



Montana Department of  
**ENVIRONMENTAL QUALITY**

Brian Schweitzer, Governor

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June 25, 2009

Scott Siddoway  
Colstrip Energy Limited Partnership  
1087 West River Street, Suite 200  
Boise, ID 83702

Dear Mr. Siddoway:

Montana Air Quality Permit #2035-05 is deemed final as of June 25, 2009, by the Department of Environmental Quality (Department). This permit is for a mercury emission limit and associated operating requirements for the circulating fluidized bed boiler. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Vickie Walsh  
Air Permitting Program Supervisor  
Air Resources Management Bureau  
(406) 444-9741

Moriah Thunstrom  
Environmental Engineer  
Air Resources Management Bureau  
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VW: MT  
Enclosures

Montana Department of Environmental Quality  
Permitting and Compliance Division

Montana Air Quality Permit #2035-05

Colstrip Energy Limited Partnership  
Rosebud Power Plant  
1087 West River Street, Suite 200  
Boise, ID 83702

June 25, 2009



## MONTANA AIR QUALITY PERMIT

Issued To: Colstrip Energy Limited Partnership  
Rosebud Power Plant  
1087 West River Street, Suite 200  
Boise, Idaho 83702

Permit: #2035-05  
Application Complete: 3/31/09  
Preliminary Determination Issued: 4/30/09  
Department's Decision Issued: 6/09/09  
Permit Final: 6/25/09  
AFS #: 087-0007

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Colstrip Energy Limited Partnership (CELP), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

### SECTION I: Permitted Facilities

#### A. Plant Location

CELP operates a coal fired power generation facility located approximately 6 miles north of Colstrip, Montana. The plant site is located on North 1/2, Section 32, Township 3 North, Range 41 East in Rosebud County, Montana.

#### B. Current Permit Action

On December 30, 2008, the Department of Environmental Quality (Department) received an application from CELP to modify MAQP #2035-04. This requested modification is to establish a mercury emission limit for the Rosebud Power Plant, pursuant to ARM 17.8.771, and to provide an analysis of potential mercury control options including, but not limited to, boiler technology, mercury emission control technology, and any other mercury control practices. On January 30, 2009, the Department requested additional information to support CELP's proposed mercury emission control strategy. This information was submitted to the Department on March 31, 2009 and included additional control technology testing results conducted at the facility. MAQP #2035-05 establishes a mercury emission limit and associated operating requirements for the Rosebud Power Plant in order to comply with ARM 17.8.771.

### SECTION II: Conditions and Limitations

#### A. Emission Limitations

1. Coal haul trucks are to be covered during hauling operations (ARM 17.8.749).
2. The unloading of coal shall be in an enclosed structure and controlled by a baghouse. Particulate matter less than 10 microns (PM<sub>10</sub>) emissions from the baghouse shall not exceed 0.005 grains/dry standard cubic foot (gr/dscf) (ARM 17.8.752).
3. The coal crushing, screening, and transfer emissions are to be vented to a baghouse for particulate control. PM<sub>10</sub> emissions from the baghouse shall not exceed 0.006 gr/dscf (ARM 17.8.752).
4. The coal storage bunker shall be controlled by two baghouses. PM<sub>10</sub> emissions from each baghouse shall not exceed 0.01 gr/dscf (ARM 17.8.752).

5. Limestone truck unloading, handling, and storage shall be controlled by a baghouse. PM<sub>10</sub> emissions from the baghouse shall not exceed 0.01 gr/dscf (ARM 17.8.752).
6. Fly ash conveying and storage shall be controlled by a baghouse. PM<sub>10</sub> emissions from the baghouse shall not exceed 0.004 gr/dscf (ARM 17.8.752).
7. Bed ash conveying and storage shall be controlled by a baghouse. PM<sub>10</sub> emissions from the baghouse shall not exceed 0.004 gr/dscf (ARM 17.8.752).
8. Ash storage silo unloading shall be controlled by a baghouse and covered haul trucks. PM<sub>10</sub> emissions from the baghouse shall not exceed 0.01 gr/dscf (ARM 17.8.752).
9. CELP shall be subject to all applicable provisions, as appropriate, of 40 CFR 60, Subpart Da 60.40Da through 60.52Da (Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978) and Subpart Y - Standards of Performance for Coal Preparation Plants (ARM 17.8.340, 40 CFR 60, Subpart Da, and 40 CFR 60, Subpart Y).
10. CELP shall operate and maintain a baghouse on the Circulating Fluidized Bed (CFB) boiler. The CFB boiler's emissions for the pollutants listed below shall not exceed the following for the times identified (ARM 17.8.749).

<b>Pollutant</b>	<b>Annual</b>	<b>Daily</b>	<b>3-hour</b>	<b>1-hour</b>
<b>SO<sub>2</sub></b>	1,840 tons	5.04 tons	432 lbs/hr	574 lbs
<b>NO<sub>x</sub></b>	1,435 tons	7,864 lbs		328 lbs
<b>CO</b>	232 tons	1,272 lbs		53 lbs
<b>PM<sub>10</sub></b>	26.28 tons	144.0 lbs		6.0 lbs

11. CELP shall not cause to be discharged into the atmosphere from any 40 CFR 60 Subpart Da affected facility any gases which contain sulfur dioxide (SO<sub>2</sub>) in excess of (ARM 17.8.340 and 40 CFR 60, Subpart Da):
  - a. 1.20 pounds per million British thermal units (lb/MMBtu) heat input and 10 percent of the potential combustion concentration (90 percent reduction), or
  - b. 30 percent of the potential combustion concentration (70 percent reduction), when emissions are less than 0.60 lb/MMBtu heat input per 40 CFR 60.43da.
12. CELP shall not cause to be discharged into the atmosphere from any 40 CFR 60 Subpart Da affected facility any gases which contain particulate matter in excess of (ARM 17.8.340 and 40 CFR 60, Subpart Da):
  - a. 0.03 lb/MMBtu heat input derived from the combustion of solid, liquid, or gaseous fuel; and
  - b. 1 percent of the potential combustion concentration (99 percent reduction) when combusting solid fuel per 40 CFR 60.42da.

13. CELP shall burn fuel containing more than 25%, by weight, coal refuse on an annual basis (ARM 17.8.749).
14. CELP shall use water spray to control fugitive emissions of particulate matter from the ash disposal area. Ash at the disposal site shall not be handled in such a manner as to create emissions in excess of 20% opacity (ARM 17.8.752).
15. If a portion of the ash disposal area is inactive and the Department determines it to be necessary, CELP shall provide mitigative measures, including, but not limited to, revegetation, to control wind-blown emissions from the area. The Department shall determine the necessity of the control measures above on the basis of Department observation, results of ambient air quality monitoring, complaints, or any combination of the above (ARM 17.8.752).
16. The Department shall notify CELP when a change is made to the Cooperative Enforcement Agreement between Montana and EPA Region VIII concerning the enforcement guidelines for continuous emission monitors. The current agreement is dated March 30, 1993 (ARM 17.8.749).
17. CELP shall maintain the stacks at the specified heights (ARM 17.8.749):
  - a. The coal dump baghouse 40 feet above the ground;
  - b. The coal crushing baghouse 40 feet above the ground; and
  - c. The fly ash and bed ash storage baghouse/cartridge 22 feet above the ground.
18. The exhaust from the CFB boiler shall be discharged from a two hundred foot stack (ARM 17.8.749).
19. CELP shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
20. CELP shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
21. CELP shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.20 (ARM 17.8.749).
22. Beginning January 1, 2010, emissions of mercury from the boiler shall not exceed 0.9 pounds per trillion British thermal units (lb/TBtu), calculated as a rolling 12-month average (ARM 17.8.771).
23. CELP shall install a mercury control system that oxidizes and sorbs emission of mercury. CELP shall implement the operation and maintenance of the mercury control system on or before January 1, 2010 (ARM 17.8.771).
24. CELP shall comply with all applicable standards and limitations, and the applicable operating, reporting, recordkeeping, and notification requirements contained in 40 CFR Part 75 (ARM 17.8.771 and ARM 17.8.749).

25. CELP shall operate and maintain the mercury oxidizer/sorbent handling system, including the bin vent filter system, to provide the maximum air pollution control for that which the system was designed (ARM 17.8.749).

B. Testing Requirements

1. Enforcement of Sections II.A.10, II.A.11, II.A.12, and II.A.19 requirements, where applicable, shall be determined by utilizing data taken from continuous emission monitors or approved test methods contained in the Montana Source Test Protocol and Procedures Manual. Opacity compliance may be determined via EPA Method 9 by a qualified observer. The above does not relieve CELP from meeting any applicable requirements of 40 CFR Part 60. Reporting requirements shall be as specified in 40 CFR 60, Subpart Da and Section II.B and II.D of this permit (ARM 17.8.340 and 40 CFR 60, Subpart Da).
2. Enforcement of Section II.A.22, where applicable, shall be determined by utilizing data taken from a Mercury Emissions Monitoring System (MEMS). The MEMS shall be comprised of equipment as required in 40 CFR 75.81(a) and defined in 40 CFR 72.2. The above does not relieve CELP from meeting any applicable requirements of 40 CFR Part 75. Testing requirements shall be as specified in 40 CFR Part 75, Section II.B., and II.E. of MAQP #2035-05 (ARM 17.8.771).
3. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
4. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

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

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

2. CELP shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include *the addition of a new emissions unit*, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).
3. All records compiled in accordance with this permit must be maintained by CELP as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

4. CELP shall report to the Department within 30 days after the end of each calendar quarter, as described in Attachment 3 (ARM 17.8.749):
  - a. The monthly average lb/TBtu mercury emissions rate, for each month of the quarter;
  - b. The 12-month rolling average lb/TBtu mercury emission rate for each month of the reporting quarter; and
  - c. The number of operating hours that the MEMS was unavailable or not operating within quality assurance limits (monitor downtime).

The first quarterly report must be received by the Department by April 30, 2010, but shall not include 12-month rolling averages. The first quarter report to include 12-month rolling averages must be received by the Department by January 30, 2011 (ARM 17.8.749).

D. Continuous Emissions Monitoring Systems (CEMS)

The following monitors shall be installed and operated on the boiler stack outlet: SO<sub>2</sub>, nitrogen oxide (NO<sub>x</sub>), opacity, carbon monoxide (CO), and oxygen (O<sub>2</sub>) or carbon dioxide (CO<sub>2</sub>). Said monitors shall comply with the applicable provisions of 40 CFR 60, Subpart Da, 60.49Da; Subpart A, 60.7; Appendix B, Specifications 1, 2, 3 and 4; and Appendix F. The monitors shall also conform, but not be limited to, as outlined in Attachment 2 (ARM 17.8.340 and 40 CFR 60, Subpart Da).

E. Mercury Emissions Monitoring Systems

An MEMS shall be installed, certified, and operating on the boiler stack outlet on or before January 1, 2010. The MEMS shall also comply with the applicable provisions of 40 CFR Part 75 and the requirements included in Attachment 3 (ARM 17.8.771).

F. Notification

Within 15 days after actual start-up of the mercury control system, CELP shall notify the Department of the date of actual start-up (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – CELP shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if CELP fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving CELP of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).

- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by CELP may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

## Attachment 2 (CEMS)

### 1. Continuous Opacity Monitoring System (COMS)

- a. CELP shall install, calibrate, maintain, and operate continuous opacity monitoring systems (COMS) to monitor and record the opacity of the gases discharged into the atmosphere from the boiler.
- (1) The span of these systems shall be set at 100% opacity.
  - (2) The COMS shall conform to all requirements of 40 CFR 60, Appendix B, Performance Specification 1 - Specifications and Test Procedures for Opacity Continuous Emission Monitoring Systems in Stationary Sources (PS1).
  - (3) The COMS data will be used to demonstrate compliance with the 20% opacity limitation in Section II.A.14. CELP shall maintain compliance with the 20% opacity limitation, as demonstrated by the COMS.
- b. CELP shall submit a written report of all excess opacity emissions quarterly. Periods of excess emissions shall be defined as those averaged over a 6-minute period for which the average is greater than 20% opacity. The report shall be in the format contained in Attachment 2 and include, as a minimum, the following:
- (1) The magnitude of excess emissions and the date and time of commencement and completion of each time period of excess emissions.
  - (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
  - (3) The date and time identifying each period during which the COMS was inoperative except for zero and span checks. The nature of the system repairs or adjustments must also be reported.
  - (4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
  - (5) The percentage of time the COMS was operating shall be calculated as follows:

$$\left(1 - \frac{\text{hours of COMS downtime during reporting period}^*}{\text{hours the source operated during reporting period}}\right) \times 100$$

\*All time required for calibration and to perform preventative maintenance must be included in COMS downtime.

This shall be reported as percent monitor availability during plant operation. CELP shall maintain a minimum of 95% monitor availability during plant operation on a quarterly basis.

Nothing in this section shall preclude enforcement action for data availability that is less than 100 percent but equal to or greater than 95% if the conditions in Section 5 of this attachment are not satisfied.

- (6) The percentage of time the COMS indicated compliance. This shall be calculated as:

$$\left(1 - \frac{\text{total hours of excess emissions during reporting period}}{\text{total hours of COMS availability during reporting period}}\right) \times 100$$

This shall be reported as percent compliance. CELP shall maintain compliance with the 20% limitation, as demonstrated by the COMS in accordance with Section II.A.14.

- (7) The excess emission reports shall be submitted within 30 days following the end of the reporting period (January-March, April-June, July-September, and October-December).
- c. CELP shall inspect and audit the COMS quarterly, using neutral density filters. CELP shall conduct these audits using the appropriate procedures and forms in the EPA Technical Assistance Document: Performance Audit Procedures for Opacity Monitors (EPA-600/8-87-025, April 1987). The results of these inspections and audits shall be included in the quarterly excess emission report.
- d. CELP shall maintain a file of all measurements from the COMS performance testing measurements; all COMS performance evaluations; all COMS or monitoring device calibration checks and audits; adjustments and maintenance performed on these systems or devices recorded in a permanent form suitable for inspection. The file shall be retained on site for at least 5 years following the date of such measurements and reports. CELP shall supply these records to the Department upon request.

## 2. CEMS - SO<sub>2</sub>

- a. CELP shall install, calibrate, maintain, and operate CEMS to monitor and record the SO<sub>2</sub> concentrations of the gases discharged into the atmosphere from the boiler.
- (1) The span of this system shall be set as required in 40 CFR 60.49Da.
- (2) The CEMS shall conform to all requirements of 40 CFR 60, Subpart Da - Standards of Performance for Electric Utility Steam Generation Units; Appendix B, Performance Specification 2 - Specifications and Test Procedures for SO<sub>2</sub> and NO<sub>x</sub> Continuous Emission Monitoring Systems in Stationary Sources (PS2); and Appendix F, Quality Assurance Procedures.
- (3) The CEMS data will be used to demonstrate compliance with the limitations contained in Section II.A.10 and II.A.11. CELP shall maintain compliance with the limitations, as demonstrated by the CEMS.
- b. CELP shall submit a written report of all excess emissions quarterly. Periods of excess emissions shall be defined as those emissions calculated on an hourly, 3-hour, calendar day, annual, and rolling 30-day basis which are greater than the limitations. The report shall be in the format contained in Attachment 2 and including, as a minimum, the following:
- (1) The magnitude of excess emissions and the date and time of commencement and completion of each time period of excess emissions.

- (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
- (3) The date and time identifying each period during which the CEMS was inoperative except for zero and span checks. The nature of the system repairs or adjustments must also be reported.
- (4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
- (5) The percentage of time the CEMS was operating. This shall be calculated as

$$\left(1 - \frac{\text{hours of CEMS downtime during reporting period}^*}{\text{hours the source operated during reporting period}}\right) \times 100$$

\*All time required for calibration and to perform preventative maintenance must be included in CEMS downtime.

This shall be reported as percent monitor availability during plant operation. CELP shall maintain a minimum of 95% monitor availability during plant operation on a quarterly basis.

Nothing in this section shall preclude enforcement action for data availability that is less than 100%, but equal to or greater than 95% if the conditions in Section 5 of this attachment are not satisfied.

- (6) The percentage of time the CEMS indicated compliance. This shall be calculated as:

$$\left(1 - \frac{\text{total hours of excess emissions during reporting period}}{\text{total hours of CEMS availability during reporting period}}\right) \times 100$$

This shall be reported as percent compliance. CELP shall maintain compliance with the limitations, as demonstrated by the CEMS.

- (7) The excess emission reports shall be submitted within 30 days following the end of the reporting period (January-March, April-June, July-September, and October-December).

- c. CELP shall inspect and audit the CEMS quarterly to meet the requirement contain in 40 CFR 60 Appendix F. CELP shall conduct these audits using the appropriate procedures. The results of these inspections and audits shall be included in the quarterly excess emission report.
- d. CELP shall maintain a file of all measurements from the CEMS and performance testing measurements; all CEMS performance evaluations; all CEMS or monitoring device calibration checks and audits; adjustments and maintenance performed on these systems or devices recorded in a permanent form suitable for inspection. The file shall be retained on site for at least 5 years following the date of such measurements and reports. CELP shall supply these records to the Department upon request.

3. CEMS - NO<sub>x</sub>

a. CELP shall install, calibrate, maintain, and operate CEMS to monitor and record the NO<sub>x</sub> concentrations of the gases discharged into the atmosphere from the boiler.

- (1) The span of this system shall be set at 1,000 ppm.
- (2) The CEMS shall conform to all requirements of 40 CFR 60, Appendix B, Performance Specification 2 - Specifications and Test Procedures for SO<sub>2</sub> and NO<sub>x</sub> Continuous Emission Monitoring Systems in Stationary Sources (PS2) and Appendix F, Quality Assurance Procedures.
- (3) The CEMS data will be used to demonstrate compliance with the limitations contained in Section II.A.10. CELP shall maintain compliance with the limitations, as demonstrated by the CEMS.

b. CELP shall submit a written report of all excess emissions quarterly. Periods of excess emissions shall be defined as those emissions calculated on an hourly, calendar day, and annual basis which are greater than the limitations. The report shall be in the format contained in Attachment 2 and including, as a minimum, the following:

- (1) The magnitude of excess emissions and the date and time of commencement and completion of each time period of excess emissions.
- (2) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
- (3) The date and time identifying each period during which the CEMS was inoperative except for zero and span checks. The nature of the system repairs or adjustments must also be reported.
- (4) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
- (5) The percentage of time the CEMS was operating. This shall be calculated as

$$\left(1 - \frac{\text{hours of CEMS downtime during reporting period}^*}{\text{hours the source operated during reporting period}}\right) \times 100$$

\* All time required for calibration and to perform preventative maintenance must be included in CEMS downtime.

This shall be reported as percent monitor availability during plant operation. CELP shall maintain a minimum of 95% monitor availability during plant operation on a quarterly basis.

Nothing in this section shall preclude enforcement action for data availability that is less than 100% but equal to or greater than 95% if the conditions in Section 5 of this attachment are not satisfied.

- (6) The percentage of time the CEMS indicated compliance. This shall be calculated as:

$$\left(1 - \frac{\text{total hours of excess emissions during reporting period}}{\text{total hours of CEMS availability during reporting period}}\right) \times 100$$

This shall be reported as percent compliance. CELP shall maintain compliance with the limitations, as demonstrated by the CEMS.

- (7) The excess emission reports shall be submitted within 30 days following the end of the reporting period (January-March, April-June, July-September, and October-December).

- c. CELP shall inspect and audit the CEMS quarterly using Certified Gas Audits or Relative Accuracy Audits (RAA). CELP shall conduct these audits using the appropriate procedures. The results of these inspections and audits shall be included in the quarterly excess emission report.
- d. CELP shall maintain a file of all measurements from the CEMS and performance testing measurements; all CEMS performance evaluations; all CEMS or monitoring device calibration checks and audits; adjustments and maintenance performed on these systems or devices recorded in a permanent form suitable for inspection. The file shall be retained on site for at least 5 years following the date of such measurements and reports. CELP shall supply these records to the Department upon request.

4. CEMS - CO and O<sub>2</sub> or CO<sub>2</sub>

- a. CELP shall install, calibrate, maintain, and operate CEMS to monitor and record CO and O<sub>2</sub> or CO<sub>2</sub> of the gases discharged into the atmosphere from the boiler.
- (1) The CEMS shall conform to all requirements of 40 CFR 60, Subpart Da - Standards of Performance for Electric Utility Steam Generation Units; Appendix B, Performance Specification 3 - Specifications and Test Procedures for O<sub>2</sub> and CO<sub>2</sub> Continuous Emission Monitoring Systems in Stationary Sources (PS3) and Performance Specification 4 - Specifications and Test Procedures for CO Continuous Emission Monitoring Systems in Stationary Sources (PS4); and Appendix F, Quality Assurance Procedures.
- (2) The CEMS shall conform to all requirements of 40 CFR 60.47a.

5. In addition to complying with the minimum quarterly data recovery rates specified in this attachment, CELP shall undertake its best efforts to strive for and achieve the highest average quarterly data recovery rate which is practical. The determination of what is practical and, therefore, acceptable data loss shall be made consistent with Section 6 of this attachment.

6. In regards to quarterly data recovery rate requirements specified in this attachment, the determination of what is practical and, therefore, acceptable data loss shall consider whether:

- a. CELP has properly operated and maintained the continuous emission monitors and associated data acquisition systems, including the performance of preventative maintenance, the maintenance of the spare parts inventory and the conduct of the quality assurance requirements.
- b. CELP has taken immediate and appropriate action to correct a malfunction in the continuous emission monitors and associated data acquisitions systems.

### Attachment 3 (MEMS)

#### MEMS

- a. CELP shall install, calibrate, certify, maintain, and operate an MEMS to monitor and record the rate of mercury emissions discharged into the atmosphere from all mercury emitting generating units (units) as defined in ARM 17.8.740.
  - (1) The MEMS shall be comprised of equipment as required in 40 CFR 75.81(a) and defined in 40 CFR 72.2.
  - (2) The MEMS shall conform to all applicable requirements of 40 CFR Part 75.
  - (3) The MEMS data will be used to demonstrate compliance with the emission limitations contained in Section II.A.22.
- b. CELP shall prepare, maintain and submit a written MEMS Monitoring Plan to the Department.
  - (1) The monitoring plan shall contain sufficient information on the MEMS and the use of data derived from these systems to demonstrate that all the gaseous mercury stack emissions from each unit are monitored and reported.
  - (2) Whenever CELP makes a replacement, modification, or change in a MEMS or alternative monitoring system under 40 CFR 75 subpart E, including a change in the automated data acquisition and handling system (DAHS) or in the flue gas handling system, that affects information reported in the monitoring plan (e.g. a change to a serial number for a component of a monitoring system), then the owner or operator shall update the monitoring plan.
  - (3) If any monitoring plan information requires an update pursuant to Section b.(2), submission of the written monitoring plan update shall be completed prior to or concurrent with the submittal of the quarterly report required in c. below for the quarter in which the update is required.
  - (4) The initial submission of the Monitoring Plan to the Department shall include a copy of a written Quality Assurance/Quality Control (QA/QC) Plan as detailed in 40 CFR 75 Appendix B, Section 1. Subsequently, the QA/QC Plan need only be submitted to the Department when it is substantially revised. Substantial revisions can include items such as changes in QA/QC processes resulting from rule changes, modifications in the frequency or timing of QA/QC procedures, or the addition/deletion of equipment or procedures.
  - (5) The Monitoring Plan shall include, at a minimum, the following information:
    - (a) Facility summary including:
      - (i) A description of each mercury emitting generating unit at the facility.
      - (ii) Maximum and average loads (in megawatts (MW)) with fuels combusted and fuel flow rates at the maximum and average loads for each unit.
      - (iii) A description of each unit's air pollution control equipment and a description of the physical characteristics of each unit's stack.
    - (b) Mercury emission control summary including a description of control strategies, equipment, and design process rates.

- (c) MEMS description, including:
    - (i) Identification and description of each monitoring component in the MEMS including manufacturer and model identifications; monitoring method descriptions; and normal operating scale and units descriptions. Descriptions of stack flow, diluent gas, and moisture monitors (if used) in the system must be described in addition to the mercury monitor or monitors.
    - (ii) A description of the normal operating process for each monitor including a description of all QA/QC checks.
    - (iii) A description of the methods that will be employed to verify and maintain the accuracy and precision of the MEMS calibration equipment.
    - (iv) Identification and description of the DAHS, including major hardware and software components, conversion formulas, constants, factors, averaging processes, and missing data substitution procedures.
    - (v) A description of all initial certification and ongoing recertification tests and frequencies; as well as all accuracy auditing tests and frequencies.
  - (d) The Maximum Potential Concentration (MPC), Maximum Expected Concentration (MEC), span value, and range value as applicable and as defined in 40 CFR 75 Appendix A, 2.1.7.
  - (e) Examples of all data reports required in c. below.
- c. CELP shall submit written, Quarterly Mercury Monitoring Reports. The reports shall be received by the Department within 30 days following the end of each calendar quarter, and shall include, at a minimum, the following:
- (1) Mercury emissions. The reports shall include:
    - (a) The monthly average lb/TBtu mercury emission rate for each month of the quarter;
    - (b) The 12-month rolling average lb/TBtu emission rate for each month of the reporting quarter. The rolling 12-month basis is an average of the last 12 individual calendar monthly averages, with each monthly average calculated at the end of each calendar month; and
    - (c) The total heat input to the boiler (in TBtu) for each 12-month rolling period of the quarter.
  - (2) Mercury excess emissions. The report shall describe the magnitude of excess mercury emissions experienced during the quarter, including:
    - (a) The date and time of commencement and completion of each period of excess emissions. Periods of excess emissions shall be defined as those emissions calculated on a rolling 12-month basis which are greater than the limitation established in II.A.22.
    - (b) The nature and cause of each period of excess emissions and the corrective action taken or preventative measures adopted in response.

(c) If no periods of excess mercury emissions were experienced during the quarter, the report shall state that information.

(3) MEMS performance. The report shall describe:

(a) The number of operating hours that the MEMS was unavailable or not operating within quality assurance limits (monitor downtime) during the reporting quarter, broken down by the following categories:

- Monitor equipment malfunctions;
- Non-Monitor equipment malfunctions;
- Quality assurance calibration;
- Other known causes; and
- Unknown causes.

(b) The percentage of unit operating time that the MEMS was unavailable or not operating within quality assurance limits (monitor downtime) during the reporting quarter. The percentage of monitor downtime in each calendar quarter shall be calculated according to the following formula:

$$MEMSDowntime\% = \left( \frac{MEMSDownHours}{OpHours} \right) \times 100 \quad \text{where}$$

MEMSDowntime% = Percentage of unit operating hours classified as MEMS monitor downtime during the reporting quarter.

MEMSDownHours = Total number of hours of MEMS monitor downtime during the reporting quarter.

OpHours = Total number of hours the unit operated during the reporting quarter.

(c) For any reporting quarter in which monitor downtime exceeds 10%, a description of each time period during which the MEMS was inoperative or operating in a manner defined in 40 CFR Part 75 as “out of control.” Each description must include the date, start and end times, total downtime (in hours), the reason for the system downtime, and any necessary corrective actions that were taken. In addition, the report shall describe the values used for any periods when missing data substitution was necessary as detailed in 40 CFR 75.30, *et seq.*

(4) The quarterly report shall include the results of any QA/QC audits, checks, or tests conducted to satisfy the requirements of 40 CFR Part 75 Appendices A, B or K.

(5) Compliance certification. Each quarterly report shall contain a certification statement signed by the facility’s responsible official based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit’s emissions are correctly and fully monitored. The certification shall indicate:

- (a) Whether the monitoring data submitted were recorded in accordance with the applicable requirements of 40 CFR Part 75 including the QA/QC procedures and specifications of that part and its appendices, and any such requirements, procedures and specifications of an applicable excepted or approved alternative monitoring method as represented in the approved Monitoring Plan.
  - (b) That for all hours where data are substituted in accordance with 40 CFR 75.38, the add-on mercury emission controls were operating within the range of parameters listed in the quality-assurance plan for the unit, and that the substitute values do not systematically underestimate mercury emissions.
  - (6) The format of each component of the quarterly report may be negotiated with the Department's representative to accommodate the capabilities and formats of the facility's DAHS.
  - (7) Each quarterly report must be received by the Department within 30 days following the end of each calendar reporting period (January-March, April-June, July-September, and October-December).
  - (8) The electronic data reporting detailed in 40 CFR Part 75 shall not be required unless Montana is able to receive and process data in an electronic format.
- d. CELP shall maintain a file of all measurements and performance testing results from the MEMS; all MEMS performance evaluations; all MEMS or monitoring device calibration checks and audits; and records of all adjustments and maintenance performed on these systems or devices recorded in a permanent form suitable for inspection. The file shall be retained on site for at least 5 years following the date of such measurements and reports. CELP shall make these records available for inspection by the Department and shall supply these records to the Department upon request.

Permit Analysis  
Colstrip Energy Limited Partnership  
Montana Air Quality Permit (MAQP) #2035-05

I. Introduction/Process Description

Colstrip Energy Limited Partnership (CELP) owns and operates a coal fired power generation facility. The facility is located approximately six miles north of Colstrip, Montana. The plant site is located on North 1/2, Section 32, Township 3 North, Range 41 East in Rosebud County, Montana.

A. Permitted Equipment

The general facilities for the coal fired power generator are listed below:

1. Coal truck dump, hoppers, and crushers with associated baghouse particulate control.
2. Coal conveyors and storage silos.
3. Steam turbine (1).
4. Circulation fluidized bed (CFB) boiler (1).
5. Air Cool Condenser (ACC) unit.
6. Ash disposal consisting of silo and landfill operations.
7. Two hundred foot stack on the CFB Boiler.
8. Limestone handling facilities.
9. Sorbent Handling System.

B. Source Description

The electric generating facility was designed to burn low-British thermal unit (BTU) waste coal. The facility uses a CFB boiler with a design steam flow of approximately 355,000 pounds per hour (lbs/hr) at 1300 pound-force per square inch gauge (PSIG) and 955 degrees Fahrenheit (°F). Limestone is injected into the fluidized bed to control sulfur dioxide emissions.

Coal is delivered to the facility by trucks and trailers and crushed at the facility. Limestone is delivered to the facility in trucks and trailers, but does not require crushing or screening. Ash from the boiler is discharged as either bed ash or fly ash. Both types of ash are collected in separate systems and conveyed to a common silo. The ash is transported to an on-site disposal area.

C. Permit History

The original **MAQP #2035-00** was issued to AEM Corporation for the construction and operation of a coal-fired power generation facility and a coal liquefaction-cogeneration facility from the Montana Department of Health and Environmental Sciences, Air Quality Bureau (predecessor to the Montana Department of Environmental Quality (Department)) on September 10, 1985. The application was received on April 26, 1985, and deemed complete on June 25, 1985.

The coal-fired power generation facility was identified as a major stationary source as defined in the Administrative Rules of Montana (ARM) 16.8.921(22)(a). Therefore, a Prevention of Significant Deterioration (PSD) review was conducted for the permit application.

Coal for the facility comes from the nearby Western Energy mine or other nearby mines. The coal used is called culm, which is a refuse coal whose uses are somewhat limited. AEM planned to utilize 364,000 ton per year (TPY) of refuse coal, 220,752 TPY of PDF (char), 359,400 barrels (Bbl) of oil, 390,000,000 cubic feet per year (ft<sup>3</sup>/yr) of noncondensable gases, 59,568 TPY of water, and use 11,000 TPY of dolomite lime as supplemental boiler sulfur dioxide (SO<sub>2</sub>) control to produce 30.65 megawatts (MW) of power.

The first change to the permit was given **MAQP #2035-A** and was issued on December 22, 1987. This permit was issued to Montana One Partners of LaJolla, California who took over ownership from AEM Corporation. The change requested was to allow the company to construct only the power generation portion of the process and to produce 39 gross megawatts (GMW).

The Montana One Partners changed the project description. Montana One Partners planned to utilize 306,600 TPY of refuse coal to produce 39 GMW of electrical power. A circulating fluidized bed combustion boiler with a heat rating of 485 million BTU's per hour is used in conjunction with a limestone injection for SO<sub>2</sub> emission control. Approximately 27,000 TPY of limestone is used. Only one steam turbine was planned for the project under this application. A baghouse was installed to control particulate emissions. All other equipment involved with the project (e.g., coal handling, crushing and conveying) remained the same as originally proposed in Permit #2035. The emissions from the handling and crushing are controlled by a baghouse.

**MAQP #2035-02** issued on April 15, 1994, was requested by CELP who was the current owner of the facility. The name on the permit was changed from Montana One Partners to Colstrip Energy Limited Partners. The ownership transfer occurred on June 10, 1988.

The purpose of the revision was to include limitations in the permit to protect the PSD increment for the 3-hour SO<sub>2</sub> standard and the Montana ambient air quality 1-hour standard for nitrogen oxide (NO<sub>x</sub>). The emission limitations were included in Section II.F. and G. These changes did not change the annual allowable emissions from the plant or the daily SO<sub>2</sub> and NO<sub>x</sub> limitations. The limitations were added to the rolling 30-day averages required under 40 CFR 60, Subpart Da. Modeling was done to determine the amount of increment consumed as a result of these changes to the emission limitations. These changes resulted in changes in the reporting requirements and compliance demonstrations.

The emission limitation in Section II.F. were developed based on the Department's review of information supplied by CELP. CELP proposed SO<sub>2</sub> limits of 450 pounds per hour (lbs/hour) on a three-hour average and 590 lbs/hour on a one hour average and a NO<sub>x</sub> limit of 500 lbs/hour on a one-hour average. The Department determined that the appropriate SO<sub>2</sub> limits should be 432 lbs/hour on a three-hour average and 574 lbs/hour on a one-hour average. These limits were arrived at based on the data submitted by CELP with the elimination of the data for June 12, 1992, based on concerns about the representativeness of the data. After review of the CEMS data submitted, the Department and CELP determined the NO<sub>x</sub> limit should be 328 lbs/hour, which was the number modeled in the original application.

The Department also made several other changes to the permit. The CEMS installation, operation, and reporting requirements have been clarified. All references to the coal liquefaction-cogeneration facility were removed since the facility was not constructed.

After the preliminary determination (PD) of MAQP #2035-02 was issued, CELP provided comments on the PD dated February 15, 1994. As a result of these comments, the Department made a number of changes. The changes were completed as requested by CELP, except that the Department did not change the continuous emission monitor availability requirement. The continuous emission monitor availability remained at 95%. The Department also included a condition in the permit which required the Department to notify CELP when a change is made to the Cooperative Enforcement Agreement between Montana and EPA Region VIII concerning the enforcement guidelines for continuous emission monitors. The Department did not change the general condition Section IV.H or the wording in Section II. R. For clarity, however, the issuance of MAQP #2035-02 did not authorize any new construction at the facility.

CELP proposed in MAQP Application #2035-03 the removal of the plant-wide emission limits in Section II.F of MAQP #2035-02 and the establishment of emission limits for point sources at the facility. The permit application did not seek any physical or operational changes to any process equipment at the facility. CELP also proposed removing from the permit the reference in Section II.S to the Hydrometrics letter, eliminating the ambient monitoring required in the permit, and clarifying language in Section II.J regarding sulfur content of waste coal.

CELP presented **MAQP Application #2035-03** as a major modification of this major stationary source. A major modification means any physical change in, or change in the method of operations of, a major stationary source. The permit application does not propose any physical or operational changes at the facility; however, MAQP #2035-03 required a PSD review because the proposed particulate matter 10 microgram or less (PM<sub>10</sub>) emission limits should have been addressed in PSD Permit Application #2035. Establishing PM<sub>10</sub> emission limits on a point source basis results in an allowable emissions increase of 17.94 TPY of PM<sub>10</sub>. This is a significant emissions increase under PSD. The Department does not anticipate that actual emissions from the facility will change, since there will be no operational changes occurring.

MAQP #2035-03 establishes emission limits for point sources at the facility and eliminates the total plant emission limits. Total plant emission limits for SO<sub>2</sub>, NO<sub>x</sub>, and carbon monoxide (CO) in Section II.F of MAQP #2035-02 have been placed on the CFB boiler only. The CFB boiler is the only significant source of SO<sub>2</sub>, NO<sub>x</sub>, and CO at the facility. The opacity limitation has been placed in a condition and is applicable to all equipment at the facility. PM<sub>10</sub> emission limitations were established on the CFB boiler. PM-10 emission limitations were also established for all equipment, transfer points, and storage facilities currently controlled by a baghouse. The PM<sub>10</sub> emission limitation in the form of a grains per dry standard cubic foot (gr/dscf) limitations for these facilities was based on manufacturer's data submitted by CELP in the permit application.

Section II.S for MAQP #2035-02 required that CELP handle ash disposed on site in accordance with the provisions specified in the Hydrometrics letter of April 24, 1985. The Hydrometrics letter contained provisions that moisture be added to the ash to prevent blowing and the disposal site be operated in a cut and fill operation. The letter also outlines in detail the soil handling and revegetation operations.

The Department's concern with the ash disposal area is that compliance be maintained with applicable requirements during operation of the disposal area and when the disposal area is inactive for any extended period of time. Therefore, MAQP #2035-03 requires that water spray be used when ash is being deposited to control fugitive emissions. The permit also includes a provision requiring mitigative measures, including revegetation for the disposal area during inactive periods. This condition is intended to apply during extended inactive periods or closure.

Attachment 1 in MAQP #2035-02 required CELP to monitor PM<sub>10</sub>, SO<sub>2</sub>, and ambient wind speed and direction. The current ambient monitoring site is located on the northwestern edge of the facility. The primary wind directions at the facility are from the southwest, west, and northwest. The Department believes the ambient monitoring site does not monitor a representative portion of the emissions from the facility. In order for the ambient monitors to be exposed to the average annual emissions from the facility, the monitoring site should be situated downwind of the power plant and ash disposal area. This would require that the monitoring site, in general, be located to the north of the CFB boiler stack and east to northeast of the ash disposal area.

Consequently, the Department has determined that completely eliminating the ambient monitoring network now operated by CELP would be inappropriate. The Department has determined that the ambient monitoring site should be moved to the east of the facility at a location to be determined by the Department. MAQP #2035-03 requires that CELP monitor PM-10; however, ambient SO<sub>2</sub> monitoring at the facility will not be required. The Department is able to monitor the SO<sub>2</sub> emitted from the CFB boiler; if CELP demonstrates compliance with their SO<sub>2</sub> emission limits, SO<sub>2</sub> ambient standards should not be violated.

Section II.J of MAQP #2035-02 required that the sulfur content of waste coal not exceed 3% as received. The Department removed this condition from MAQP #2035-03 because the Department has conditions and limitations which protect NAAQS for SO<sub>2</sub>.

MAQP #2035-03 replaced MAQP #2035-02.

The Department received written comments on the PD of MAQP #2035-03 from the Northern Cheyenne Tribe and CELP. As a result of these comments the Department made several changes requested by CELP. CELP requested that the Department reword all operations referred to as "coal" to "coal/waste coal." The Department responded that coal is a broad enough term to include all varieties of coal CELP is permitted to use at the facility. However, in a meeting on March 4, 1998, CELP explained they were concerned that it could be construed that CELP's operations referred to as coal where not permitted to process coal refuse. The Department stated that the facility is permitted in Section II.A.15 to burn coal refuse. The Department agreed to state in the permit analysis that the facility is permitted to process coal refuse at the facility. The equipment referred to as coal including the truck dump, hoppers, crushers, conveyors, and storage silos and all associated control equipment are permitted to process coal refuse. The meaning of the terms coal and coal refuse for MAQP #2035-03 are defined in 40 CFR 60, Subpart Da.

The Department also agreed in the March 4, 1998, meeting to clarify language in Attachment 1 that discusses where the new ambient monitoring site will be located. The Department stated in the meeting that the intention is for the new location to be downwind of the power plant and the ash disposal area. This would require that the monitor be in a location generally north of the CFB boiler stack and east to northeast of the current ash disposal area.

The Department also agreed to correct typographic errors in the daily SO<sub>2</sub> limit and 1-hour NO<sub>x</sub> limit in Section II.A.10 that had been made from MAQP #2035-02 to 2035-03. The Department lengthened the time from 90 to 180 days required for CELP to increase the stack heights specified in Section II.A.21. The Department changed the word "facility" in Sections II.B.1 and 2 to "CFB boiler stack." In Attachment 1 the language in the first sentence of paragraph 3 was changed from requiring CELP to start air monitoring at the new location within 90 days after MAQP #2035-03 is final to requiring CELP to begin air monitoring at the new location within 90 days after the Department has approved a location.

Several other changes were requested by CELP and were not made to the PD. One of the requested changes was to eliminate Section III.H which refers to commencement of construction; the facility did not believe it applied to this permit. MAQP #2035-03 does not authorize any new construction at the facility besides the increase of the stack heights for the coal dump baghouse, coal crushing baghouse, and the fly ash and bed ash storage baghouse/cartridge.

On April 15, 2008, the Department received a request to remove the ambient air quality monitoring requirements from MAQP #2035-03. This permit action removed those requirements as well as updated the permit to reflect current permit format, language, and rule references. **MAQP #2035-04** replaced MAQP #2035-03.

#### D. Current Permit Action

On December 30, 2008, the Department received an application from CELP to modify MAQP #2035-04. This requested modification is to establish a mercury emission limit of 0.9 pounds per trillion British thermal units (lb/TBtu) for the Rosebud Power Plant, pursuant to ARM 17.8.771, and to provide an analysis of potential mercury control options. These control options include, but are not limited to, boiler technology, mercury emission control technology, and any other mercury control practices. On January 30, 2009, the Department requested additional information to support CELP's proposed mercury emission control strategy. This information was submitted to the Department on March 31, 2009 and includes additional control technology testing results conducted at the Rosebud Power Plant. Based on mercury sampling conducted at the facility, current mercury emissions are estimated to range from approximately 11.4 lb/TBtu to 20.2 lb/TBtu. Therefore, in order to meet the mercury emission limit specified in ARM 17.8.771, a reduction in mercury emissions of approximately 92% to 96% is estimated to be required for this facility. MAQP #2035-05 establishes a mercury emission limit and associated operating requirements for the Rosebud Power Plant in order to comply with ARM 17.8.771. **MAQP #2035-05** replaces MAQP #2035-04.

#### E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

### II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARM and are available, upon request, from the Department. Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

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

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

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

1. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.213 Ambient Air Quality Standards for Ozone
5. ARM 17.8.214 Ambient Air Quality Standards for Hydrogen Sulfide
6. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
7. ARM 17.8.221 Ambient Air Quality Standard for Visibility
8. ARM 17.8.222 Ambient Air Quality Standard for Lead
9. ARM 17.8.223 Ambient Air Quality Standard for PM<sub>10</sub>

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

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

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, CELP shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per million Btu fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.
7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). CELP is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.

- a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
- b. 40 CFR 60, Subpart Da – Standard of Performance for Electric Utility Steam Generation Units. This subpart applies to each electric utility steam generating unit that is capable of combusting more than 73 MW (250 million British thermal units per hour (MMBtu/hr)) heat input of fossil fuel (either alone or in combination with any other fuel) and for which construction, modification, or reconstruction is commenced after September 18, 1978.

The NO<sub>x</sub> emission limitations and monitoring requirements contained in Subpart Da do not apply to CELP since the facility burns more than 25%, by weight, refuse coal (40 CFR 60.44Da(a)(1)).

- c. 40 CFR 60, Subpart Y - Standards of Performance for Coal Preparation Plants. This subpart applies to any of the following affected facilities in coal preparation plants which process more than 181 Mg (200 tons) per day: Thermal dryers, pneumatic coal-cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), coal storage systems, and coal transfer and loading systems that commences construction or modification after October 24, 1974.

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

1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.402 Requirements. CELP must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP).

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

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

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

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

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

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 TPY of any pollutant. CELP has a PTE greater than 25 TPY of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, and VOC; therefore, an air quality permit is required. For this permitting action, CELP was required to submit an MAQP Application pursuant to ARM 17.8.771.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. CELP submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. CELP submitted an affidavit of publication of public notice for the December 26, 2008, issue of *The Billings Gazette*, a newspaper of general circulation in the City of Billings in Yellowstone County, as proof of compliance with the public notice requirements.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
  9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving CELP of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
  10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
  11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
  12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
  13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
  14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.
  15. ARM 17.8.771 Mercury Emission Standards for Mercury-Emitting Generating Units. This rule identifies mercury emission limitation requirements, mercury control strategy requirements, and application requirements for mercury-emitting generating units.
- G. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:
1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
  2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a listed source, but emissions are greater than or equal to 250 tons per year; therefore, the facility is major. This modification will not cause a net emission increase greater than significant levels and, therefore, does not require a New Source Review analysis. An increase in PM/PM<sub>10</sub> emissions will result from operation of the sorbent handling system (PAC storage silo). The net emission change resulting from this handling system is estimated to be 0.45 tons/year of PM/PM<sub>10</sub>.

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

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:
  - a. PTE > 100 TPY of any pollutant;
  - b. PTE > 10 TPY of any one hazardous air pollutant (HAP), PTE > 25 TPY of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
  - c. PTE > 70 TPY of PM<sub>10</sub> in a serious PM<sub>10</sub> nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #2035-05 for CELP, the following conclusions were made:
  - a. The facility's PTE is greater than 100 TPY for any pollutant.
  - b. The facility's PTE is less than 10 TPY for any one HAP and less than 25 TPY for all HAPs.
  - c. This source is not located in a serious PM<sub>10</sub> nonattainment area.
  - d. This facility is subject to NSPS under 40 CFR 60, Subparts Da and Y.
  - e. This facility is not subject to any current NESHAP standards.
  - f. This source is not a Title IV affected source, or a solid waste combustion unit.
  - g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that CELP is a major source of emissions as defined under Title V. The proposed change constitutes a significant modification to CELP's Title V operating permit. As such, CELP's Title V operating permit will be modified to reflect the conditions associated with this permit action.

### III. BACT Determination

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

A BACT analysis was not required for the current permit action because CELP is not proposing to install or operate a new or modified emitting unit.

#### IV. Mercury Control Technology Analysis

Pursuant to ARM 17.8.771, a mercury control technology analysis was submitted by CELP in the application for MAQP #2035-05, addressing available methods of controlling mercury emissions from the CFB boiler. Mercury control options include, but were not limited to, boiler technology, mercury emission control technology, and any other mercury control practices. This analysis also included CELP's proposed mercury emission control strategy projected to achieve compliance with the 0.9 lb/TBtu emission limit established in this permit. A summary of CELP's analysis is provided below:

##### A. Boiler Technology

CELP's Rosebud Power Plant operates a CFB boiler with limestone injection for SO<sub>2</sub> control and a fabric filter baghouse for particulate control. These technologies were specifically designed for the combustion of waste coal. This facility is required by MAQP #2035-04 to use at least 25% waste coal. In addition, the Federal Energy Regulatory Commission requires this facility to combust waste coal due to the plant's designation as a Qualifying Facility.

In order to combust waste coal, the boiler must be designed to permit this fuel type. Traditional boilers (pulverized coal, etc.) do not lend themselves to this fuel type. In fact, the fuel combusted by CELP is, for the most part, coal that cannot be combusted at the nearby PP&L facilities.

Analysis of data from EPA's Information Collection Request (ICR) from 1999-2001 indicates that the choice of a CFB is, in fact, among the lowest mercury emitting designs available. Although the relationship between boiler technologies and emissions is not necessarily a linear one, the ICR Phase II data, limited to only 6 stations, shows that the CFB boilers are generally lower than other boilers, with removal efficiencies ranging from 48% to 99%. Given that no other boiler design is necessarily superior to the CFB, it is reasonable to conclude that it would not be cost-effective to consider an alternative boiler technology.

##### B. Mercury Emission Control Technology and Practices

Mercury emission control technologies typically begin with methods to alter the mercury state and then collect the resulting material. These technologies promote a reaction in which the mercury is changed in form to particulate and then collected via a particulate collection system (e.g. baghouse) or other related collection system (e.g. SO<sub>2</sub> scrubber). These control technologies are primarily designed to react with elemental mercury (Hg<sup>0</sup>) and to partition to particulate form mercury (Hg<sub>p</sub>) or to oxidized form mercury (Hg<sup>+2</sup>). There are several methods that may enhance the transformation of Hg<sup>0</sup> to Hg<sub>p</sub> or Hg<sup>+2</sup>, which include:

- Boiler chemical additives
- Sorbent injection
- Co-benefits of pollution controls
- Fuel blends

##### **Boiler Chemical Additives**

Boiler chemical additives are compounds that are added to the coal fuel prior to entering the boiler. These additives promote oxidation of Hg<sup>0</sup> to Hg<sup>+2</sup> and are generally added to coals with lower chlorine concentrations, such as subbituminous coal. These additives typically include halogen compounds such as chlorine or bromide for their chemical reactivity with mercury.

### Sorbent Injection

Sorbent injection requires powered activated carbon (PAC) to be added to the post combustion gas stream before the particulate air pollution controls. The PAC has a large surface area to react with the mercury in the exhaust gas.

### Co-benefit Controls

There are potential co-benefits from combining multiple control technologies for separate pollutants. Examples include a selective catalytic reduction system which can increase mercury oxidation and a wet flue gas desulfurization unit which can collect Hg<sup>+2</sup>. Another example is a CFB boiler with limestone injection and a fabric filter baghouse which has a relatively long exhaust gas retention time, combined with very high particulate control.

### Fuel Blends

Fuel blends are a method to change the chemical composition within the boiler system by mixing coals with different chemical properties. This method is an option if the boiler system has been designed to combust the blended fuels.

## C. Mercury Control Option Selection

CELP conducted mercury control system testing at the Rosebud Power Plant over an 11-day period from February 25, 2009, to March 7, 2009. The results of this testing indicate that the following control systems will be effective in reducing mercury from CELP's CFB boiler:

- Continued operation of the CFB boiler with limestone injection for SO<sub>2</sub> control and a fabric filter baghouse for particulate control;
- Addition of calcium bromide solution to the coal prior to injection in the CFB boiler. This solution will be added to the coal feed using a series of spray nozzles.
- Injection of PAC in the flue gas stream between the air heater and the baghouse.
- Installation of a mercury monitor (40 CFR Part 75, Appendix K, sorbent trap system) which will be used to track compliance with the mercury emission limit of 0.9 lb/TBtu.

This combination of pre and post combustion additives, coupled with the existing air pollution controls is anticipated to achieve the required reduction in mercury emissions. The results of the testing, summarized in the table below, indicate that emissions reductions ranging from 85% to 95% are feasible using calcium bromide and powder activated carbon.

**Mercury Testing Results Summary**

Testing Series	Test Date	Reagent*	Preliminary Mercury Reduction Results
Test Series #1	2/27/09 – 2/28/09	Activated Carbon Compound #1	62% - 91%
Test Series #2	3/1/09	Activated Carbon Compound #2	84% - 98%
Test Series #3	3/1/09 – 3/2/09	Calcium Bromide	33% - 71%
Test Series #4	3/2/09 – 3/3/09	Activated Carbon Compound #1 and Calcium Bromide	95% - 99%
Test Series #5	3/4/09	Activated Carbon Compound #3	94% - 99%
Test Series #6	3/5/09	Activated Carbon Compound #4	93% - 100%
Test Series #7	3/6/09	Activated Carbon Compound #5	99%
Test Series #8	3/6/09 – 3/7/09	Activated Carbon Compound #1 and Calcium Bromide	94% - 98%

\* Various brands of activated carbon were used. Some reagents were pure activated carbon, while others contained the manufacturer's own proprietary reagent. The results indicate that each of the activated carbon reagents tested was able to achieve 90+% reduction without the use of calcium bromide. The addition of calcium bromide improved the results.

As a result of this testing, CELP is pursuing the purchase of mercury emission control system consisting of a calcium bromide solution application system and PAC handling and storage equipment. The calcium bromide solution system is a wet system and has negligible, if any, air emissions potential. The calcium bromide solution is anticipated to be delivered pre-mixed in 200 gallon carboys. The PAC will be delivered by truck and pneumatically conveyed to a new 40-ton storage silo. Air displaced by the filling of the silo will be controlled by a bin vent or similar fabric filter devices. All other PAC transfers will be enclosed with no predicted material handling emissions.

#### V. Emission Inventory

Maximum Waste Coal Consumption:	364,000 tons/year	(company information)
Waste Coal Heat Content:	7,920 Btu/lb coal	(company information)
Hg Emission Rate:	0.9 lb/TBtu	(permit limit)

#### *Mercury Emissions*

$(364,000 \text{ tons coal/year}) * (2,000 \text{ lbs/ton}) (7,920 \text{ Btu/lb coal}) * (1 \text{ Tbtu}/10^{12} \text{ Btu}) * (0.9 \text{ lb Hg/TBtu})$   
 $= 5.19 \text{ lbs Hg/year}$

#### VI. Existing Air Quality

CELP is located in the North ½ Section 32, Township 3 North, Range 41 East in Rosebud County, Montana. The air quality of this area is classified as better than National Standards or unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for criteria pollutants.

#### VII. Ambient Air Impact Analysis

The Department determined that the impacts from this permitting action will be minor because CELP is installing pollution control equipment and the emissions increases related to the use of the control equipment are minor and below de minimis thresholds. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

### VIII. Taking or Damaging Implication Analysis

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

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

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

### IX. Environmental Assessment

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

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

**FINAL ENVIRONMENTAL ASSESSMENT (EA)**

*Issued To:* Colstrip Energy Limited Partnership  
Rosebud Power Plant  
1087 West River Street, Suite 200  
Boise, ID 83702

*Air Quality Permit Number:* 2035-05

*Preliminary Determination Issued:* April 30, 2009

*Department Decision Issued:* June 9, 2009

*Permit Final:* June 25, 2009

1. *Legal Description of Site:* North 1/2, Section 32, Township 3 North, Range 41 East in Rosebud County, Montana
2. *Description of Project:* CELP is proposing to install and operate mercury emission controls in conjunction with an MEMS.
3. *Objectives of Project:* This project would reduce current mercury emission levels to a maximum of 0.9 lb/TBtu, calculated as a rolling 12-month average, and would fulfill requirements of ARM 17.8.771 with respect to applying for a permit to include the applicable mercury emission standard and control strategy requirements.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. The “no-action” alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because CELP demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the “no-action” alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a mercury control technology analysis, would be included in MAQP #2035-05.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

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

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

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

**A. Terrestrial and Aquatic Life and Habitats**

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

**B. Water Quality, Quantity and Distribution**

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

Sorbents and coal combustion byproducts (CCB) used in, or resulting from, mercury control have been extensively studied and found to be stable from the standpoint of leachability of captured mercury and other metals. The Department reviewed current literature on the subject of mercury leaching from CCBs. The literature is in substantial agreement on the point that mercury captured with activated carbon does not leach readily from fly ash. A number of leaching methods were used in the reviewed analyses, including Toxic Chemical Leaching Procedure(TCLP), a Synthetic Groundwater Leaching Procedure (SGLP), 30-day and 60-day long-term leaching tests, and adaptations of TCLP at lower (2.0) and higher (7.0) pH values. In many cases the dissolved mercury in the leachate was below detection limits, and in all cases was below Federal Maximum Contaminant Level for mercury in drinking water. The Department determined that the use of activated carbon for mercury control would not present a source of groundwater pollution.

#### C. Geology and Soil Quality, Stability and Moisture

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

#### D. Vegetation Cover, Quantity, and Quality

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

#### E. Aesthetics

Minor impacts to the aesthetic nature of the area would result from the proposed CELP permit action because all proposed activities would take place within the defined CELP property boundary, an existing industrial site. Any changes in operational practices to minimize mercury emissions may be visible from locations around the CELP site. However, the CELP site is a previously disturbed industrial location; any aesthetic impacts would be minor and consistent with current industrial land use of the area.

Overall, any impacts to the aesthetic nature of the project area from CELP's proposed permit action, including construction activities and normal operations resulting in air emissions and deposition of air emissions would be minor.

#### F. Air Quality

The air quality impacts from the current permit action would be minor because MAQP #2035-05 would include conditions limiting emissions of air pollutants from the source, specifically by establishing a mercury emissions limit and requiring specific mercury emission control technologies be implemented.

The Department reviewed current literature on the possible loss of mercury to the atmosphere from CCBs, either as mercury vapor, or biologically-mediated dimethylmercury. Microbial methylation generally requires a good supply of organic matter and an approximately neutral pH level. Ash is generally very poor in organic matter and, in Montana, the ash is alkaline. Research on mercury methylation has indicated that the total mercury volatilization rate tends to be extremely small. The Department determined that it is very unlikely that any measurable amount of mercury could be released to the atmosphere from ash ponds.

Overall, any impacts to the air quality of the project area from CELP's proposed permit action, including construction activities, normal operations resulting in air emissions, and deposition of air emissions would be minor and in compliance with all applicable state and federal ambient air quality standards.

#### G. Unique Endangered, Fragile, or Limited Environmental Resources

The Department contacted the Montana Natural Heritage Program (MNHP) in an effort to identify any species of special concern associated with the proposed project location. Search results concluded there is one species of concern in the area. Area, in this case, is defined by the township and range of the proposed project location, with an additional one-mile buffer. The species of concern identified by the MNHP is the common sagebrush lizard.

The CELP site is currently used for industrial purposes. Any changes in operation associated with minimizing mercury emissions would take place within the existing plant site. Because industrial operations have been ongoing within the existing CELP property boundary and potential permitted emissions from CELP show compliance with all applicable air quality standards, it is unlikely that the species of special concern would be affected by the proposed project. Overall, any impacts to any unique endangered, fragile, or limited environmental resources would be minor.

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

Demands on environmental resources of water, air, and energy would be minor. As previously discussed, the proposed permit action would establish a limit for allowable air emissions of mercury and mercury control practices. Therefore, any impacts to air resources in the area would be minor and would be in compliance with applicable standards.

This permit action does not include any increase in the demand for water. Therefore, any impacts to the demand for water resources in the affected area associated with CELP operations would be minor.

This permit action would not change, in general, the overall amount of power used or produced. Overall, any impacts to the demands on the environmental resources of water, air, and energy from CELP's proposed permit action would be minor.

#### I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites near the proposed project area, the Department contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to SHPO, there have been no previously recorded sites within the designated search locales. SHPO indicated as long as there would be no disturbances or alterations to structures over 50 years of age, there would be a low likelihood cultural properties would be impacted and did not feel a recommendation for a cultural resource inventory was warranted at this time.

The Department determined that due to the previous industrial disturbance in the area (the area is an active industrial site) and the small amount of land disturbance that may be required for the proposed permit action, it is unlikely that any undisturbed existing historical or cultural resource exists in the area and if these resources did exist, any impacts would be minor due to previous industrial disturbance in the area.

#### J. Cumulative and Secondary Impacts

Overall, any cumulative and secondary impacts from the proposed permit modification on the physical and biological resources of the human environment in the immediate area would be minor due to the fact that the predominant use of the surrounding area would not change as a result of the proposed project. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #2035-05.

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

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

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

**A. Social Structures and Mores**

The proposed project would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area because the project would be constructed at a previously disturbed, industrial site. The proposed project would not change the nature of the site.

**B. Cultural Uniqueness and Diversity**

The proposed project would not cause a change in the cultural uniqueness and diversity of the area because the land is currently used for electrical generation using waste coal; therefore, the land use would not be changing.

**C. Local and State Tax Base and Tax Revenue**

The plant’s overall capacity would not change as a result of the proposed project. In addition, no new employees would be needed for this project. Therefore, no impacts to the local and state tax base and tax revenue are anticipated from this project.

**D. Agricultural or Industrial Production**

The current permit action would not displace or otherwise affect any agricultural land or practices since CELP operates on an existing industrial site.

**E. Human Health**

There would be minor potential effects on human health due to limiting mercury air emissions from the operation of the boiler. In addition, MAQP #2035-05 would include conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health. Overall, the Department determined that any impact to public health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed permit action and overall CELP operations would not affect access to any recreational or wilderness activities in the area. CELP would continue to be located at its existing industrial site. This project would not result in any changes in access to and quality of recreational and wilderness activities.

G. Quantity and Distribution of Employment

No change in the number of employees currently onsite is anticipated as a result of this project. Therefore, this project would not have impacts to the quantity and distribution of employment in the area.

H. Distribution of Population

This project does not involve any significant physical or operational change that would affect the location, distribution, density, or growth rate of the human population. The distribution of population would not change as a result of this project.

I. Demands for Government Services

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

J. Industrial and Commercial Activity

The current permit action would change various aspects of the previous CELP operations, specifically related to minimizing mercury emissions associated with the operation of the boiler, but would not result in an overall change in facility purpose; therefore, the proposed permit modification would not impact any industrial or commercial activity in the area.

K. Locally Adopted Environmental Plans and Goals

The current permit action would not contribute to the nonattainment status of any surrounding area. The Department is unaware of any other locally adopted environmental plans or goals. The state air quality standards would protect air quality at the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from the proposed permit modification on the economic and social resources of the human environment in the immediate area would be minor due to the fact that the predominant use of the surrounding area would not change as a result of the proposed project. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #2035-05.

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

*If an EIS is not required, explain why the EA is an appropriate level of analysis:* The current permitting action establishes a mercury emission limit and associated operating requirements for the boiler in order to comply with ARM 17.8.771. MAQP #2035-05 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

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

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

*EA prepared by:* Moriah Thunstrom

*Date:* April 15, 2009