



Montana Department of  
**ENVIRONMENTAL QUALITY**

Brian Schweitzer, Governor

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February 7, 2012

Mr. Peter Schoonmaker  
Summit Gas Resources, Inc.  
1 East Alger Street  
Sheridan, WY 82801

Dear Mr. Schoonmaker:

Montana Air Quality Permit #3848-01 is deemed final as of February 7, 2012, by the Department of Environmental Quality (Department). This permit is for the Lot 22 Compressor station located in the SW<sup>1</sup>/<sub>4</sub> of the NE<sup>1</sup>/<sub>4</sub> of Section 22, Township 8 South, Range 41 East, in Big Horn County, Montana. 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

Shawn Juers  
Environmental Engineer  
Air Resources Management Bureau  
(406) 444-2049

VW:SJ  
Enclosure

Montana Department of Environmental Quality  
Permitting and Compliance Division

Montana Air Quality Permit #3848-01

Summit Gas Resources, Inc.  
1 East Alger Street  
Sheridan, WY 82801

February 7, 2012



## MONTANA AIR QUALITY PERMIT

Issued To: Summit Gas Resources, Inc.  
1 East Alger Street  
Sheridan, Wyoming 82801

MAQP: #3803-01  
Department Decision on AA: 1/20/2012  
Permit Final: 02/07/2012  
AFS #: 003-0035

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Summit Gas Resources (Permittee), 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 eleven miles northeast of Decker, Montana, in the South West ¼ of the North East ¼ of Section 22, Township 8 South, Range 41 East, in Big Horn County, Montana.

#### B. Current Permit Action

On December 15, 2011, the Montana Department of Environmental Quality-Air Resources Management Bureau (Department) received notice of Transfer of Ownership of MAQP #3848-00 from Bitter Creek Pipeline, LLC to Summit Gas Resources, Inc. Pursuant to ARM 17.8.765(3), the transfer was deemed approved on January 16, 2011. Pursuant to ARM 17.8.764, the Department is updating the permit to reflect the change in ownership, to update permit analysis of New Source Performance Standards and Emissions Standards for Hazardous Air Pollutants, to add the de minimis addition of a heater used on-site, and to update the permit to the current format utilized by the Department.

### SECTION II: Conditions and Limitations

#### A. Emission Limitations

1. Permittee shall not operate more than three field compressor engines at any one time at the Lott 22 Compressor Station (ARM 17.8.749).
2. The maximum rated design capacity of the three field compression engines at the Lott 22 Compressor Station shall not exceed 1,260 horsepower (hp) and the maximum rated design capacity of any compressor engine shall not exceed 860 hp. The Lott 22 Compressor Station may use only lean-burn Ajax 2802LE, rich-burn Caterpillar G3408TA, lean-burn Waukesha F18GL, lean-burn Caterpillar G3508LE, rich-burn Waukesha 3524GSI, and lean-burn Caterpillar G3512LE compressor engines (ARM 17.8.749).
3. The pound per hour (lb/hr) emission limits for the 316-hp lean-burn Ajax 2802LE engine shall be determined using the following equation and pollutant specific gram per brake horsepower-hour (g/bhp-hr) emission factors (ARM 17.8.752):

#### Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/gram

Emission Factors

Oxides of Nitrogen (NO <sub>x</sub> )	1.0 g/bhp-hr
Carbon Monoxide (CO)	2.1 g/bhp-hr
Volatile Organic Compounds (VOC)	0.55 g/bhp-hr

4. The 400-hp rich-burn Caterpillar G3408TA shall be controlled with a non-selective catalytic reduction (NSCR) and air/fuel ratio (AFR) controller. The lb/hr emission limits for the engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/g

Emission Factors

NO <sub>x</sub>	1.0 g/bhp-hr
CO	2.0 g/bhp-hr
VOC	1.0 g/bhp-hr

5. The 400-hp lean-burn Waukesha F18GL shall be controlled with an oxidation catalyst. The lb/hr emission limits for the engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/g

Emission Factors

NO <sub>x</sub>	1.5 g/bhp-hr
CO	0.5 g/bhp-hr
VOC	1.0 g/bhp-hr

6. The 633-hp lean-burn Caterpillar G3508LE shall be controlled with an oxidation catalyst. The lb/hr emission limits for the engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/g

Emission Factors

NO <sub>x</sub>	2.0 g/bhp-hr
CO	0.5 g/bhp-hr
VOC	1.0 g/bhp-hr

7. The 840-hp rich-burn Waukesha 3524GSI shall be controlled with an NSCR and AFR controller. The lb/hr emission limits for the engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/g

Emission Factors

NO <sub>x</sub>	1.0 g/bhp-hr
CO	2.0 g/bhp-hr
VOC	1.0 g/bhp-hr

8. The 860-hp lean-burn Caterpillar G3512LE shall be controlled with an oxidation catalyst. The lb/hr emission limits for the engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/g

Emission Factors

NO <sub>x</sub>	1.5 g/bhp-hr
CO	0.5 g/bhp-hr
VOC	1.0 g/bhp-hr

9. Permittee shall not operate more than two central compressor engines at any one time at the Lott 22 Compressor Station (ARM 17.8.749).
10. The maximum rated design capacity of the two central compression engines at the Lott 22 Compressor Station shall not exceed 3,550 hp and the maximum rated design capacity of any compressor engine shall not exceed 1,775 hp. The Lott 22 Compressor Station may use only lean-burn Caterpillar G3520B, rich-burn Waukesha 7044GSI, and lean-burn Caterpillar G3606 compressor engines (ARM 17.8.749).
11. The 1,675-hp lean-burn Caterpillar G3520B shall be controlled with an oxidation catalyst. The lb/hr emission limits for the engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/g

Emission Factors

NO <sub>x</sub>	1.0 g/bhp-hr
CO	0.5 g/bhp-hr
VOC	1.0 g/bhp-hr

12. The 1,680-hp rich-burn Waukesha 7044GSI shall be controlled with an NSCR and AFR controller. The lb/hr emission limits for the engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/g

Emission Factors

NO <sub>x</sub>	1.0 g/bhp-hr
CO	2.0 g/bhp-hr
VOC	1.0 g/bhp-hr

13. The 1,775-hp lean-burn Caterpillar G3606 shall be controlled with an oxidation catalyst. The lb/hr emission limits for the engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) \* maximum rated design capacity of engine (bhp) \* 0.002205 lb/g

Emission Factors

NO <sub>x</sub>	0.7 g/bhp-hr
CO	0.5 g/bhp-hr
VOC	1.0 g/bhp-hr

14. Permittee 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).
15. Permittee 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).
16. Permittee 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).
17. Permittee shall comply with applicable requirements of 40 CFR 60, Subpart JJJJ, 40 CFR 63, Subpart ZZZZ, and 40 CFR 63 Subpart HH, as applicable (ARM 17.8.340, ARM 17.8.342, 40 CFR Part 60, 40 CFR Part 63).

B. Testing Requirements

1. The Ajax 2802LE compressor engine(s) shall be initially tested for NO<sub>x</sub> 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 startup 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. The Caterpillar G3408TA compressor engine(s) shall be initially tested for NO<sub>x</sub> 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 startup 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. The Waukesha F18GL compressor engine(s) shall be initially tested for NO<sub>x</sub> 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 startup 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. The Caterpillar G3508LE compressor engine(s) shall be initially tested for NO<sub>x</sub> 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 startup 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. The Waukesha 3524GSI compressor engine(s) shall be initially tested for NO<sub>x</sub> 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 startup 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. The Caterpillar G3512LE compressor engine(s) shall be initially tested for NO<sub>x</sub> and CO, concurrently, to demonstrate compliance with the emission limits contained in Section II.A.8. The initial source testing shall be conducted within 180 days of the initial startup 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).
7. The Caterpillar G3520B compressor engine(s) shall be initially tested for NO<sub>x</sub> and CO, concurrently, to demonstrate compliance with the emission limits contained in Section II.A.11. The initial source testing shall be conducted within 180 days of the initial startup 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).
8. The Waukesha 7044GSI compressor engine(s) shall be initially tested for NO<sub>x</sub> and CO, concurrently, to demonstrate compliance with the emission limits contained in Section II.A.12. The initial source testing shall be conducted within 180 days of the initial startup 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).
9. The Caterpillar G3606 compressor engine(s) shall be initially tested for NO<sub>x</sub> and CO, concurrently, to demonstrate compliance with the emission limits contained in Section II.A.13. The initial source testing shall be conducted within 180 days of the initial startup 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).
10. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
11. The Department may require further testing (ARM 17.8.105).

### C. Operational Reporting Requirements

1. Permittee 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. Permittee 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).

### SECTION III: General Conditions

- A. Inspection – Permittee 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 (continuous emissions monitoring systems, continuous emissions rate monitoring systems) 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 Permittee fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Permittee 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, failure to pay the annual operation fee by Permittee 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).

Montana Air Quality Permit (MAQP) Analysis  
Summit Gas Resources, Inc.  
MAQP #3848-01

I. Introduction/Process Description

Summit Gas Resources, Inc. (Permittee) is permitted for the operation of the Lott 22 Compressor Station. The facility is a natural gas compressor station located approximately eleven miles northeast of Decker, Montana, in the SW¼ of the NE¼ of Section 22, Township 8 South, Range 41 East, in Big Horn County, Montana.

A. Permitted Equipment

The Lott 22 Compressor Station consists of up to three natural gas-fired screw compressor engines used for field compression and up to two large natural gas-fired reciprocating compressor engines used as central compression units. The field portion of the Lott 22 Compressor Station consists of not more than three field compressor engines with a total maximum rated design capacity of 1,260 horsepower (hp) and the maximum rated design capacity of each individual compressor engine shall not exceed 860 hp. The field compressor engines may include any combination of Ajax 2802 LE, Caterpillar G3408TA, Waukesha F18GL, Caterpillar G3508LE, Waukesha 3524GSI, and Caterpillar G3512LE compressor engines. This permit does not allow the use of other engine models.

The central portion of the Lott 22 Compressor Station consists of not more than two central compressor engines with a total maximum 3,550 hp and the maximum rated design capacity of each individual compressor engine shall not exceed 1,775 hp. The facility may include any combination of Caterpillar G3520B, Waukesha 7044GSI, and Caterpillar G3606 compressor engines. This permit does not allow the use of other engine models.

On February 3, 2009, the Department of Environmental Quality (Department) acknowledged the de minimis addition of a 1 million british thermal unit per hour (MMBTU/hr) portable diesel fired heater.

B. Source Description

The Lott 22 Compressor Station 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

**MAQP #3484-00** was issued final to Bitter Creek Pipelines, LLC (BCPL) on August 12, 2006 for the construction and operation of the Lott 22 natural gas compressor station.

On July 13, 2006, July 21, 2006, and July 24, 2006, the Department received three comments from BCPL during the public comment period. The comment received on July 13, 2006, requested the Department to delete the "G" in the Waukesha 3524GSI engine model designation. The Department deleted the "G" in the Waukesha 3524GSI engine model designation. The comment received on July 21, 2006, requested the Department to change the Nitrogen Oxides (NO<sub>x</sub>) emission factor from 1.0 grams per brake horsepower-hour (g/bhp-hr) to 1.5 g/bhp-hr on the Waukesha F18GL engine. Based on the information submitted in the July 21, 2006, comment, the Department granted the request to change the NO<sub>x</sub> emission factor from 1.0 g/bhp-hr to 1.5 g/bhp-hr on the Waukesha F18GL engine. The comment received on

July 24, 2006, requested the Department to change the NO<sub>x</sub> emission factor from 0.70 g/bhp-hr to 1.0 g/bhp-hr on the Caterpillar G3606 engine. The Department denied the request to change the NO<sub>x</sub> emission factor from 0.70 g/bhp-hr to 1.0 g/bhp-hr on the Caterpillar G3606 engine.

D. Current Permit Action

**MAQP #3484-01** replaces MAQP # 3484-00 as a result of an Administrative Amendment. On December 15, 2011, the Department received via email attachment a notice of transfer of ownership of the Lot 22 compressor station from BCLP to Summit Gas Resources, Inc. Pursuant to ARM 17.8.765(3), the transfer was deemed approved. Pursuant to ARM 17.8.764, the Department updated the permit to reflect the change in ownership, to update applicability of New Source Performance Standards and Emissions Standards for Hazardous Air Pollutants, and to update the permit to the current format utilized by the Department.

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 of Environmental Quality (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).

Permittee 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 17.8.204 Ambient Air Monitoring
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<sub>10</sub>

Permittee 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, Permittee 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 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used. Further, no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes.
6. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this rule.

7. 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.
8. 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).

- a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart.
- b. 40 CFR 60, Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE)

At the time of permit issuance, this subpart, as it applies to owners and operators, applies to:

- Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:
  - On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 hp (except lean burn engines with a maximum engine power greater than or equal to 500 hp and less than 1,350 hp);
  - On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 hp and less than 1,350 hp;
  - On or after July 1, 2008, for engines with a maximum engine power less than 500 hp
- Owners and operators of stationary SI ICE that are modified or reconstructed after June 12, 2006, and any person that modifies or reconstructs any stationary SI ICE after June 12, 2006.
- All owners and operators of stationary SI ICE that commence construction (engine ordered) after June 12, 2006.

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

- a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAP subpart.
- b. 40 CFR 63 Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities

At the time of permit issuance, this subpart is applicable to:

- *Facilities*(defined in 40 CFR 63 Subpart HH) that are major or area sources of hazardous air pollutants (HAP) AND meets one or both of the following:

- Facilities that process, upgrade, or store hydrocarbon liquids prior to the point of *custody transfer* (defined in 40 CFR 63 Subpart HH), OR,
- Facilities that 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. For the purposes of this subpart, natural gas enters the natural gas transmission and storage source category after the natural gas processing plant, when present. If no natural gas processing plant is present, natural gas enters the natural gas transmission and storage source category after the point of *custody transfer*.

c. 40 CFR 63, Subpart HHH

At the time of permit issuance, this subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of HAP emissions as defined in §63.1271.

d. 40 CFR 63 Subpart ZZZZ National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)

At the time of permit issuance, this subpart is applicable to an owner or operator of a stationary RICE at a major or area source of HAP emissions. Therefore, this subpart applies.

D. 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. No fee was required for this administrative 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.

E. 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 tons per year of any pollutant. The Lott 22 Compressor Station has a PTE greater than 25 tons per year of carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), and volatile organic compounds (VOC); therefore, an MAQP 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, modification, or use of a source. Permittee 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. An affidavit of publication of public notice was not required for this permitting action as the action is administrative.
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 Permittee 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 17.8.762 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.
11. 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).

12. 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.
13. 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.

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

G. 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<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 #3484-01, 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<sub>10</sub> nonattainment area.
- d. This facility is not subject to any current NSPS.
- e. This facility is subject to current NESHAP standards (40 CFR 63 Subpart ZZZZ).
- 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 the Lott 22 Compressor Station is a minor source of emissions as defined under Title V.

### III. Best Available Control Technology (BACT) Determination

A BACT determination is required for each new or modified source. Permittee 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 the current permit action is considered an administrative permit action.

### III. Emission Inventory

Table 1. Emissions Inventory

Ton/year					
Source	PM <sub>10</sub> /PM <sub>2.5</sub>	NO <sub>x</sub>	VOC	CO	SO <sub>x</sub>
316-hp Ajax 2802LE	0.41	3.05	1.68	6.41	0.01
400-hp Caterpillar G3408TA	0.13	3.86	3.86	7.73	0.02
400-hp Waukesha F18GL	0.001	5.79	3.86	1.93	0.01
633-hp Caterpillar G3508LE	0.002	12.22	6.11	3.07	0.01
840-hp Waukesha 3524GSI	0.27	8.11	8.11	16.23	0.02
860-hp Caterpillar G3512LE	0.002	12.46	8.31	4.15	0.02
1,675-hp Caterpillar G3520B	0.004	16.18	16.18	8.09	0.03
1,680-hp Waukesha 7044GSI	0.55	16.23	16.23	32.45	0.03
1,775-hp Caterpillar G3606	0.004	12.00	17.14	8.57	0.03
1 MMBTU/hr Diesel Heater	0.10	0.63	0.01	0.16	0.23

Table 2. Potential Emissions Summary – Facility Total

Ton/year					
Source	PM <sub>10</sub> /PM <sub>2.5</sub>	NO <sub>x</sub>	VOC	CO	SO <sub>x</sub>
Smaller Field Compressor Engines (up to 3)					
316-hp Ajax 2802LE	0.41	3.05	1.68	6.41	0.01
400-hp Caterpillar G3408TA	0.13	3.86	3.86	7.73	0.02
400-hp Waukesha F18GL	0.001	5.79	3.86	1.93	0.01
633-hp Caterpillar G3508LE	0.002	12.22	6.11	3.07	0.01
840-hp Waukesha 3524GSI	0.27	8.11	8.11	16.23	0.02
860-hp Caterpillar G3512LE	0.002	12.46	8.31	4.15	0.02

Large Central Compressor Engines (up to 2)					
1,675-hp Caterpillar G3520B	0.004	16.18	16.18	8.09	0.03
1,680-hp Waukesha 7044GSI	0.55	16.23	16.23	32.45	0.03
1,680-hp Waukesha 7044GSI	0.55	16.23	16.23	32.45	0.03
1,775-hp Caterpillar G3606	0.004	12.00	17.14	8.57	0.03
Portable Diesel Fired Heater					
1 MMBTU/hr Diesel Heater	0.10	0.63	0.01	0.16	0.23
<b>Facility Total</b>	<b>1.60</b>	<b>51.34</b>	<b>44.64</b>	<b>89.02</b>	<b>0.33</b>

**Note:** Facility Total is the sum of the shaded areas. Shaded areas are the worst case emissions for each NO<sub>x</sub> and CO engine configuration.

bhp = brake horsepower

CO = carbon monoxide

gal = gallon

hp = horsepower

hr = hour

lb = pound

MMBtu = million british thermal units

NO<sub>x</sub> = oxides of nitrogen

PM<sub>10</sub> = particulate matter with an aerodynamic diameter of 10 microns or less

PM<sub>2.5</sub> = particulate matter with an aerodynamic diameter of 2.5 microns or less

SO<sub>x</sub> = oxides of sulfur

VOC = volatile organic compounds

yr = year

#### 316-hp Ajax 2802LE Compressor Engine

Brake Horsepower: 316 hp

Hours of operation: 8,760 hr/yr

##### PM<sub>10</sub> Emissions

Emission Factor: 3.84E-02 lb/MMBtu (AP-42, Chapter 3, Table 3.2-1, 7/00)

Fuel Consumption: 2.46 MMBtu/hr (Maximum Design)

Calculations: 2.46 MMBtu/hr \* 3.84E-02 lb/MMBtu = 0.0944 lb/hr  
0.0944 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.41 ton/yr

##### NO<sub>x</sub> Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)

Calculations: 1.00 gram/bhp-hour \* 316 hp \* 0.002205 lb/gram = 0.697 lb/hr  
0.697 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 3.05 ton/yr

##### VOC Emissions

Emission factor: 0.55 gram/bhp-hour (BACT Determination – MAQP 3848-00)

Calculations: 0.55 gram/bhp-hour \* 316 hp \* 0.002205 lb/gram = 0.38 lb/hr  
0.38 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 1.68 ton/yr

##### CO Emissions

Emission factor: 2.10 gram/bhp-hour (BACT Determination – MAQP 3848-00)

Calculations: 2.10 gram/bhp-hour \* 316 hp \* 0.002205 lb/gram = 1.46 lb/hr  
1.46 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 6.41 ton/yr

##### SO<sub>2</sub> Emission

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 = 0.001 lb/hr  
0.001 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: 8,760 hr/yr

#### PM<sub>10</sub> Emissions

Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 3.01 MMBtu/hr (Maximum Design)  
Calculations:  $3.01 \text{ MMBtu/hr} * 9.50\text{E-}03 \text{ lb/MMBtu} = 0.029 \text{ lb/hr}$   
 $0.029 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.13 \text{ ton/yr}$

#### NO<sub>x</sub> Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $1.00 \text{ gram/bhp-hour} * 400 \text{ hp} * 0.002205 \text{ lb/gram} = 0.882 \text{ lb/hr}$   
 $0.882 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 3.86 \text{ ton/yr}$

#### VOC Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $1.00 \text{ gram/bhp-hour} * 400 \text{ hp} * 0.002205 \text{ lb/gram} = 0.882 \text{ lb/hr}$   
 $0.882 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 3.86 \text{ ton/yr}$

#### CO Emissions

Emission factor: 2.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $2.00 \text{ gram/bhp-hour} * 400 \text{ hp} * 0.002205 \text{ lb/gram} = 1.76 \text{ lb/hr}$   
 $1.76 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 7.73 \text{ ton/yr}$

#### SO<sub>2</sub> Emission

Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 3.01 MMBtu/hr (Maximum Design)  
Calculations:  $3.01 \text{ MMBtu/hr} * 5.88\text{E-}04 \text{ lb/MMBtu} = 0.002 \text{ lb/hr}$   
 $0.002 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.01 \text{ ton/yr}$

### **400-hp Waukesha F18GL Compressor Engine**

Brake Horsepower: 400 hp  
Hours of operation: 8,760 hr/yr

#### PM<sub>10</sub> Emissions

Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 2.86 MMBtu/hr (Maximum Design)  
Calculations:  $2.86 \text{ MMBtu/hr} * 7.71\text{E-}05 \text{ lb/MMBtu} = 0.00 \text{ lb/hr}$   
 $0.00 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.001 \text{ ton/yr}$

#### NO<sub>x</sub> Emissions

Emission factor: 1.50 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $1.50 \text{ gram/bhp-hour} * 400 \text{ hp} * 0.002205 \text{ lb/gram} = 1.32 \text{ lb/hr}$   
 $1.32 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 5.79 \text{ ton/yr}$

#### VOC Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $1.00 \text{ gram/bhp-hour} * 400 \text{ hp} * 0.002205 \text{ lb/gram} = 0.88 \text{ lb/hr}$   
 $0.88 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 3.86 \text{ ton/yr}$

#### CO Emissions

Emission factor: 0.50 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $0.50 \text{ gram/bhp-hour} * 400 \text{ hp} * 0.002205 \text{ lb/gram} = 0.44 \text{ lb/hr}$   
 $0.44 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 1.93 \text{ ton/yr}$

#### SO<sub>2</sub> Emission

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:  $2.86 \text{ MMBtu/hr} * 5.88\text{E-}04 \text{ lb/MMBtu} = 0.00 \text{ lb/hr}$   
 $0.00 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.01 \text{ ton/yr}$

### **633-hp Caterpillar G3508LE Compressor Engine**

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

PM<sub>10</sub> Emissions

Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 4.83 MMBtu/hr (Maximum Design)  
Calculations: 4.83 MMBtu/hr \* 7.71E-05 lb/MMBtu = 0.0003 lb/hr  
0.0003 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.002 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 2.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
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

VOC Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
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

CO Emissions

Emission factor: 0.50 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
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 = 3.07 ton/yr

SO<sub>2</sub> Emission

Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 4.83 MMBtu/hr (Maximum Design)  
Calculations: 4.83 MMBtu/hr \* 5.88E-04 lb/MMBtu = 0.003 lb/hr  
0.003 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.01 ton/yr

**840-hp Waukesha 3524GSI Compressor Engine**

Brake Horsepower: 840 hp  
Hours of operation: 8,760 hr/yr

PM<sub>10</sub> Emissions

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 \* 8,760 hr/yr \* 0.0005 ton/lb = 0.27 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 1.00 gram/bhp-hour \* 840 hp \* 0.002205 lb/gram = 1.85 lb/hr  
1.85 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 8.11 ton/yr

VOC Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 1.00 gram/bhp-hour \* 840 hp \* 0.002205 lb/gram = 1.85 lb/hr  
1.85 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 8.11 ton/yr

CO Emissions

Emission factor: 2.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 2.00 gram/bhp-hour \* 840 hp \* 0.002205 lb/gram = 3.70 lb/hr  
3.70 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 16.23 ton/yr

SO<sub>2</sub> Emission

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 = 0.004 lb/hr  
0.004 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.02 ton/yr

**860-hp Caterpillar G3512LE Compressor Engine**

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

PM<sub>10</sub> Emissions

Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 6.42 MMBtu/hr (Maximum Design)  
Calculations:  $6.42 \text{ MMBtu/hr} * 7.71\text{E-}05 \text{ lb/MMBtu} = 0.0005 \text{ lb/hr}$   
 $0.0005 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.002 \text{ ton/yr}$

NO<sub>x</sub> Emissions

Emission factor: 1.50 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $1.50 \text{ gram/bhp-hour} * 860 \text{ hp} * 0.002205 \text{ lb/gram} = 2.84 \text{ lb/hr}$   
 $2.84 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 12.46 \text{ ton/yr}$

VOC Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $1.00 \text{ gram/bhp-hour} * 860 \text{ hp} * 0.002205 \text{ lb/gram} = 1.90 \text{ lb/hr}$   
 $1.90 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 8.31 \text{ ton/yr}$

CO Emissions

Emission factor: 0.50 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $0.50 \text{ gram/bhp-hour} * 860 \text{ hp} * 0.002205 \text{ lb/gram} = 0.95 \text{ lb/hr}$   
 $0.95 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 4.15 \text{ ton/yr}$

SO<sub>2</sub> Emission

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:  $6.42 \text{ MMBtu/hr} * 5.88\text{E-}04 \text{ lb/MMBtu} = 0.004 \text{ lb/hr}$   
 $0.004 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.02 \text{ ton/yr}$

**1675-hp Caterpillar G3520B Compressor Engine**

Brake Horsepower: 1675 hp  
Hours of operation: 8,760 hr/yr

PM<sub>10</sub> Emissions

Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 11.86 MMBtu/hr (Maximum Design)  
Calculations:  $11.86 \text{ MMBtu/hr} * 7.71\text{E-}05 \text{ lb/MMBtu} = 0.0009 \text{ lb/hr}$   
 $0.0009 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.004 \text{ ton/yr}$

NO<sub>x</sub> Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $1.00 \text{ gram/bhp-hour} * 1675 \text{ hp} * 0.002205 \text{ lb/gram} = 3.69 \text{ lb/hr}$   
 $3.69 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 16.18 \text{ ton/yr}$

VOC Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $1.00 \text{ gram/bhp-hour} * 1675 \text{ hp} * 0.002205 \text{ lb/gram} = 3.69 \text{ lb/hr}$   
 $3.69 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 16.18 \text{ ton/yr}$

CO Emissions

Emission factor: 0.50 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations:  $0.50 \text{ gram/bhp-hour} * 1675 \text{ hp} * 0.002205 \text{ lb/gram} = 1.85 \text{ lb/hr}$   
 $1.85 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 8.09 \text{ ton/yr}$

SO<sub>2</sub> Emission

Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 11.86 MMBtu/hr (Maximum Design)  
Calculations:  $11.86 \text{ MMBtu/hr} * 5.88\text{E-}04 \text{ lb/MMBtu} = 0.007 \text{ lb/hr}$   
 $0.007 \text{ lb/hr} * 8,760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.03 \text{ ton/yr}$

**1680-hp Waukesha 7044GSI Compressor Engine**

Brake Horsepower: 1680 hp  
Hours of operation: 8,760 hr/yr

PM<sub>10</sub> Emissions

Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 13.23 MMBtu/hr (Maximum Design)  
Calculations: 13.23 MMBtu/hr \* 9.50E-03 lb/MMBtu = 0.13 lb/hr  
0.13 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.55 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 1.00 gram/bhp-hour \* 1680 hp \* 0.002205 lb/gram = 3.70 lb/hr  
3.70 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 16.23 ton/yr

VOC Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 1.00 gram/bhp-hour \* 1680 hp \* 0.002205 lb/gram = 3.70 lb/hr  
3.70 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 16.23 ton/yr

CO Emissions

Emission factor: 2.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 2.00 gram/bhp-hour \* 1680 hp \* 0.002205 lb/gram = 7.41 lb/hr  
7.41 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 32.45 ton/yr

SO<sub>2</sub> Emission

Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 13.23 MMBtu/hr (Maximum Design)  
Calculations: 13.23 MMBtu/hr \* 5.88E-04 lb/MMBtu = 0.008 lb/hr  
0.008 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.03 ton/yr

**1775-hp Caterpillar G3606 Compressor Engine**

Brake Horsepower: 1775 hp  
Hours of operation: 8,760 hr/yr

PM<sub>10</sub> Emissions

Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 11.75 MMBtu/hr (Maximum Design)  
Calculations: 11.75 MMBtu/hr \* 7.71E-05 lb/MMBtu = 0.001 lb/hr  
0.001 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.004 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 0.70 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 0.70 gram/bhp-hour \* 1775 hp \* 0.002205 lb/gram = 2.74 lb/hr  
2.74 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 12.00 ton/yr

VOC Emissions

Emission factor: 1.00 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 1.00 gram/bhp-hour \* 1775 hp \* 0.002205 lb/gram = 3.91 lb/hr  
3.91 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 17.14 ton/yr

CO Emissions

Emission factor: 0.50 gram/bhp-hour (BACT Determination – MAQP 3848-00)  
Calculations: 0.50 gram/bhp-hour \* 1775 hp \* 0.002205 lb/gram = 1.96 lb/hr  
1.96 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 8.57 ton/yr

SO<sub>2</sub> Emission

Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 11.75 MMBtu/hr (Maximum Design)  
Calculations: 11.75 MMBtu/hr \* 5.88E-04 lb/MMBtu = 0.007 lb/hr  
0.007 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.03 ton/yr

Portable Diesel Fired Heater

Maximum Capacity: 1 MMBTU/hr (de minimis letter)

Hours of Operation: 8760 hr/yr  
 Assumed fuel heating content: 140 MMBtu/10<sup>3</sup> gal  
 Assumed fuel rate: 0.007143 thousand gal/hr

PM Emissions (filterable)

Emissions Factor: 2 lb/10<sup>3</sup> gal (AP-42 Table 1.3-1, 5/2010)

Calculations:

2lb/10<sup>3</sup> gal\*0.0071thousand gal/hr\*8760hr/yr= 125.142857 lb/yr  
 125.142857142857lb/yr\*0.0005ton/lb = 0.06 ton/yr

PM Emissions (Condensable)

Emissions Factor: 1.3 lb/10<sup>3</sup> gal (AP-42 Table 1.3-1, 5/2010)

Calculations:

1.3lb/10<sup>3</sup> gal\*0.0071thousand gal/hr\*8760hr/yr= 81.3428571 lb/yr  
 81.3428571428571lb/yr\*0.0005ton/lb = 0.04 ton/yr  
 0.10 ton/yr

NOx Emissions

Emissions Factor: 20 lb/10<sup>3</sup> gal (AP-42 Table 1.3-1, 5/2010)

Calculations:

20lb/10<sup>3</sup> gal\*0.0071thousand gal/hr\*8760hr/yr= 1251.42857 lb/yr  
 1251.42857142857lb/yr\*0.0005ton/lb = 0.63 ton/yr

CO Emissions

Emissions Factor: 5 lb/10<sup>3</sup> gal (AP-42 Table 1.3-1, 5/2010)

Calculations:

5lb/10<sup>3</sup> gal\*0.0071thousand gal/hr\*8760hr/yr= 312.857143 lb/yr  
 312.857142857143lb/yr\*0.0005ton/lb = 0.16 ton/yr

VOC Emissions

Assume VOC = Organic Condensable Emissions = 15% of condensable emissions

0.01 ton/yr

SOx Emissions

Emissions Factor: 7.2 lb/10<sup>3</sup> gal (AP-42 Table 1.3-1, 5/2010)

Calculations:

$$7.2\text{lb}/10^3 \text{ gal} * 0.0071\text{thousand gal}/\text{hr} * 8760\text{hr}/\text{yr} =$$

$$450.514286 \text{ lb}/\text{yr}$$

$$450.514285714286\text{lb}/\text{yr} * 0.0005\text{ton}/\text{lb} =$$

$$0.23 \text{ ton}/\text{yr}$$

#### IV. Existing Air Quality

The facility is located approximately eleven miles northeast of Decker, Montana, in the SW ¼, NE ¼, Section 22, Township 8 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

The Department determined that the impacts from this permitting action will be minor. No change in permitted emissions is resulting from the current permit action.

#### VII. 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	
XX		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	XX	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	XX	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	XX	4. Does the action deprive the owner of all economically viable uses of the property?
	XX	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?
	XX	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	XX	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?
	XX	7a. Is the impact of government action direct, peculiar, and significant?
	XX	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	XX	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?
	XX	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.



## VIII. Environmental Assessment

This permitting 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: Shawn Juers  
Date: 1/20/2012