

Air Quality Permit

Issued To: Redstone Gas Partners, L.L.C.
P&M 34 Battery
1625 Broadway Avenue
Suite #1800
Denver, CO 80202

Permit #3120-00
Application Complete: 06/20/00
Preliminary Determination: 07/07/00
Department Decision:
Permit Final:
AFS Number: 003-0013

An air quality permit, with conditions, is hereby granted to Redstone Gas Partners, L.L.C. – P&M 34 Battery natural gas compressor station, hereinafter referred to as Redstone, pursuant to Sections 75-2-204 and 211, MCA, as amended, and Administrative Rules of Montana (ARM) 17.8.701, et seq., as amended, for the following:

Section I: Permitted Facilities

The P&M 34 Battery natural gas compressor station is located approximately 3.5 miles northwest of Decker, MT. The legal description of the site location is Section 34 (NE $\frac{1}{4}$), Township 9S, Range 39E, Big Horn County, Montana. The new compressor station includes two 400 bhp Waukesha F18GL natural gas compressor engines (Waukesha F18GL natural gas engines #1 and #2).

SECTION II: Limitations and Conditions

A. Emission Limitations and Control Requirements

1. Emissions from natural gas compressor engines #1 and #2 shall be controlled with the use of lean burn engine technology. Emissions from each unit shall not exceed the following (ARM 17.8.715):

NO _x	1.76 lbs/hr
CO	2.65 lbs/hr
VOC	0.88 lbs/hr

2. Redstone 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 twenty percent (20%) or greater averaged over six (6) consecutive minutes (ARM 17.8.304).
3. Redstone shall not cause or authorize emissions to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
4. Redstone shall treat all unpaved portions of the access roads, parking lots, and general plant area with fresh water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in section II.A.3 (ARM 17.8.710).

B. Testing Requirements

1. Redstone shall test engine #1 and #2 for NO_x and CO, concurrently, and demonstrate compliance with the NO_x and CO emission limits contained in Section II.A.1. Testing shall be conducted within 180 days of initial start-up of each engine and continue on an

every-four-year basis or another testing/monitoring schedule as may be approved by the department (ARM 17.8.105 and 17.8.710).

2. All source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
3. The department may require further testing (ARM 17.8.105).

C. Notification

Redstone shall provide the department with the actual start-up date of each of the two compressor engines within 15 days after the initial start-up date.

D. Operational Reporting Requirements

1. Redstone 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 Section I of 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 units as required by the department.

In addition, Redstone shall submit the following information annually to the department by March 1 of each year. This information is required for the annual emission inventory, as well as to verify compliance with permit conditions (ARM 17.8.505).

- a. Fuel consumption for each engine at the facility.
 - b. Hours of operation for each engine at the facility.
2. Redstone shall notify the department of any construction or improvement project conducted pursuant to ARM 17.8.701(1)(r) 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 emissions 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 17.8.705(1)(r)(iv) (ARM 17.8.705).
 3. The records compiled in accordance with this permit shall be maintained by Redstone as a permanent business record for at least five (5) years following the date of the measurement, shall be submitted to the department upon request, and shall be available at the plant site for inspection by the department (ARM 17.8.710).

Section III. General Conditions

- A. Inspection - The recipient shall allow the department's representatives access to the source at all reasonable times for the purpose of making inspections, 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 all the terms, conditions, and matters stated herein shall be deemed accepted, if the recipient fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this subchapter shall be construed as relieving any permittee of the responsibility for complying with any applicable federal or Montana statutes, rule or standard except as specifically provided in ARM 17.8.701, *et seq.* (ARM 17.8.717).
- D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement 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 fifteen (15) days after the department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review. A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The department's decision on the application is not final unless fifteen (15) days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the department's decision until the conclusion of the hearing and issuance of a final decision by the Board.
- F. Permit Inspection - As required by ARM 17.8.716, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by department personnel at the location of the permitted source.
- G. 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.
- H. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, the continuing validity of this permit is conditional upon the payment by the permittee of an annual operation fee, as required by that Section and rules adopted thereunder by the Board of Environmental Review

Permit Analysis
Redstone Gas Partners, L.L.C.
Permit #3120-00

I. Introduction/Process Description

On June 20, 2000, Redstone submitted a complete air quality pre-construction permit application for a compressor station and associated equipment. The compressor station will be located approximately 3.5 miles northwest of Decker, Montana. The legal description of the site location is Section 34 (NE¼), Township 9S, Range 39E, Big Horn County, Montana. The application has been assigned permit #3120-00.

A. Permitted Equipment and Facilities

Two 400 bhp Waukesha F18GL natural gas compressor engines (engine #1 and #2). Emissions from each of the 400 bhp Waukesha F18GL natural gas compressor engines shall be controlled with the use of “lean burn” technology provided by Waukesha / Dresser, the manufacturer of the engine.

B. Source Description

Natural gas is gathered in the field (wells) and transferred, via flowlines, to the meterhouse, where it is again transferred to the compressor stations. From the compressor stations the gas is metered and sent to central treating and compression.

II. Applicable Rules

The following are partial explanations of some applicable rules and regulations which apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) Title 17, Chapter 8 - AIR QUALITY and are available upon request from the department. Upon request, the department will provide references for the location of any applicable rule or regulation and provide copies where appropriate.

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

1. 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. The testing for this facility shall occur according to Section II.B. of the permit. The department may require further testing.
2. 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.*, MCA.

Redstone shall comply with all requirements contained in the Montana Source Testing 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 Testing Protocol and Procedures Manual is available from the department upon request.

3. ARM 17.8.110, Malfunctions. The department must be notified promptly by phone 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.
4. ARM 17.8.111, Circumvention. No person shall cause or permit the installation or use of any device or any means which, without resulting in a reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant which would otherwise violate an air pollution control regulation. No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

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

1. ARM 17.8.204, Ambient Air Monitoring; and
2. ARM 17.8.206, Methods and Data; and
3. ARM 17.8.211, Ambient Air Quality Standards for Nitrogen Dioxide; and
4. ARM 17.8.212, Ambient Air Quality Standards for Carbon Monoxide.

Redstone 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 to an 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. Under this section, Redstone 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 section 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 section.
4. ARM 17.8.310, Particulate Matter, Industrial Process. This section 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 section.

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. Redstone shall 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. Redstone has submitted the proper application fee with the current air quality permit application.
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. This operation fee is based on the actual or estimated 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, as 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 which pro-rate 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 17.8.704, General Procedures for Air Quality Preconstruction Permitting. An air quality preconstruction permit shall contain requirements and conditions applicable to both construction and subsequent use.
 2. ARM 17.8.705, When Permit Required--Exclusions. This rule requires a facility to obtain an air quality permit or permit alteration if they construct, alter, or use an air contaminant source which has the potential to emit more than 25 tons per year of any pollutant. Redstone has the potential to emit more than 25 tons per year of NOx and CO; therefore, a permit is required.
 3. ARM 17.8.706, New or Altered Sources and Stacks, Permit Application Requirements. This rule requires that an application for an air quality permit be submitted for a new or altered source or stack. Redstone has submitted an application for the current permit action.
 4. ARM 17.8.707, Waivers. ARM 17.8.706 requires the permit application to be submitted 180 days before construction begins. This section allows the department to waive this time limit. The department hereby waives this limit.
 5. ARM 17.8.710, Conditions for Issuance of Permit. This rule requires that the source demonstrate compliance with applicable rules and standards before a permit can be issued. Also, a permit may be issued with such conditions as are necessary to assure compliance with all applicable rules and standards. Redstone has demonstrated compliance with applicable rules and standards as required for permit issuance.
 6. ARM 17.8.715, Emission Control Requirements. Redstone is required to install on a new or altered source the maximum air pollution control capability which is technically practicable and economically feasible, except that Best Available Control Technology (BACT) shall be utilized. A BACT review was conducted for the current permit action and is discussed in Section III of the permit analysis. BACT for each of the 400 bhp Waukesha F18GL engines shall be use of a lean burn engine provided by the manufacturer.
 7. ARM 17.8.716, 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.
 8. ARM 17.8.717, Compliance with Other Statutes and Rules. This rule states that nothing in the permit shall be construed as relieving Redstone of the responsibility for complying

with any applicable federal and Montana statutes, rules and standards, except as specifically provided in ARM 17.8.101, *et seq.*

9. ARM 17.8.720, Public Review of Permit Applications. This rule requires that Redstone notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Redstone submitted an affidavit of publication from the *Billings Gazette* for the current permit application.
 10. ARM 17.8.731, 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.
 11. ARM 17.8.733, Modification of Permit. An air quality permit may be modified for changes in any applicable rules and standards adopted by the Board of Environmental Review or changed conditions of operation at a source or stack which do not result in an increase in emissions because of those changed conditions. A source may not increase its emissions beyond those found in its permit unless the source applies for and receives another permit.
- F. 17.8, Sub-Chapter 8, Prevention of Significant Deterioration (PSD), 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 Modification-- 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 Federal Clean Air Act that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because it is not listed and does not have the potential to emit more than 250 tons per year (excluding fugitive emissions) of any air pollutant.
- 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 Federal Clean Air Act (FCAA) is defined as any stationary source having:
 - a. Potential To Emit (PTE) > 10 tons/year of any one hazardous air pollutant (HAP), or PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the department may establish by rule.
 - b. PTE > 100 tons/year of any pollutant.
 - c. Sources with the PTE > 70 tons/year of PM-10 in a serious PM-10 non-attainment area.

2. ARM 17.8.1204, Air Quality Operating Permit Program Applicability.
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 #3120-00 for Redstone the following conclusions were made:
- a. The facility's PTE is less than 100 tons/year for all criteria pollutants.
 - b. The facility's PTE is less than 10 tons/year of any one HAP and less than 25 tons/year of all HAPs.
 - c. This source is not located in a serious PM-10 non-attainment area.
 - d. This facility is not subject to any current NESHAP standards.
 - e. This source is not a Title IV affected source nor a solid waste combustion unit.
 - f. This source is not an EPA designated Title V source.

The Redstone facility (permit #3120-00) is not a major source and, thus, a Title V operating permit is not required.

III. BACT Determination

A Best Available Control Technology (BACT) determination is required for each new or altered source. Redstone 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 for controlling NO_x, CO and VOC emissions from the 400 bhp Waukesha F18GL natural gas compressor engines was submitted by Redstone and has been reviewed by the department. The department has reviewed previous BACT determinations for compressor engines before making the following BACT determination. The BACT analysis addressed the following four alternatives for controlling NO_x, CO and VOC emissions.

A. Non-Selective Catalytic Reduction Unit (NSCR) with an Air/Fuel Ratio Controller (AFR)

A NSCR unit controls NO_x emissions by using the CO and the residual hydrocarbons in the exhaust of a rich burn engine as a reducing agent for NO_x. In the presence of oxygen, the hydrocarbons will be oxidized instead of reacting with NO_x. As the excess hydrocarbon and NO_x pass over a honeycomb or monolithic catalyst, usually a combination of noble metals such as platinum, palladium, and/or rhodium, the reactants are reduced to N₂, H₂O, and CO₂. The noble metal catalyst usually operates between 800 and 1,200°F; therefore, the unit would normally be mounted near the engine exhaust to maintain a high enough temperature to allow the various reactions to occur. In order to achieve maximum performance, 80 to 90% NO_x reduction, the engine needs to burn a rich fuel mixture -- causing the engine to run less efficiently.

In order to provide for the most effective use of the catalyst, it is necessary to install an electronic AFR controller. This device maintains the proper air/fuel ratio which will optimize the degree of reducing agents to provide maximum emission reduction while minimizing agents that can poison the catalyst. Because an equivalent control technology has been proposed by Redstone, the department has determined that NSCR will not constitute BACT in this case.

B. Lean Burn Engine

The lean burn engine uses a pre-combustion chamber to enclose a rich mixture of air and fuel -- the mixture is then ignited in this chamber. The resulting ignition front then fires into the larger main cylinder which contains a much leaner fuel mixture. Staging the combustion and burning a leaner fuel mixture keeps peak flame temperatures lower. Because the combustion temperature is cooler, the NO_x concentration in the exhaust gas stream is lower; however, excess air in the fuel mixture can produce increased CO emissions.

The NO_x and CO emissions from a lean burn engine can be stabilized by installing an electronic AFR. This device maintains the proper air/fuel ratio which will optimize the performance of the clean burn engine. A lean burn engine with an AFR controller achieves approximately the same reduction in emissions as a rich burn engine fitted with a NSCR unit and an AFR controller. The lean burn engine has a higher initial cost than a rich burn engine with an NSCR unit; however, since there is no add-on equipment, the lean burn option requires far less maintenance than an NSCR unit.

Because the lean burn technology will adequately control emissions, the department has determined that the use of lean burn technology will constitute BACT in this case.

C. NO_x Control at the Crossover Point using an Air/Fuel Ratio Controller

In this process, the proper air/fuel ratio is obtained by adjusting the engine to operate at the crossover point where NO_x and CO emissions are equal. At the crossover point, the engine operates neither too lean nor too rich. Excess hydrocarbon in a rich fuel mixture causes incomplete combustion, thus lowering the exhaust temperature to a point where NO_x formation is less likely to occur, but CO formation is higher. Combustion of a lean fuel mixture occurs at higher temperatures where NO_x formation is greater and CO formation decreases. Operating at the crossover point can keep both NO_x and CO emissions at reasonable levels for lower horse power engines.

It is possible to consistently operate an engine at the crossover point by installing an electronic AFR controller which senses the oxygen concentration in the exhaust. An engine can operate manually at the crossover point; however, the engine must be tuned frequently to account for operational changes such as varying engine load, operating temperature, fuel gas quality, etc. However, for a 400 Hp engine, crossover technology will not effectively limit NO_x emissions to acceptable levels; therefore, the department has determined that installation and operation of an electronic AFR controller will not constitute BACT in this case.

D. No Additional Controls

This practice has no energy or economic impacts on Redstone, but it does have negative impacts on the air quality due to the actual and potential emissions from the sources. Therefore, the department has determined that this option will not constitute BACT in this case.

The control options that have been selected contain control equipment and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory

Permit #3035-01

Source	Emissions in Tons/Year				
	PM-10	NOx	CO	VOC	SOx
Waukesha F18GL Engine #1 (400 bhp)	0.14	7.73	11.59	3.86	0.01
Waukesha F18GL Engine #2 (400 bhp)	0.14	7.73	11.59	3.86	0.01
Totals	0.28	15.45	23.18	7.73	0.02

(SOURCE #01)

Waukesha F18GL Natural Gas Compressor Engine (400 bhp)

Brake Horse Power = 400 bhp
 Hours of Operation = 8,760 hr/yr
 Max Fuel Combustion Rate = 2.86 MMBtu/hr
 Fuel Heating Value = 950 Btu/SCF or 0.0011 MMSCF/MMBtu

PM-10 Emissions

Emission Factor: 10.0 lbs/MMSCF {FIRE, PC Version, 1/95, 2-02-002-02}
 Calculations: 10.0 lbs/MMSCF * 0.001 MMSCF/MMBtu * 2.86 MMBtu/hr = 0.03 lbs/hr
 0.03 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 0.14 tons/yr

NOx Emissions

Emission Factor: 2.00 grams/bhp-hr {BACT Determination}
 Calculations: 2.00 grams/bhp-hr * 400 bhp * 0.002205 lb/gram = 1.76 lbs/hr
 1.76 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 7.73 tons/yr

CO Emissions

Emission Factor: 3.00 grams/bhp-hr {BACT Determination}
 Calculations: 3.00 grams/bhp-hr * 400 bhp * 0.002205 lb/gram = 2.65 lbs/hr
 2.65 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 11.59 tons/yr

VOC Emissions

Emission Factor: 1.00 grams/bhp-hr {BACT Determination}
 Calculations: 1.00 grams/bhp-hr * 400 bhp * 0.002205 lb/gram = 0.88 lbs/hr
 0.88 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 3.86 tons/yr

SOx Emissions

Emission Factor: 0.60 lbs/MMSCF {FIRE, PC Version, 1/95, 2-02-002-02}
 Calculations: 0.60 lbs/MMSCF * 0.001 MMSCF/MMBtu * 2.86 MMBtu/hr = 0.002 lbs/hr
 0.002 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 0.01 tons/yr

(SOURCE #02)

Waukesha F18GL Natural Gas Compressor Engine (400 bhp)

Brake Horse Power: 400 bhp
 Hours of Operation: 8,760 hr/yr
 Max Fuel Combustion Rate: 2.86 MMBtu/hr
 Fuel Heating Value: 950 Btu/SCF or 0.0011 MMSCF/MMBtu

PM-10 Emissions

Emission Factor: 10.0 lbs/MMSCF {FIRE, PC Version, 1/95, 2-02-002-02}
 Calculations: 10.0 lbs/MMSCF * 0.001 MMSCF/MMBtu * 2.86 MMBtu/hr = 0.03 lbs/hr
 0.03 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 0.14 tons/yr

NOx Emissions

Emission Factor: 2.00 grams/bhp-hr {Department BACT Determination}
 Calculations: 2.00 grams/bhp-hr * 400 bhp * 0.002205 lb/gram = 1.76 lbs/hr
 1.76 lbs/hr * 8760 hr/yr * 0.0005 tons/lb = 7.73 tons/yr

CO Emissions

Emission Factor: 3.00 grams/bhp-hr {Department BACT Determination}
Calculations: $3.00 \text{ grams/bhp-hr} * 400 \text{ bhp} * 0.002205 \text{ lb/gram} = 2.65 \text{ lbs/hr}$
 $2.65 \text{ lbs/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ tons/lb} = 11.59 \text{ tons/yr}$

VOC Emissions

Emission Factor: 1.00 grams/bhp-hr {Department BACT Determination}
Calculations: $1.00 \text{ grams/bhp-hr} * 400 \text{ bhp} * 0.002205 \text{ lb/gram} = 0.88 \text{ lbs/hr}$
 $0.88 \text{ lbs/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ tons/lb} = 3.86 \text{ tons/yr}$

SOx Emissions

Emission Factor: 0.60 lbs/MMSCF {FIRE, PC Version, 1/95, 2-02-002-02}
Calculations: $0.60 \text{ lbs/MMSCF} * 0.001 \text{ MMSCF/MMBtu} * 2.83 \text{ MMBtu/hr} = 0.002 \text{ lbs/hr}$
 $0.002 \text{ lbs/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ tons/lb} = 0.01 \text{ tons/yr}$

V. Ambient Air Quality Impacts

The plant site is located within Section 19 (NW¼), Township 9S, Range 40E, Big Horn County, Montana. The air quality of this area is classified as either Better than National Standards or unclassifiable /attainment of the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. In the view of the department, the amount of controlled emissions from this facility will not cause an of any ambient air quality standard.

VI. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the department has conducted a private property taking and damaging assessment and has determined there are no taking or damaging implications.

VII. Environmental Assessment

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

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

DRAFT ENVIRONMENTAL ASSESSMENT (EA)

Issued For: Redstone Gas Partners, L.L.C.
P&M 34 Battery
Denver, CO 80202

Air Quality Permit Number: 3120-00

Preliminary Determination Issued: 07/07/00

1. Legal Description of Site: The Redstone Compressor Station is located in Section 34 (NE¼), Township 9S, Range 39E, in Big Horn County, Montana.
2. Description of Project: The attached permit is for the construction and operation of a natural gas compressor station for the supply of pressure to pipelines, that distribute gas to markets in Montana. The project involves the installation of two 400 bhp Waukesha F18GL natural gas compressor engines and associated equipment at a new facility.
3. Objectives of the Proposed Project:
 - Increased business and revenue for the company.
 - Provide infrastructure to increase capacity of natural gas supply to customers.
4. Description and analysis of reasonable alternatives considered:
 - Alternative 1: No Action. The department has determined that the “no action” alternative does not constitute a reasonable alternative. Redstone has demonstrated to the department’s satisfaction that the proposed project could operate and maintain compliance with all applicable regulations, as proposed.
5. A listing and appropriate evaluation of mitigation, stipulations, and other controls enforceable by the agency or another government agency: A list of enforceable conditions, including a best available control technology analysis, is contained in attached permit #3120-00.
6. Description and analysis of regulatory impacts on private property rights: The department has considered alternatives to the conditions imposed in this permit as part of the permit development. The department has determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

SUMMARY OF PHYSICAL AND BIOLOGICAL EFFECTS

		Major	Moderate	Minor	None	Unknown	Comments Included
1	Terrestrial and Aquatic Life and Habitats			✓			yes
2	Water Quality, Quantity and Distribution				✓		yes
3	Geology and Soil Quality, Stability and Moisture			✓			yes
4	Vegetation Cover, Quantity and Quality			✓			yes
5	Aesthetics			✓			yes
6	Air Quality			✓			yes
7	Unique Endangered, Fragile or Limited Environmental Resource			✓			yes
8	Demands on Environmental Resource of Water, Air and Energy			✓			yes
9	Historical and Archaeological Sites				✓		yes
10	Cumulative and Secondary Impacts			✓			yes

SUMMARY OF ECONOMIC AND SOCIAL EFFECTS

		Major	Moderate	Minor	None	Unknown	Comments Included
1	Social Structures and Mores				✓		yes
2	Cultural Uniqueness and Diversity				✓		yes
3	Local and State Tax Base and Tax Revenue			✓			yes
4	Agricultural or Industrial Production			✓			yes
5	Human Health			✓			yes
6	Access to and Quality of Recreational and Wilderness Activities			✓			yes
7	Quantity and Distribution of Employment				✓		yes
8	Distribution of Population				✓		yes
9	Demands for Government Services			✓			yes
10	Industrial and Commercial Activity			✓			yes
11	Locally Adopted Environmental Plans and Goals				✓		yes
12	Cumulative and Secondary Impacts			✓			yes

SUMMARY OF PHYSICAL AND BIOLOGICAL EFFECTS

1. Terrestrial and Aquatic Life and Habitats

There would be minor impacts to the terrestrial and aquatic life and habitats in the immediate area of the proposed project. However, the facility would not be expected to have an adverse impact on any of the terrestrial life or habitats. The area around the site would be expected to facilitate the same terrestrial life that it supported before the project. No impacts would be expected on the aquatic life and habitats in the area.

2. Water Quality, Quantity, and Distribution

Water might be used as a dust suppressant, as necessary, to maintain compliance with the opacity requirements. If water were used as a dust suppressant, only small quantities would be required. No surface water runoff problems would result from using water as a dust suppressant. No further water quality, quantity and distribution impacts are expected as a result of this project.

Harvesting of the methane gas does require extraction of water from the water table located at the level of the coal seam. After extraction, the water would be held in settling ponds located near the well pod sites and finally released into Squirrel Creek. Concerning water released into Squirrel Creek, Redstone would be required to comply with all applicable water quality regulations.

3. Geology and Soil Quality, Stability, and Moisture

There would be minor impacts to the geology and soil quality, stability and moisture in the area as a result of the proposed facility. The topsoil would be moved around to provide level surfaces to house the structures and road necessary for the compressor station, but only to a minor extent. The end result would be that only a small portion of the site would be disturbed.

4. Vegetation Cover, Quantity, and Quality

There would be minor impacts to the vegetation cover quantity and quality. Several structures and a road are required for proper operation of the compressor station. The vegetation cover quantity and quality would be impacted for the compressor station, but only to a minor extent.

5. Aesthetics

The proposed project would create a minor negative affect on the aesthetics of the area. The area would not look exactly the same as it did prior to the addition of the compressor station. Further, noise from the facility would be minimized by enclosing the compressor engines within buildings.

6. Air Quality

The air quality in the area would be impacted by the addition of the compressor station to the area. By placing BACT controls on the compressor engines, the impacts to the air quality would be minimized. The BACT control chosen for each of the 400 bhp Waukesha compressor engines was the use of a lean bun engine provided by the manufacturer.

7. Unique, Endangered, Fragile or Limited Environmental Resource

The department has contacted the Montana Natural Heritage Program (MNHP) in an effort to identify any species of special concern associated with the proposed site location. Search results have concluded there are several such environmental resources in the area. Area in this case is defined by the township and range of the proposed site, with an additional one-mile buffer. These species of special concern include Nuttall Desert-Parsley, Barr's Milkvetch, Joe-Pye Weed, the Bald Eagle and the Spiny Softshell Turtle. While these resources are found within the defined area, the MNHP search did not indicate any species of special concern located directly on the proposed site. Therefore, it is unlikely that any of the previously listed species will be adversely affected by the proposed project.

According to the Montana Bald Eagle Management Plan (July 1994), an operation such as that which has been proposed by Redstone should not directly impact the Eagle outside of its recognized breeding/courtship/nesting period (Feb. 1 - Aug. 15). During this period, in Montana, Bald Eagles almost exclusively occupy either riparian or lacustrine environments. The proposed project location is not considered either a riparian or lacustrine environment and thus Bald Eagle habitation during the breeding/courting/nesting period is unlikely. The Bald Eagle will occasionally exploit upland areas (such as the proposed site) for food and or roosting sites, especially during the winter (ref. Montana Bald Eagle Management Plan). However, habitation of the upland environment will be transient.

8. Demands on Environmental Resource of Water, Air, and Energy

The current project would place additional demands on the water, air, and energy resources in the area. Harvesting of the methane gas does require extraction of water from the water table located at the level of the coal seam. After extraction the water would be held in settling ponds located near the well sites and finally released into Squirrel Creek. Concerning water released to Squirrel Creek, Redstone would be required to comply with all applicable water quality regulations. More than likely, the energy demands of running the compressor station would be satisfied by using the natural gas from the field and would thus not require the use of previously existing energy resources. Finally, as part of compressing the gas taken from the field, the facility would emit pollutants to the surrounding air. As a result, the surrounding air quality will be minimally impacted. However, physical controls on the equipment and permit conditions will minimize the impacts. Overall, demands on environmental resources of water, air, and energy would be minimal.

9. Historical and Archaeological sites

The department has contacted the Montana Historical Society (MHS) in an effort to identify any known historic, cultural, or archaeological sites located on or near the proposed operating site. The MHS search did reveal several sites of historical, cultural, or archaeological significance found within Section 34, Township 9S, and Range 39E in Big Horn County, MT. These sites include the following: two aboriginal lithic scatters (site #24BH2090 and site #24BH1575), two workshops (site #24BH1580 and site #24BH1571), and a pictograph (site #24BH1505). Due to the existence of the previously cited known historical / cultural / archaeological sites in the area, and because the proposed project would require new construction, it is recommended that the owner/operator conduct a reconnaissance survey prior to any initial ground disturbance to ensure that none of the previously-mentioned known sites would be affected.

10. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project would result in minor impacts to the immediate area. Air pollution from the facility would be controlled by department-determined BACT and conditions in permit #3120-00.

For a more detailed review of potential cumulative and secondary impacts resulting from the proposed project refer to item #12, Cumulative and Secondary Impacts, in the Potential Impact on Human Environment section of this Environmental Assessment.

SUMMARY OF ECONOMIC AND SOCIAL EFFECTS

1. Social Structures and Mores

There would be no change in social structures or mores as a result of the addition of the Redstone Facility.

2. Cultural Uniqueness and Diversity

There would be no change to the cultural uniqueness and diversity of the area as a result of the addition of the Redstone Facility.

3. Local and State Tax Base and Tax Revenue

The compressor operations would have little, if any, affects on the local and state tax base and tax revenue.

4. Agricultural or Industrial Production

The compressor operations would take place in an area suitable for agricultural grazing or production. However, the proposed project is small enough that any potential impact is minimal. The proposed operations are small by industrial standards and would, therefore, have only a minor impact on local industrial production.

5. Human Health

Permit #3120-00 incorporates conditions to ensure that the compressor station would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

6. Access to and Quality of Recreational and Wilderness Activities

The proposed operations would not affect any access to recreational and wilderness activities. However, minor affects to the quality of recreational and wilderness activities might be created by the noise from the site.

7. Quantity and Distribution of Employment

Activities from the proposed operations would not affect the quantity and distribution of employment in the area. Redstone would utilize a few company employees for project operations.

8. Distribution of Population

The proposed operations would not disrupt the normal population distribution in the area.

9. Demands of Government Services

Minor increases would be seen in traffic on existing roads in the area as a result of the compressor operations. In addition, government services would be required for acquiring the appropriate permits from government agencies. Demands for government services would be minimal.

10. Industrial and Commercial Activity

Only minor impacts to industrial or commercial activity would be expected as a result of establishing the compressor station in the area. Commercial activity would remain unaffected by this project.

11. Locally Adopted Environmental Plans and Goals

The department is not aware of any locally adopted environmental plans or goals. The state standards would protect the proposed site and the environment surrounding the site.

12. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project would result in minor impacts to the immediate area. Air pollution from the facility would be controlled by department-determined BACT and conditions in permit #3120-00.

The proposed compressor station is one of five identical facilities for which Redstone has submitted air quality permit applications. In addition to the five currently proposed compressor stations, Redstone is permitted to operate five previously permitted stations located in the same general area of the proposed site within Big Horn County. The proposed P&M 34 Battery is one of ten Redstone compressor stations to be located within Big Horn County. All ten compressor stations would be located within a 10-square-mile area. The cumulative impact of locating ten compressor stations in an area of this size is expected to be insignificant because the individual emissions are minor and the facility would be required to comply with all applicable air quality standards. Further, the department has determined that, cumulatively, the ten stations would not affect the same air shed due to topography of the land and actual distances between sources.

These facilities would also be located within three to four miles of the Decker West and Spring Creek coal mines. Air quality monitoring at these mines has indicated that air emissions in the area are in compliance with applicable state and federal standards. It is not anticipated that the five existing compressor station facilities and the additional five proposed compressor stations, along with the existing mines, would have any significant cumulative impacts.

A letter, regarding the four initially-permitted compressor stations, from Redstone Gas Partners, L.L.C., Vice President Roland P. DeBruyn, received by DEQ, on January 6, 1999, indicates that:

Redstone believes that coalbed methane development will occur over a broad area in southern Big Horn County, if our assessments of the resource potential are validated by the performance of the wells to be connected to the four captioned batteries. Such development will result in the construction of a large number of batteries as wells are drilled and development expands. It is also possible that another central facility like *Gladewater** may be built in Big Horn County as development proceeds. Redstone intends to monitor production from the first group of wells and to continue drilling evaluation wells in surrounding areas before making these decisions. Naturally, activity by other operators will also influence design and construction of facilities in the area.

** Gladewater is a central processing station located just south of the Montana - Wyoming border, which will receive intermediate-pressure gas from several compressor stations and will treat and compress it for final transmission and sale.*

The proposed P&M 34 Battery indicates that the resource potential is being further explored and, thus, the potential for numerous batteries (like the proposed and previously permitted stations, as well as a larger central compressor station) is likely. If additional air quality permit applications for coalbed methane development in the area are received by DEQ, the cumulative impact of those facilities (in combination with facilities previously approved) would be analyzed. The department intends to review all applications received and make air quality impact determinations on a case-by-case basis, taking into account the potential for cumulative and secondary impacts resulting from the construction and operation of numerous compressor stations within a relatively small area.

The federal Bureau of Land Management (BLM) is in the process of preparing an environmental assessment of Redstone's full proposal. In a letter dated June 20, 2000, Mike Bergstrom with Redstone Gas Partners, L.L.C., indicated that the currently proposed project is entirely within the scope of the BLM EA. Therefore, BLM EA findings will be applicable to the existing project. The completed BLM EA is expected to be released to the public during summer 2000.

Finally, the Montana Department of Natural Resources and Conservation (DNRC) has a proposal to designate the Powder River Basin (a land area including the previously permitted and proposed compressor sites) as a controlled ground water area. Therefore, any Redstone operations would be required to maintain the status quo regarding the DNRC Powder River Basin Groundwater Area designation.

Overall, cumulative and secondary impacts from the currently proposed project will be minimal. Further detail regarding cumulative and secondary impacts will be available through the BLM EA.

Recommendation: No EIS is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The limitations in permit #3120-00 would restrict emissions from the Redstone facility. By applying the conditions that were derived through the BACT determination, the emissions from the facility would be controlled and the effects to the surrounding air quality would be minimal. The results of the EA that was performed for the Redstone facility reflect the minimal impacts that would result from the addition of the compressor station. For these reasons, the EA is the appropriate level of analysis and an EIS is not required.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Department of Natural Resources and Conservation (DNRC), Federal Bureau of Land Management (BLM), Montana Department of Environmental Quality – Water Protection Bureau, Montana Natural Heritage Program (NRIS), Montana Historical Society.

Individuals or groups contributing to this EA: Department of Environmental Quality, Permitting and Compliance Division, Montana Department of Natural Resources and Conservation (DNRC), Federal Bureau of Land Management (BLM), Montana Department of Environmental Quality – Water Protection Bureau, Montana Natural Heritage Program (NRIS), Montana Historical Society.

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