the tubes. Once startup has progressed to the point that the Boiler is fired on coal, there is no need for the auxiliary boiler. The auxiliary boiler would not be operated at the same time the unit is combusting coal, thus there is no increase in yearly potential emissions.

**B. Emission Units and Pollution Control Device Identification**

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

Emissions Unit ID	Emission Unit Description	Pollution Control Device/Practice
EU001	1968 Mitchel of UK Pulverized Coal Wall-Fired Boiler (1304 MMBtu/hr) (PC-Boiler)	NOx – SCR; SO <sub>2</sub> – Dry FGD/SDA PM/PM <sub>10</sub> – FFB, CO – Proper design and Good Combustion Practices; VOC – Good Combustion Practices; HCl – FGD/SDA; HF – FGD/SDA; H <sub>2</sub> SO <sub>4</sub> – FGD/SDA; Hg – Demonstration Period, Optimization Period, Carbon Injection; Radionuclides – FFB; Trace Metals – FFB
EU002	Coal Processing, Milling, Transfer, Storage, and Handling Operations	Baghouse(s)
EU003	Lime and Ash Material Transfer and Handling Operations	Baghouse(s) & Bin Vent(s)
EU004	Cooling Tower	Mist Eliminator
EU005	Temporary Auxiliary Boiler (11.8 MMBtu/hr)	Low-Sulfur Fuel Oil
EU006	Fugitive Emissions: Haul Roads/Vehicle Traffic	Chemical Dust Suppressant and/or Non-Oily and Non-Hazardous Water Treatment

### **C. Categorically Insignificant Sources/Activities**

Pursuant to ARM 17.8.1201(22)(a), an insignificant emission unit means any activity or emissions unit located within a source that: (i) has a potential to emit less than 5 TPY of any regulated pollutant; (ii) has a potential to emit less than 500 pounds per year of lead; (iii) has a potential to emit less than 500 pounds per year of hazardous air pollutants listed pursuant to Section 7412 (b) of the FCAA; and (iv) is not regulated by an applicable requirement, other than a generally applicable requirement that applies to all emission units subject to Subchapter 12.

RMP did not provide a list of insignificant sources and/or activities. Therefore, this permit does not identify insignificant activities. Because there are no requirements to update such a list, the status of such emission units and/or activities may change.

## SECTION III. PERMIT CONDITIONS

### A. Emission Limits and Standards

The following emission limits and standards are applicable to RMP facility operations:

1. The Department determined that the emission limits that apply to EU001 – 1968 Mitchel of UK Pulverized Coal Wall-Fired Boiler (1304 MMBtu/hr) (PC-Boiler) are as follows:

The PM/PM<sub>10</sub> limit was established through the required BACT analysis and determination under the provisions of ARM 17.8.752. PM/PM<sub>10</sub> emissions shall be controlled by the use of a FFB. The applicable filterable PM/PM<sub>10</sub> limit is 0.012 lb/MMBtu of heat input to the PC-Boiler. The applicable filterable and condensable PM/PM<sub>10</sub> limit is 0.024 lb/MMBtu of heat input to the PC-Boiler.

- The opacity limit was established under the provisions of ARM 17.8.340 and 40 CFR 60.42a(b), Subpart Da. Pursuant to the provisions, RMP shall not cause or authorize to be discharged into the atmosphere from the FFB controlling emissions from the PC-Boiler any gases which exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period hour of not more than 27 percent opacity.
- The NO<sub>x</sub> limit and control requirement were established pursuant to ARM 17.8.752. The applicable NO<sub>x</sub> limit is 0.09 lb/MMBtu based on a 30-day rolling average. NO<sub>x</sub> emissions shall be controlled by the use of the SCR.
- The CO limit and control requirement were established pursuant to ARM 17.8.752. The applicable CO limit is 0.15 lb/MMBtu. CO emissions shall be controlled through proper design and good combustion practices.
- During PC-Boiler startup and shutdown, and SDA atomizer change-outs, as defined in Appendix F in Operating Permit #OP3185-00 and the following emission limits apply:
  1. The SO<sub>2</sub>, HCl, HF, and H<sub>2</sub>SO<sub>4</sub> mist emissions for the PC-Boiler stack shall be controlled by implementing proper work practices.
  2. SO<sub>2</sub> emissions from the PC-Boiler stack shall not exceed 1465 lb/hr based on 1-hour average.
  3. SO<sub>2</sub> emissions from the PC-Boiler stack shall not exceed 990 lb/hr based on a 3-hour rolling average.
  4. SO<sub>2</sub> emissions from the PC-Boiler stack shall not exceed 182.6 lb/hr SO<sub>2</sub> from the PC-Boiler more than 6 hours during any rolling 24-hour time period.
- The SO<sub>2</sub> limits were established under ARM 17.8.749 and ARM 17.8.752. SO<sub>2</sub> emissions shall be controlled through the use of a SDA. Except during PC-Boiler startup, shutdown and SDA atomizer changeout, the SO<sub>2</sub> emissions shall not exceed 182.6 lb/hr based on a 1-hour average. The SO<sub>2</sub> emissions from the PC-Boiler stack shall not exceed 0.11 lb/MMBtu based on a 30-day rolling average, and the control efficiency for the SO<sub>2</sub> emission control equipment shall be maintained at a minimum of 90% based on a 30-day rolling average.

- The Volatile Organic Compound (VOC) emission limit and control requirements were established pursuant to ARM 17.8.752. The applicable limit is 0.0034 lb/MMBtu. VOC emissions from the PC-Boiler shall be controlled by good combustion practices.
- The HCl gas emission limits were established as a synthetic minor limit for MACT applicability. The applicable limits are 1.54 lb/hr and 0.00118 lb/MMBtu based on a 1-hour average. The HCl emission control technology requirement was established pursuant to ARM 17.8.752. HCl emissions shall be controlled by the FGD/SDA systems, in tandem.
- The HF gas emission limits were established as a synthetic minor limit for MACT applicability. The applicable limits are 0.67 lb/hr and 0.00051 lb/MMBtu based on a 1-hour average. The HF emission control technology requirement was established pursuant to ARM 17.8.752. HF emissions shall be controlled by the FGD/SDA systems, in tandem.
- The H<sub>2</sub>SO<sub>4</sub> mist emissions limits and control requirement were established pursuant to ARM 17.8.752. The applicable H<sub>2</sub>SO<sub>4</sub> limits are 8.2 lb/hr and 0.0063 lb/MMBtu based on a 1-hour average. H<sub>2</sub>SO<sub>4</sub> mist emissions from the PC-Boiler shall be controlled by the use of dry FGD/SDA, in tandem.
- Hg emission limit(s) and emission control strategy shall be established through Hg Demonstration and Optimization periods ordered by the Montana BER through settlement of the appealed permit.

RMP is subject to an Hg Demonstration Period. For the 36 months following commencement of commercial operations (“Hg Demonstration Period”), the RMP facility will be available as a testing facility for Hg control. During the Hg Demonstration Period, RMP will operate equipment and control equipment at the Hardin facility in a manner that demonstrates the capabilities of Hg emission control. Prior to the completion of the Hg Demonstration Period, RMP shall install and operate an activated carbon injection control system or, at RMP’s request and as approved by the Department, an equivalent technology (equivalent in removal efficiency) (“Installed Technology”) (BER order signed May 6, 2005).

RMP is subject to an Hg Optimization Period. Within the 18 months following the completion of the Hg Demonstration Period, RMP shall operate the Installed Technology to optimize the Installed Technology’s performance for Hg emission reduction (“Hg Optimization Period”). Not later than 18 months after the completion of the Hg Demonstration Period, RMP shall submit to the Department an application for an Hg BACT emission limit for the Installed Technology, which will utilize the Installed Technology as the base technology. If the Department determines the application to be deficient or incomplete, RMP shall submit information responsive to any noted deficiencies within a reasonable time period (BER order signed May 6, 2005).

- The radionuclides emissions limits and control requirement were established pursuant to ARM 17.8.752. The PC-Boiler’s PM<sub>10</sub> emission limit shall be used as a surrogate emission limit for the applicable radionuclides limit. Radionuclides emissions from the PC-Boiler shall be controlled by the use of a FFB.
- The trace metals emissions limits and control requirement were established pursuant to ARM 17.8.752. The PC-Boiler’s PM<sub>10</sub> emission limit shall be used as a surrogate emission limit for the applicable trace metals limit. Trace metals emissions from the PC- Boiler shall be controlled by the use of a FFB.

2. The Department determined that the emission limits that apply to EU002 – Coal Processing, Milling, Transfer, Storage, and Handling Operations are as follows:
  - The PM/PM<sub>10</sub> emission limit for the coal unloading baghouse – RCF-BH-001; coal silo baghouse – RCF-BH-002; and the coal storage bunkers baghouse – RCF-BH-003 controlling coal processing, milling, transfer, storage, and handling operations were established pursuant to ARM 17.8.752 as affected control unit grain (gr) loading limits. The applicable limit is 0.10 gr/dscf per affected unit.
  - The opacity limit for coal processing, milling, transfer, storage, and handling operations was established under ARM 17.8.304 and ARM 17.8.308, as applicable. The applicable limit is 20% opacity averaged over a 6 consecutive minute period (see General Requirements Section III.A. of OP3185-00).
3. The Department determined that the emission limits that apply to EU003 – Lime and Ash Material Transfer and Handling Operations are as follows:
  - The PM/PM<sub>10</sub> emission limit for the SDA lime silo bin vent: FGT-BV-001; FGD ash silo bin vent: WMH-BV-002; Recycle ash silo bin vent: FGT-BV-002; Water treatment lime silo baghouse: RWS-BH-001; and the Soda ash silo baghouse: RWS-BH-002 controlling emissions from the lime and ash material transfer and handling operations were established pursuant to ARM 17.8.752 as affected control unit grain (gr) loading limits. The applicable limit is 0.10 gr/dscf per affected unit.
  - The opacity limit for the lime and ash material transfer and handling operations was established under ARM 17.8.304 and ARM 17.8.308, as applicable. The applicable limit is 20% opacity averaged over a 6 consecutive minute period (see General Requirements Section III.A. of OP3185-00).
4. The Department determined that the emission limits that apply to EU004 – Cooling Tower are as follows:
  - The cooling tower PM<sub>10</sub> emission limit and control requirement were established pursuant to ARM 17.8.752. The applicable limit is no more than 0.001% of circulating water flow. PM<sub>10</sub> emissions from cooling tower shall be controlled by operation and maintenance of a mist eliminator on the cooling tower.
  - The opacity limit was established in ARM 17.8.304 and ARM 17.8.308, as applicable. The applicable limit is 20% opacity averaged over a 6 consecutive minute period (see General Requirements Section III.A. of OP3185-00).
5. The Department determined that the applicable opacity limit that applies to EU005 – Fugitive Emissions: Haul Roads/Vehicle Traffic are as follows:
  - The applicable limits were established under ARM 17.8.308. The applicable limit is reasonable precautions limiting fugitive emissions to 20% opacity averaged over a 6 consecutive minute period.

## **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 do not require the permit to impose the same level of rigor for all emission units. Furthermore, they do 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 emissions unit 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 determine 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 *Billings Gazette* on January 25, 2008, and the *Big Horn County News* on January 24, 2008. The Department provided a 30-day public comment period on the draft operating permit from January 25, 2008, to February 25, 2008. ARM 17.8.1232 requires the Department to keep a record of both comments and issues raised during the public participation process. The Department did not receive any comments.

**Summary of Public Comments**

Person/Group Commenting	Comment	Department Response
The Department did not receive any public comments.		

**G. Draft Permit Comments**

**Summary of Permittee Comments**

Permit Reference	Permittee Comment	Department Response
The Department did not receive any comments.		

**Summary of EPA Comments**

Permit Reference	EPA Comment	Department Response
The Department did not receive any comments.		

## SECTION IV. NON-APPLICABLE REQUIREMENT ANALYSIS

Pursuant to ARM 17.8.1221, RMP requested a permit shield for all non-applicable regulatory requirements and regulatory orders identified in the RMP Title V Operating Permit Application.

The following table outlines those requirements that RMP 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.

<b>Rule Citation</b>	<b>Reason</b>
40 CFR 50 40 CFR 51 40 CFR 52 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 40 CFR 71	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 61 40 CFR 63 40 CFR 66 40 CFR 68 ARM 17.8.514 ARM 17.8.515 ARM 17.8.708 ARM 17.8.731 ARM 17.8.341 ARM 17.8.342 ARM 17.8, Subchapter 9 ARM 17.8, Subchapter 10 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 40 CFR 60, Subpart Da	These rules are applicable to the source and may contain specific requirements for compliance.
ARM 17.8.1203	This rule consists 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

As of March 5, 2008, the emission of HAPs from the RMP coal-fired steam-electric generating facility is less than 10 tons per year for any individual HAP and less than 25 tons per year for all HAPs combined; therefore, the RMP facility is not a major source of HAPs. In addition, as electrical generating units were delisted from Section 112(c), no MACT standards currently apply to RMP.

### B. NESHAP Standards

As of March 5, 2008, RMP is not subject to any standards listed under 40 CFR Part 61, with the possible exception of Subpart M – Asbestos, as applicable.

### C. NSPS Standards

RMP shall comply with the applicable standards and provisions of 40 CFR Part 60. RMP is subject to the following:

40 CFR 60, Subpart A – General Provisions. This subpart applies to all affected equipment or facilities subject to an NSPS.

40 CFR 60, Subpart Da - Standards of Performance for Electric Utility Steam Generating Units. This subpart applies to the RMP PC-Boiler because it is an electric utility steam generating unit with a heat input capacity greater than 250 MMBtu/hr. The PC-Boiler was built in 1968, prior to the applicability date of September 18, 1978. However, based on information provided by RMP (submitted on April 5, 2005) regarding the upgrades made to the Boiler, the Department determined that reconstruction (as defined under 40 CFR 60.15) has occurred; therefore, Subpart Da is applicable.

40 CFR 60, Subpart Y – Standards of Performance for Coal Preparation Plants. This subpart applies to the RMP facility because RMP was constructed after October 24, 1974, and the facility will pulverize or “crush” more than 200 tons/day of coal.

40 CFR 60, Subpart HHHH – Emission Guidelines and Compliance Times for Coal-fired Electric Steam Generating Units. This subpart applies to the RMP facility under the Montana Mercury Rules: ARM 17.8.740, ARM 17.8.767, ARM 17.8.771, and ARM 17.8.772.

### D. Risk Management Plan

As of March 5, 2008, 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; 3 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.

### E. Compliance Assurance Monitoring (CAM)

In accordance with 40 CFR, Part 64, and the Administrative Rules of Montana (ARM) Title 17, Chapter 8, Subchapter 15, CAM applies to each pollutant-specific emitting unit at a major stationary source (Title V) if the affected unit is subject to a pollutant specific emission limitation or standard; the unit uses a control device to achieve compliance with the applicable limitation or standard; and the unit has a pre-control potential to emit (PTE) the regulated pollutant in an amount that exceeds 100% of the Title V major source threshold.

The RMP PC-Boiler is subject to SO<sub>2</sub> and NO<sub>x</sub> emissions limits; requires specific SO<sub>2</sub> and NO<sub>x</sub> control equipment; and has the pre-control (and post-control) PTE SO<sub>2</sub> and NO<sub>x</sub> in an amount that exceeds 100% of the Title V major source threshold. However, in accordance with 40 CFR 64.2(b)(1)(vi), since RMP is required to use SO<sub>2</sub> and NO<sub>x</sub> continuous emissions monitoring systems (CEMS) as “continuous compliance determination method(s),” 40 CFR Part 64 and ARM 17.8, Subchapter 15, applicability is precluded.

The RMP PC-Boiler is subject to specific PM/PM<sub>10</sub> emissions limits; requires specific PM/PM<sub>10</sub> control equipment; and has the pre-control PTE PM/PM<sub>10</sub> in an amount that exceeds 100% of the Title V major source threshold. However, in accordance with 40 CFR 64.5(b) and ARM 17.8.1509(2), because post-control PM/PM<sub>10</sub> emissions from the PC-Boiler are less than 100% of the Title V major source threshold, a CAM plan is not required until renewal of the RMP Title V Operating Permit. In the interim, prior to Title V renewal and the institution of CAM requirements, the Department suggests that RMP establish the appropriate monitoring information in accordance with ARM 17.8.1504 through ARM 17.8.1508, and 40 CFR Part 64.

The RMP PC-Boiler is subject to a specific CO emission limit and has the pre-control (and post control) PTE CO in an amount that exceeds 100% of the Title V major source threshold; however, RMP is not subject to CAM for CO emissions because the PC-Boiler does not incorporate pollutant-specific controls for this pollutant.

Further, RMP is not subject to CAM for any other regulated pollutant because unit specific pre-control PTE of all other pollutants is less than 100% of the applicable Title V major source threshold.