AIR QUALITY PERMIT

Issued To:	Bitter Creek Pipelines, LLC Holmes 28 Battery P.O. Box 131 Glendive, MT 59330	Permit: #3337-02 Administrative Amendment (AA) Received: 12/05/05 Department Decision on AA: 12/23/05 Permit Final: 1/10/06 AFS: #003-0027

An air quality permit, with conditions, is hereby granted to Bitter Creek Pipelines, LLC (BCPL), 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

The facility is located approximately seven miles northeast of Decker, Montana, in the NW¼ of Section 28, Township 9 South, Range 41 East, in Big Horn County, Montana.

B. Current Permit Action

On December 5, 2005, the Department of Environmental Quality- Air Resources Management Bureau (Department) received a request to change the name of the compression facility on Permit #3337-01 from Rancholme 28 Battery to Holmes 28 Battery. The current permit action changes the name on Permit #3337-01 and updates the permit to reflect the current permit language and rule references used by the Department. Permit #3337-02 replaces Permit #3337-01.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. BCPL shall not operate more than four compressor engines at any one time at the Holmes 28 Battery (ARM 17.8.749).

2. The maximum rated design capacity of the Holmes 28 Battery shall not exceed 1,720 horsepower (hp) and the maximum rated design capacity of each individual compressor engine shall not exceed 860 hp. The Holmes 28 Battery may use only rich-burn Waukesha 3524GSI, rich-burn Caterpillar 3408TA, lean-burn Waukesha F18GL, lean-burn Caterpillar G3508LE, lean-burn Caterpillar 3512LE, and lean-burn Ajax 2802LE compressor engines (ARM 17.8.749).

3. The 840-hp Waukesha 3524GSI shall be controlled with a non-selective catalytic reduction (NSCR) unit and an air-to-fuel (AFR) controller. The pound per hour (lb/hr) emission limits for each of the 840-hp Waukesha 3524GSI shall be (ARM 17.8.752):

NO_X	1.85 lb/hr
CO	3.70 lb/hr
VOC	1.85 lb/hr

4. The 400-hp Caterpillar 3408TA shall be controlled with an NSCR and AFR controller. The lb/hr emission limits for each of the 400-hp Caterpillar 3408TA shall be (ARM 17.8.752):

NO_X	0.88 lb/hr
CO	1.76 lb/hr
VOC	0.88 lb/hr

5. The 400-hp Waukesha F18GL shall be controlled with an oxidation catalyst. The lb/hr emission limits for each of the 400-hp Waukesha F18GL shall be (ARM 17.8.752):

NO_X	0.88 lb/hr
CO	0.44 lb/hr
VOC	0.88 lb/hr

6. The lb/hr emission limits for each of the 316-hp Ajax 2802LE shall be (ARM 17.8.752):

NO_X	0.70 lb/hr
CO	1.46 lb/hr
VOC	0.70 lb/hr

7. The 860-hp Caterpillar 3512LE shall be controlled with an oxidation catalyst and an AFR controller. The lb/hr emission limits for each of the 860-hp Caterpillar 3512LE shall be (ARM 17.8.752):

NO_X	2.85 lb/hr
CO	0.94 lb/hr
VOC	1.90 lb/hr

8. The 633-hp Caterpillar G3508LE shall be controlled with an oxidation catalyst. The lb/hr emission limits for each of the 633-hp Caterpillar G3508LE shall be (ARM 17.8.752):

NO_X	2.79 lb/hr
CO	0.70 lb/hr
VOC	1.40 lb/hr

9. BCPL 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 six consecutive minutes (ARM 17.8.304).

10. BCPL 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).

11. BCPL 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.10 (ARM 17.8.749).

B. Testing Requirements

1. Waukesha 3524GSI compressor engine(s) shall be initially tested for nitrogen oxides (NO_X) and carbon monoxide (CO), concurrently, to demonstrate compliance with the emission limits contained in Section II.A.3. The initial source testing shall be conducted within 180 days of the initial start up date of the compressor engine(s). After the initial source test, additional testing shall continue on an every four-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

2. Caterpillar 3408TA compressor engine(s) shall be initially tested for NO_X and CO, concurrently, to demonstrate compliance with the emission limits contained in Section II.A.4. The initial source testing shall be conducted within 180 days of the initial start up date of the compressor engine(s). After the initial source test, additional testing shall continue on an every four-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

3. Ajax 2802LE compressor engine(s) shall be initially tested for NO_X and CO, concurrently, to demonstrate compliance with the emission limits contained in Section II.A.5. The initial source testing shall be conducted within 180 days of the initial start up date of the compressor engine(s). After the initial source test, additional testing shall continue on an every four-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

4. Caterpillar 3512LE compressor engine(s) shall be initially tested for NO_X and CO, concurrently, to demonstrate compliance with the emission limits contained in Section II.A.6. The initial source testing shall be conducted within 180 days of the initial start up date of the compressor engine(s). After the initial source test, additional testing shall continue on an every four-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

5. Caterpillar G3508LE compressor engine(s) shall be initially tested for NO_X and CO, concurrently, to demonstrate compliance with the emission limits contained in Section II.A.7. The initial source testing shall be conducted within 180 days of the initial start up date of the compressor engine(s). After the initial source test, additional testing shall continue on an every four-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

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

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

C. Operational Reporting Requirements

1. BCPL 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. BCPL shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a 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 or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up 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 BCPL as a permanent business record for at least five years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

D. Notification

1. BCPL shall provide the Department with written notification of commencement of construction of the Holmes 28 Battery within 30 days after commencement of construction (ARM 17.8.749).

2. BCPL shall provide the Department with written notification of the actual start-up date of the compressor engines within 15 days after the actual start-up date(s) (ARM 17.8.749).

3. BCPL shall provide the Department with written notification of the engine models utilized within 15 days after the actual start-up date(s) (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection – BCPL 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 BCPL fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving BCPL 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 therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding. 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 the Board does not issue a stay, 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 BCPL may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Construction Commencement – Construction must begin within three years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

PERMIT ANALYSIS
Bitter Creek Pipelines, LLC
Holmes 28 Battery
Permit #3337-02

I. Introduction/Process Description

Bitter Creek Pipelines, LLC (BCPL) is permitted for the construction and operation of the Holmes 28 Battery. The facility is a natural gas compressor station located approximately seven miles northeast of Decker, Montana, in the NW¼ of Section 28, Township 9 South, Range 41 East, in Big Horn County, Montana.

A. Permitted Equipment

The facility consists of not more than four compressor engines with a total maximum rated design capacity of 1,720-horsepower (hp) and the maximum rated design capacity of each individual compressor engine not exceeding 860-hp. The facility may include any combination of Waukesha 3524GSI, Caterpillar 3408TA, Waukesha F18GL, Caterpillar G3508LE, Caterpillar 3512LE, and Ajax 2802LE compressor engines. This permit does not allow the use of other engine models.

B. Source Description

The Holmes 28 Battery compresses and transports natural gas from the nearby gas field. The natural gas fired compressor engine compresses the gas for transmission through the pipeline.

C. Permit History

On July 19, 2004, the Department of Environmental Quality (Department) received a complete Montana Air Quality Permit Application for the BCPL Rancholme 28 Battery. The application consisted of not more than four compressor engines with a total maximum rated design capacity of 1,680-hp with any combination of Waukesha 3524GSI, Caterpillar 3408TA, Waukesha F18GL, and Ajax 2802LE compressor engines. Permit **#3337-00** was issued final and effective on September 29, 2004.

On June 2, 2005, the Department received a complete Montana Air Quality Permit Application from BCPL for the modification of Permit #3337-00. The modification consisted of increasing the maximum rated design capacity of the facility from 1,680-hp to 1,720-hp, limiting the maximum rated design capacity of each individual compressor engine to 860-hp, and including 633-hp Caterpillar 3508 LE and 860-hp Caterpillar 3512 LE Compressor Engines as possible engines to be used at the facility. Permit **#3337-01** replaced Permit #3337-00.

D. Current Permit Action

On December 5, 2005, the Department received a request to change the name on Permit #3337-01 from Rancholme 28 Battery to Holmes 28 Battery, and update the permit to reflect the current permit language and rule references used by the Department. Permit **#3337-02** replaces Permit #3337-01.

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 Administrative Rules of Montana (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).

   BCPL 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 four 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 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide

5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

BCPL 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 six 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 (PM). (2) Under this rule, BCPL shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne PM.

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 PM 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 PM 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. BCPL will utilize natural gas for operating its fuel burning equipment, which will meet this limitation.

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 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS-affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR 60.

   The Holmes 28 Battery is not an NSPS-affected source because it does not meet the definition of a natural gas processing plant defined in 40 CFR 60, Subpart KKK. In addition, 40 CFR 60, Subpart LLL is not applicable to the Holmes 28 Battery because the facility does not utilize a sweetening unit to process sour gas.

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

40 CFR 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities. Owners or operators of oil and natural gas production facilities, as defined and applied in 40 CFR Part 63, shall comply with the applicable provisions of 40 CFR Part 63, Subpart HH. In order for a natural gas production facility to be subject to 40 CFR Part 63, Subpart HH requirements, certain criteria must be met. First, the facility must be a major source of Hazardous Air Pollutants (HAPs) as determined according to paragraphs (a)(1)(i) through (a)(1)(iii) of 40 CFR 63, Subpart HH. Second, a facility that is determined to be major for HAPs must also either process, upgrade, or store hydrocarbon liquids prior to the point of custody transfer, or process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user. Third, the facility must also contain an affected source as specified in paragraphs (b)(1) through (b)(4) of 40 CFR Part 63, Subpart HH. Finally, if the first three criteria are met, and the exemptions contained in paragraphs (e)(1) and (e)(2) of 40 CFR Part 63, Subpart HH do not apply, the facility is subject to the applicable provisions of 40 CFR Part 63, Subpart HH. Based on the information submitted by BCPL, the facility is not subject to the provisions of 40 CFR Part 63, Subpart HH because the facility is not a major source of HAPs.

40 CFR 63, Subpart HHH National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities. Owners or operators of natural gas transmission or storage facilities, as defined and applied in 40 CFR Part 63, shall comply with the standards and provisions of 40 CFR Part 63, Subpart HHH. In order for a natural gas transmission and storage facility to be subject to 40 CFR Part 63, Subpart HHH requirements, certain criteria must be met. First, the facility must transport or store natural gas prior to the gas entering the pipeline to a local distribution company or to a final end user if there is no local distribution company. Second, the facility must be a major source of HAPs as determined using the maximum natural gas throughput as calculated in either paragraphs (a)(1) and (a)(2) or paragraphs (a)(2) and (a)(3) of 40 CFR Part 63, Subpart HHH. Third, a facility must contain an affected source (glycol dehydration unit) as defined in paragraph (b) of 40 CFR Part 63, Subpart HHH. Finally, if the first three criteria are met, and the exemptions contained in paragraph (f) of 40 CFR Part 63, Subpart HHH, do not apply, the facility is subject to the applicable provisions of 40 CFR Part 63, Subpart HHH. Based on the information submitted by BCPL, the facility is not subject to the provisions of 40 CFR 63, Subpart HHH because the facility is not a major source of HAPs.

40 CFR 63, Subpart ZZZZ National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines. Owners or operators of facilities that utilize reciprocating internal combustion engines and that are a major source of HAPs, as defined and applied in 40 CFR Part 63, shall comply with the standards and provisions of 40 CFR Part 63, Subpart ZZZZ. In order for a facility that utilizes a reciprocating internal combustion engine to be subject to 40 CFR Part 63, Subpart ZZZZ requirements, certain criteria must be met. The reciprocating internal combustion engines must have a maximum rated design capacity greater than 500-hp and the facility must be a major source of HAPs. Based on the information submitted by BCPL, the facility is not subject to the provisions of 40 CFR 63, Subpart ZZZZ because, although the facility may utilize one reciprocating internal combustion engine with a maximum rated design capacity greater than 500-hp, the facility is not a major source of HAPs.

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. BCPL must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The proposed heights of the new or altered stacks for BCPL are below the allowable 65-meter GEP stack height.

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

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. The current permit action is considered an administrative amendment; therefore, BCPL was not required to submit an application fee.

2. ARM 17.8.505 Air Quality Permit 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 alteration to construct, alter or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. The Holmes 28 Battery has a PTE greater than 25 tons per year of oxides of nitrogen (NO_x) and carbon monoxide (CO); therefore, an air quality permit is required.

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

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

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration or use of a source. BCPL was not required to submit a permit application for the current permit action because the current permit action is considered an administrative 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. The current permit action is an administrative amendment; therefore, did not require publication.

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 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 BCPL 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 altered 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 one 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.

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

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

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

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

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

c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #3337-02 for BCPL, the following conclusions were made:

a. The facility’s PTE is less than 100 tons/year for any pollutant.

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

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

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

e. This facility is not subject to any current NESHAP standards.

f. This source is not a Title IV affected source, nor a solid waste combustion unit.

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

Based on these facts, the Department determined that the Holmes 28 Battery is a minor source of emissions as defined under Title V.

III. BACT Determination

A BACT determination is required for each new or altered source. BCPL shall install on the new or altered 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 the current permit action is an administrative amendment. However, a BACT analysis was submitted by BCPL in Permit Application #3337-01, addressing some available methods of controlling emissions from the newly proposed compressor engines. That BACT analysis is listed below.

A. Compressor Engines

1. CO BACT

As part of the CO BACT analyses, the following control technologies were reviewed:

- Lean-burn engine with a catalytic oxidation unit and an air-to-fuel ratio (AFR) controller;
- Lean-burn engine with a catalytic oxidation unit;
- Lean-burn engine with an AFR controller;
- Lean-burn engine with a non-selective catalytic reduction (NSCR) unit and AFR controller;
- Lean-burn engine with an NSCR unit;
- Lean-burn engine with no additional controls;
- Rich-burn engine with an NSCR unit and an AFR controller;
- Rich-burn engine with an NSCR unit;
- Rich-burn engine with an AFR controller;
- Rich-burn engine with a catalytic oxidation unit and an AFR controller;
- Rich-burn engine with a catalytic oxidation unit; and
- Rich-burn engine with no additional controls.

Catalytic oxidation applied to a rich-burn is technically infeasible because the oxygen concentration from a rich-burn engine is not high enough for a catalytic oxidizer to operate properly. An NSCR unit applied to a lean-burn engine or lean-burn retrofit engine is also technically infeasible because the NSCR unit needs a rich fuel-to-air ratio to operate effectively. AFR controllers for the Caterpillar G3508LE engines are not equipment currently provided by industry.

Technically feasible control options, in order of the highest control efficiency to the lowest control efficiency, include:

600 to 800 hp Range Engines

Control Technology	% Control	CO Emission Rate (g/bhp-hr)
Lean-burn with Catalytic Oxidizer and/or AFR	97.5	0.5
Rich-burn with NSCR and/or AFR	90.0	2.0
Lean-burn without Control or with only AFR	85.0	3.0
Rich-burn without Control or with only AFR	--	20.0

The control methods listed above are widely used; these control options cannot be eliminated solely based on environmental or energy impacts. Lean-burn engines do emit relatively higher HAP (formaldehyde) emissions than rich-burn engines. Lean-burn engines cannot be eliminated based on higher formaldehyde emissions, but the higher formaldehyde emissions can affect the BACT determination. 600-800-hp range engines without AFR control are removed from the analysis because AFR control would be required and is consistent with other recently permitted similar sources.

The following tables show the cost per ton of CO reduction achieved for the various control options.

600-hp Engine Range Cost Effectiveness

Control Technology	Total Annual Cost ($)	Resulting CO Emissions (tpy)	Cost Effectiveness ($/ton)
Controlled Emissions			
Lean-burn Engine with Oxidation Catalyst and with AFR (600 hp)	59,961	2.9	4,135
Rich-burn Engine with NSCR and with AFR (627 hp)	61,689	12.1	566
Lean-burn Engine with Oxidation Catalyst and with AFR (633 hp)	62,073	3.1	4,084
Lean-burn Engine with Oxidation Catalyst and with AFR (637 hp)	62,073	3.1	4,030
Baseline Emissions			
Lean-burn Engine without Control and with AFR (600 hp)	--	17.4	--
Rich-burn Engine without Control and with AFR (627 hp)	--	121.1	--
Lean-burn Engine without Control and with AFR (633)	--	18.3	--
Lean-burn Engine without Control and with AFR (637 hp)	--	18.5	--

- **4,002 = 59,961 / (17.4-2.9)**
- **566 = 61,689 / (121.1-12.1)**
- **4,084 = 62,073 / (18.3-3.1)**
- **4,030 = 62,073 / (18.5-3.1)**

800-hp Engine Range Cost Effectiveness

Control Technology	Total Annual Cost ($)	Resulting CO Emissions (tpy)	Cost Effectiveness ($/ton)
Controlled Emissions			
Rich-burn Engine with NSCR and with AFR (800 hp)	No longer in production and not readily available		
Rich-burn Engine with NSCR and with AFR (840 hp)	81,298	16.2	556
Lean-burn Engine with Oxidation Catalyst and with AFR (860 hp)	82,578	4.2	3,970
Baseline Emissions			
Rich-burn Engine without Control and with AFR (800 hp)	--	18.4	--
Rich-burn Engine without Control and with AFR (840 hp)	--	162.4	--
Lean-burn Engine without Control and with AFR (860 hp)	--	25.0	--

- **556 = 81,298 / (162.4-16.2)**
- **3,970 = 82,578 / (25-4.2)**

The use of the rich-burn engine with an NSCR unit and AFR controller is the most cost-effective method to control CO emissions. The Department agrees that rich-burn engines with an NSCR unit and AFR controller, with an emission limit of 2.0 grams per brake horsepower-hour (g/bhp-hr) are BACT. A rich-burn engine equipped with an NSCR unit and an AFR controller is frequently used in the natural gas compression industry and the BACT determination is consistent with other recently permitted similar sources. Because a 4-stroke lean-burn engine equipped with an oxidation catalyst, with an emission limit of 0.5 g/bhp-hr provide environmental benefits that are equal to or exceed that of the rich-burn engines equipped with NSCR and AFR the Department determined that they could be utilized in place of the rich-burn engines.

2. NO_X BACT

As part of the NO_X BACT analyses, the following control technologies were reviewed:

- Lean-burn engine with an SCR unit and AFR controller;
- Lean-burn engine with an SCR unit;
- Lean-burn engine with an AFR controller;
- Lean-burn engine with an NSCR unit and AFR controller;
- Lean-burn engine with an NSCR unit;
- Lean-burn engine with no additional controls;
- Rich-burn engine with an NSCR unit and an AFR controller;
- Rich-burn engine with an NSCR unit;
- Rich-burn engine with an AFR controller;
- Rich-burn engine with an SCR and an AFR controller;
- Rich-burn engine with an SCR; and
- Rich-burn engine with no additional controls.

SCR applied to rich-burn engines is technically infeasible because the oxygen concentration from rich-burn engines is not high enough for an SCR to operate properly. NSCR on lean-burn engines is technically infeasible because the engine must burn a rich fuel mixture for the NSCR to properly operate. Adverse environmental impacts could occur with an SCR unit operating on lean-burn engines at variable loads as required by a typical compressor engine. SCR units are typically installed on process units that have a constant or low variability in load fluctuation. When engine load changes excess ammonia (ammonia slip) may pass through the system and out the stack or not enough ammonia will be injected. SCR units are technically infeasible because of the potential adverse environmental impacts from the typical load fluctuations that are required for compressor engines. SCR units have not been installed on lean-burn compressor engines in Montana.

Technically feasible control options, in order of the highest control efficiency to the lowest control efficiency, include:

600 to 800-hp Range Engines

Control Technology	% Control	NO_X Emission Rate (g/bhp-hr)
Rich-burn with NSCR and/or AFR	95.0	1.0
Lean-burn with Catalytic Oxidizer and/or AFR	92.5	1.5
Lean-burn with Catalytic Oxidizer and/or AFR	90.0	2.0
Lean-burn without Control	90.0	2.0
Rich-burn without Control or with only AFR	--	20.0

The control methods listed previously are widely used; these control options cannot be eliminated solely based on environmental or energy impacts.

Lean-burn engines do emit relatively higher HAP (formaldehyde) emissions than rich-burn engines. Lean-burn engines cannot be eliminated based on higher formaldehyde emissions, but the higher formaldehyde emissions can affect the BACT determination.

The table below shows the cost per ton of NO_X reduction achieved for the various control options.

600-hp Engine Range Cost Effectiveness

Control Technology	Total Annual Cost ($)	Resulting NO_x Emissions (tpy)	Cost Effectiveness ($/ton)
Controlled Emissions			
Lean-burn Engine without control and with AFR (600 hp)	0	8.7	0
Rich-burn Engine with NSCR and with AFR (627 hp)	61,689	6.1	536
Lean-burn Engine without Control and with AFR (633 hp)	0	12.2	0
Lean-burn Engine without Control and with AFR (637 hp)	0	6.2	0
Baseline Emissions			
Lean-burn Engine without Control and with AFR (600 hp)	--	11.6	--
Rich-burn Engine without Control and with AFR (627 hp)	--	121.1	--
Lean-burn Engine without Control and with AFR (633)	--	12.2	
Lean-burn Engine without Control and with AFR (637 hp)	--	12.3	--

- **0 cost effectiveness = no control equipment costs**
- **536 = 61,689 / (121.1-6.1)**

800-hp Engine Range Cost Effectiveness

Control Technology	Total Annual Cost ($)	Resulting NO_x Emissions (tpy)	Cost Effectiveness ($/ton)
Controlled Emissions			
Rich-burn Engine with NSCR and with AFR (800 hp)	No longer in production and not readily available		
Rich-burn Engine with NSCR and with AFR (840 hp)	81,298	8.1	527
Lean-burn Engine with Oxidation Catalyst and with AFR (860 hp)	0	12.5	0
Baseline Emissions			
Rich-burn Engine without Control and with AFR (800 hp)	--	154.5	--
Rich-burn Engine without Control and with AFR (840 hp)	--	162.4	--
Lean-burn Engine without Control and with AFR (860 hp)	--	16.6	--

- **527 = 81,298 / (162.4-8.1)**

600-hp Engine Range Incremental Cost Effectiveness

Control Technology	Emission Limit (g/bhp-hr)	Incremental Annual Fuel and Maintenance Cost ($)	Resulting NO_X Emissions (tpy)	Incremental Cost Effectiveness ($/ton)
Caterpillar 3412LE 637-hp lean-burn	1.0	32,683	6.15	
Caterpillar G3508LE 633-hp lean-burn	2.0	0	12.23	
Incremental Cost		**32,683**	**6.08**	**5,375**

800-hp Engine Range Incremental Cost Effectiveness

Control Technology	Emission Limit (g/bhp-hr)	Incremental Annual Fuel Cost ($)	Resulting NO_X Emissions (tpy)	Incremental Cost Effectiveness ($/ton)
Waukesha 3524GSI 840-hp rich-burn	1.0	14,930	8.11	
Caterpillar G3512LE 860-hp lean-burn	1.5	0	12.46	
Incremental Cost		**14,930**	**4.35**	**3,432**

The use of the lean-burn engine without control is the most cost-effective method to control NO_X emissions. The rich-burn engine equipped with an NSCR unit and an AFR controller has the same emission rate of 1.0 g/bhp-hr as the lean-burn engine. The cost effectiveness of the 627-hp rich-burn engine and the cost effectiveness of the 840-hp rich-burn engine are $536 and $527 per ton respectively. The cost effectiveness of lean-burn engines is $0 per ton. A 627-hp rich-burn engine would cost an additional $61,689 but no additional tons of NO_X would be removed beyond the 600-hp range lean-burn engines. An 840-hp rich-burn engine would cost an additional $81,298 but no additional tons of NO_X would be removed beyond the 860-hp lean-burn engine. The Department agrees that the emission limit of 1.0 g/bhp-hr using a lean-burn engine without control or an AFR only for control of NO_X emissions is BACT. A lean-burn engine equipped with no additional control or an AFR only is frequently used in the natural gas compression industry and the BACT determination is consistent with other recently permitted similar sources. Because a 4-stroke rich-burn engine equipped with an NSCR and AFR, with an emission limit of 1.0 g/bhp-hr, and a 2-stroke lean-burn engine, with an emission limit of 1.0 g/bhp-hr, provide equal emission rates than the lean-burn engine without control, the Department determined that they can be utilized in place of the lean-burn engines.

An 860-hp Caterpillar G3512LE lean-burn engine would cost an additional $3,432 per additional ton of NO_X removed beyond the 840-hp Waukesha 3524GSI rich-burn engine. The Department agrees that the emission limit of 1.5 g/bhp-hr using a Caterpillar G3512LE 860-hp lean-burn engine with AFR only for control of NO_X emissions is BACT. A 637-hp Caterpillar 3412LE lean-burn engine would cost an additional $5,375 per additional ton of NO_X removed beyond the 633-hp Caterpillar G3508LE. The Department agrees that the emission limit of 2.0 g/bhp-hr using a Caterpillar G3508LE 633-hp lean-burn engine for control of NO_X emissions is BACT.

3. VOC BACT

Because a 4-stroke rich-burn engine equipped with an NSCR unit and an AFR controller, with an emission limit of 1.0 g/bhp-hr, a 4-stroke lean-burn engine equipped with an oxidation catalyst, with an emission limit of 1.0 g/bhp-hr, and a 2-stroke lean-burn engine, with an emission limit of 1.0 g/bhp-hr, provide equal emission rates the Department determined that they can be utilized. The Department determined that no additional controls, and burning pipeline quality natural gas to meet a lb/hr emission limit equivalent to 1.0 g/bhp-hr, constitute BACT for the proposed compressor engines.

4. PM_{10} and SO_2 BACT

The Department is not aware of any BACT determinations that have required controls for PM_{10} or SO_2 emissions from natural gas fired compressor engines. BCPL proposed no additional controls and burning pipeline quality natural gas as BACT for PM_{10} and SO_2 emissions from the proposed compressor engine. Due to the relatively small amount of PM_{10} and SO_2 emissions from the proposed engine and the cost of adding additional

control, any add-on controls would be cost prohibitive. Therefore, the Department concurred with BCPL's BACT proposal and determined that no additional controls and burning pipeline quality natural gas will constitute BACT for PM_{10} and SO_2 emissions from the compressor engine(s).

IV. Emission Inventory

Ton/year						
Source	**Permit Limitation**	**PM_{10}**	**NO_x**	**VOC**	**CO**	**SO_x**
860-hp Caterpillar 3512LE	Any combination of 4 engines as long as total hp does not exceed 1,720-hp	0.27	12.46	8.31	4.15	0.02
840-hp Waukesha 3524GSI		0.27	8.11	8.11	16.23	0.02
633-hp Caterpillar 3508LE		0.20	12.22	6.11	3.06	0.01
400-hp Caterpillar G3408TA		0.13	3.86	3.86	7.73	0.01
400-hp Waukesha F18GL		0.13	3.86	3.86	1.93	0.01
316-hp Ajax 2802LE		0.10	3.05	3.05	6.11	0.01
Worst Case Engine Combination NO_x[1]		0.54	24.92	16.62	8.30	0.04
Worst Case Engine Combination CO[2]		0.54	16.22	16.22	32.46	0.04
Facility Total[3]		**0.54**	**24.92**	**16.62**	**32.46**	**0.04**

[1]Worst Case NO_x = (2) 860-hp Caterpillar 3512LE.
[2]Worst Case CO = (2) 840-hp Waukesha 3524 GSI.
[3]Facility Total = the higher of NO_x or CO Worst Case Engine Combination.

860-hp Caterpillar 3512LE Compressor Engine

Brake Horsepower: 860 hp
Hours of operation: 8,760 hr/yr

<u>PM_{10} Emissions</u>
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 6.42 MMBtu/hr (Maximum Design)
Calculations: 6.42 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.06 lb/hr
0.06 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.27 ton/yr

<u>NO_X Emissions</u>
Emission factor: 1.50 gram/bhp-hour (BACT Determination)
Calculations: 1.50 gram/bhp-hour * 860 hp * 0.002205 lb/gram = 2.85 lb/hr
2.85 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 12.46 ton/yr

<u>VOC Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 860 hp * 0.002205 lb/gram = 1.90 lb/hr
1.90 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 8.31 ton/yr

<u>CO Emissions</u>
Emission factor: 0.50 gram/bhp-hour (BACT Determination)
Calculations: 0.50 gram/bhp-hour * 860 hp * 0.002205 lb/gram = 0.95 lb/hr
0.95 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 4.15 ton/yr

<u>SO_2 Emission</u>
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 6.42 MMBtu/hr (Maximum Design)
Calculations: 6.42 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

840-hp Waukesha 3524GSI Compressor Engine

Brake Horsepower: 840 hp
Hours of operation: 8760 hr/yr

<u>PM_{10} Emissions</u>
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 6.57 MMBtu/hr (Maximum Design)
Calculations: 6.57 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.06 lb/hr
0.06 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.27 ton/yr

<u>NO_x Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 840 hp * 0.002205 lb/gram = 1.85 lb/hr
1.85 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 8.11 ton/yr

<u>VOC Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 840 hp * 0.002205 lb/gram = 1.85 lb/hr
1.85 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 8.11 ton/yr

<u>CO Emissions</u>
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 840 hp * 0.002205 lb/gram = 3.70 lb/hr
3.70 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 16.23 ton/yr

<u>SO_2 Emission</u>
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 6.57 MMBtu/hr (Maximum Design)
Calculations: 6.57 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00 lb/hr
0.0 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

633-hp Caterpillar G3508LE Compressor Engine

Brake Horsepower: 633 hp
Hours of operation: 8,760 hr/yr

<u>PM_{10} Emissions</u>
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 4.80 MMBtu/hr (Maximum Design)
Calculations: 4.80 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.05 lb/hr
0.05 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.20 ton/yr

<u>NO_X Emissions</u>
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 633 hp * 0.002205 lb/gram = 2.79 lb/hr
2.79 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 12.22 ton/yr

<u>VOC Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 633 hp * 0.002205 lb/gram = 1.40 lb/hr
1.40 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 6.11 ton/yr

<u>CO Emissions</u>
Emission factor: 0.50 gram/bhp-hour (BACT Determination)
Calculations: 0.50 gram/bhp-hour * 633 hp * 0.002205 lb/gram = 0.70 lb/hr
0.70 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 3.06 ton/yr

<u>SO_2 Emission</u>
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 4.80 MMBtu/hr (Maximum Design)
Calculations: 4.80 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

400-hp Caterpillar G3408TA Compressor Engine

Brake Horsepower: 400 hp
Hours of operation: 8760 hr/yr

<u>PM_{10} Emissions</u>
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 3.02 MMBtu/hr (Maximum Design)
Calculations: 3.02 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.03 lb/hr
0.03 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.13 ton/yr

<u>NO_x Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 400 hp * 0.002205 lb/gram = 0.88 lb/hr
0.88 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.86 ton/yr

<u>VOC Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 400 hp * 0.002205 lb/gram = 0.88 lb/hr
0.88 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.86 ton/yr

<u>CO Emissions</u>
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 400 hp * 0.002205 lb/gram = 1.76 lb/hr
1.76 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 7.73 ton/yr

<u>SO_2 Emission</u>
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 3.02 MMBtu/hr (Maximum Design)
Calculations: 3.02 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

400-hp Waukesha F18GL Compressor Engine

Brake Horsepower: 400 hp
Hours of operation: 8760 hr/yr

<u>PM_{10} Emissions</u>
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 2.86 MMBtu/hr (Maximum Design)
Calculations: 2.86 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.03 lb/hr
0.03 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.13 ton/yr

<u>NO_x Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 400 hp * 0.002205 lb/gram = 0.88 lb/hr
0.88 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.86 ton/yr

<u>VOC Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 400 hp * 0.002205 lb/gram = 0.88 lb/hr
0.88 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.86 ton/yr

<u>CO Emissions</u>
Emission factor: 0.50 gram/bhp-hour (BACT Determination)
Calculations: 0.50 gram/bhp-hour * 400 hp * 0.002205 lb/gram = 0.44 lb/hr
0.44 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 1.93 ton/yr

<u>SO_2 Emission</u>
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 2.86 MMBtu/hr (Maximum Design)
Calculations: 2.86 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

316-hp Ajax 2802LE Compressor Engine

Brake Horsepower: 316 hp
Hours of operation: 8760 hr/yr

<u>PM_{10} Emissions</u>
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 2.46 MMBtu/hr (Maximum Design)
Calculations: 2.46 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.02 lb/hr
0.02 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.10 ton/yr

<u>NO_x Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 316 hp * 0.002205 lb/gram = 0.70 lb/hr
0.70 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.05 ton/yr

<u>VOC Emissions</u>
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 316 hp * 0.002205 lb/gram = 0.70 lb/hr
0.70 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.05 ton/yr

<u>CO Emissions</u>
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 316 hp * 0.002205 lb/gram = 1.39 lb/hr
1.46 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 6.11 ton/yr

<u>SO_2 Emission</u>
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 2.46 MMBtu/hr (Maximum Design)
Calculations: 2.46 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

V. Existing Air Quality

The facility is located approximately seven miles northeast of Decker, Montana, in the NW¼ of Section 28, Township 9 South, Range 41 East, in Big Horn County, Montana. The air quality of this area is classified as either better than National Standards or unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for criteria pollutants.

VI. Ambient Air Impact Analysis

Based on the modeling analysis performed for Permit #3337-01, the Department determined that the Holmes 28 Battery will not cause or contribute to a violation of any ambient air quality standard or PSD increment.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

The current permit action will not result in an increase of emissions from the facility and is considered an administrative action; therefore, an Environmental Assessment is not required.

Analysis Prepared By: Robert Gallagher
Date: December 12, 2005