October 21, 2019

Scott Gladden
Scout Energy Management LLC – Bowdoin Compressor Station
4901 Lyndon B. Johnson FWY, Suite 300
Dallas, Texas 75244

Dear Mr. Gladden:

Montana Air Quality Permit #2922-08 is deemed final as of October 19, 2019, by the Department of Environmental Quality (Department). This permit is for a natural gas compressor station. 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,

Julie A. Merkel
Permitting Services Section Supervisor
Air Quality Bureau
(406) 444-3626

Ed Warner
Lead Engineer – Permitting Services Section
Air Quality Bureau
(406) 444-2467

JM:EW
Enclosure

Montana Department of Environmental Quality
Air, Energy & Mining Division

Montana Air Quality Permit #2922-08

Scout Energy Management LLC
Bowdoin Compressor Station
4901 Lyndon B. Johnson FWY, Suite 300
Dallas, Texas 75244

October 19, 2019

MONTANA AIR QUALITY PERMIT

Issued To:
Scout Energy Management LLC
4901 Lyndon B. Johnson FWY, Suite 300
Dallas, Texas 75244

MAQP: #2922-08
Administrative Amendment (AA)
Request Received: 9/10/2019
Department's Decision on AA: 10/3/2019
Permit Final: 10/19/2019

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

Section I: Permitted Facilities

A. Plant Location

SEM owns and operates a natural gas compressor station, known as the Bowdoin Compressor Station, located in the SW¼ of the SE¼ of Section 35, Township 35 North, Range 31 East, in Phillips County, Montana. The latitude and longitude for the site is 48.74348, -107.63252. A complete list of the permitted equipment is contained in Section I.A. of the permit analysis.

B. Current Permit Action

On September 10, 2019, the Department of Environmental Quality (Department) received a change of ownership notice from Omimex Canada, Ltd. and SEM for the Bowdoin Compressor Station. The current permit action transfers ownership of the MAQP to SEM in accordance with ARM 17.8.764 and ARM 17.8.765(2).

Section II: Limitations and Conditions

A. Emission Limitations

1. SEM shall not operate more than one natural gas compressor engine with a maximum rated design capacity equal to, or less than, 2,000-hp (as Unit C-113). The engine may be a rich-burn engine fitted with a Non-Selective Catalytic Reduction (NSCR) unit and an Air-to-Fuel Ratio (AFR) controller or a lean-burn engine retrofitted with an Oxidation Catalyst (OC). The emission limits for the engine shall be determined as follows (ARM 17.8.749 and ARM 17.8.752):

   Emission Limit (pound per hour (lb/hr)) = Emission Factor (gram per break horsepower-hour (g/bhp-hr)) * maximum rated capacity of engine (hp) * 0.002205 pound per gram (lb/g)

2. The maximum rated design capacity of the engine (Unit C-113) shall not exceed 2,000-hp and the emission limits for the engine shall be determined

by using the equation in Section II.A.1 in conjunction with the appropriate emission factors, as follows (ARM 17.8.752):

Rich-Burn Engine with NSCR Unit and AFR Controller

NO_x[1] 1.00 g/bhp-hr
CO 2.00 g/bhp-hr
VOC 1.00 g/bhp-hr

Lean-Burn Engine with OC

NO_x[1] 1.00 g/bhp-hr
CO 0.50 g/bhp-hr
VOC 1.00 g/bhp-hr

3. The speed for each of the 1085-hp Caterpillar compressor engines (Units C-110, C-111, and C-679) shall not exceed 1200 revolutions per minute (rpm) of continuous duty operation. Each of the 1085-hp Caterpillar compressor engines shall have a minimum stack height of 24 feet above ground level and the emissions from each engine shall not exceed the following (ARM 17.8.752):

NO_x[1] 4.78 lb/hr
CO 3.56 lb/hr
VOC 0.50 lb/hr

4. The 1050-horsepower (hp) Caterpillar G33516TA HCR rich-burn compressor engine (Unit C-114) shall be controlled with a non-selective catalytic reduction (NSCR) unit. The emission limits for the engine shall be determined as follows (ARM 17.8.752):

Emission Limit (pound per hour (lb/hr)) = Emission Factor (gram per break horsepower-hour (g/bhp-hr)) * maximum rated capacity of engine (hp) * 0.002205 pound per gram (lb/g)

5. The maximum rated design capacity of the engine (Unit C-114) shall be determined by using the equation in Section II.A.4 in conjunction with the appropriate emission factors, as follows (ARM 17.8.752):

Rich-Burn Engine with NSCR Unit and AFR Controller

NO_x[2] 1.00 g/bhp-hr
CO 1.00 g/bhp-hr
VOC 0.50 g/bhp-hr

6. SEM shall direct all dehydrator still column vent emissions to an underground storage tank. The vent line exit from the tank shall be a minimum of 14 feet above ground level (ARM 17.8.752).

1 NO_x reported as NO_2
2 NO_x reported as NO_2

7. The 126-hp Ford engine driving an 85-kilowatt (kW) generator (Unit PK-70) shall be used only on an emergency basis when commercial, purchased power is unavailable. The operating hours for this unit shall not exceed 2,000 hours per year (hr/yr). The engine shall have a minimum stack height of 24 feet above ground level and emissions shall not exceed the following (ARM 17.8.752):

NO_x[1]	3.88 lb/hr
CO	0.21 lb/hr
VOC	0.04 lb/hr

8. SEM shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over six consecutive minutes (ARM 17.8.304).

9. SEM 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 (PM) (ARM 17.8.308).

10. SEM shall treat all unpaved portions of the access roads, parking lots, and the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.9. (ARM 17.8.749).

11. SEM shall operate all equipment to provide the maximum air pollution control for which it was designed (ARM 17.8.752).

B. Testing Requirements

1. Unit C-113 shall be initially tested for nitrogen oxides (NO_X) and carbon monoxide (CO), concurrently, to demonstrate compliance with the emission limitations contained in Section II.A.1 and Section II.A.2. The initial source testing shall be conducted within 180 days of the initial startup date of the compressor engine. After the initial source test, additional testing for unit C-113 shall continue on an every 4-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. Units C-110, C-111, and C-679 shall be initially tested for NO_x and CO, concurrently, to demonstrate compliance with the emission limitations 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. After the initial source test, additional testing for units C-110, C-111, and C-679 shall continue on an every 4-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. Unit C-114 shall be initially tested for NO_x and CO, concurrently, to demonstrate compliance with the emission limits in Section II.A.4 and II.A.5. The initial source testing shall be conducted within 180 days of the initial startup date of the compressor engine. After the initial source test, additional testing for unit C-114 shall continue on an every 4-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. During each test, SEM shall monitor the intake manifold temperature and pressure, the exhaust temperature, manifold pressure, engine rpm, and all parameters necessary to calculate horsepower. This information shall be submitted to the Department along with the Source Test Report (ARM 17.8.105).

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

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

C. Operational Reporting Requirements

1. SEM 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 units as required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). SEM shall submit the following information annually to the Department by March 1st of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

   a. Hours of operation of Unit PK-70, and

   b. Summary report listing the reasons why Unit PK-70 was operating.

2. SEM 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 SEM as a permanent business record for at least five years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

D. Notification

SEM shall provide the Department with written notification of the following information within the specified time periods (ARM 17.8.749):

1. Commencement of construction of Unit C-113 and C-114, within 30 days after commencement of construction.

2. The actual start-up date of Unit C-113 and C-114, within 15 days after the actual start-up date of the engine.

3. A change in specifications of the Unit C-113 engine (maximum rated design capacity, rich burn or lean burn, and two stroke or four stroke) to be installed according to Section II.A.1. within 15 days after the actual startup date of Unit C-113.

Section III: General Conditions

A. Inspection - SEM shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if SEM fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving SEM of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740 *et seq.* (ARM 17.8.756).

D. Enforcement - Violations of limitations, conditions, and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401 *et seq.*, MCA.

E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the

effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection - As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by SEM 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 must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Montana Air Quality Permit Analysis
Scout Energy Management LLC
MAQP #2922-08

I. Introduction/Project Description

A. Permitted Equipment

Scout Energy Management LLC (SEM), owns and operates a natural gas compressor station located in the SW¼ of the SE¼ of Section 35, Township 35 North, Range 31 East, in Phillips County, Montana. The latitude and longitude for the site is 48.74348, -107.63252. The facility is known as the Bowdoin Compressor Station. The SEM facility includes, but is not limited to, the following equipment:

UNIT ID	UNIT DESCRIPTION
C-110	1085-horsepower (hp) Caterpillar G3516TA LE compressor engine;
C-111	1085-hp Caterpillar G3516TA LE compressor engine;
C-679	1085-hp Caterpillar G3516TA LE compressor engine;
C-113	Up to a 2,000-hp compressor engine;
C-114	1050-horsepower (hp) Caterpillar G33516TA High Compression Ratio (HCR) compressor engine;
PK-100	12.5-million standard cubic feet per day (MMScfd) triethylene glycol (TEG) dehydration unit with a 350,000-British thermal units per hour (Btu/hr) glycol reboiler and a still vent;
PK-101	12.5-MMScfd TEG dehydration unit with a 350,000-Btu/hr glycol reboiler and a still vent;
PK-102	12.5-MMScfd TEG dehydration unit with a 350,000-Btu/hr glycol reboiler and a still vent;
PK-60	350,000-Btu/hr space heater boiler; and
PK-70	126-hp Ford engine driving an 85-kilowatt (kW) generator (to be used for emergency backup).
	Miscellaneous Volatile Organic Compounds (VOC) emissions from the methanol injection system and storage tank, emergency vent stack/compressor blowdowns, and component leaks.

B. Source Description

SEM compresses and dehydrates natural gas delivered to the station from gas wells in the area. Compressed and dehydrated gas is delivered to a pipeline for redelivery to Northern Border Pipeline at a point near Monchy, Saskatchewan, Canada.

SEM's Bowdoin Compressor Station is located in the SW¼ of the SE¼ of Section 35, Township 35 North, Range 31 East, in Phillips County, Montana. The station site is located approximately 1¼ miles south of the town of Whitewater, Montana. The total area is approximately eight acres. The site is flat, and access to the site is from the north. The site is fenced on all sides with a 6-foot chain-link fence and three strands of barbed wire.

C. Permit History

On June 16, 1996, North American Resources Company (NARCO) was issued **Montana Air Quality Permit (MAQP) #2922-00** for the construction and operation of a natural gas compressor station and associated equipment. The emitting units permitted were two 1085-hp Caterpillar G3516TA LE compressor engines (Unit C-110 and C-111), one 1665-hp Caterpillar G3606TA LE compressor engine (Unit C-679), two 12.5-MMScfd TEG dehydration units each with a 350,000-Btu/hr glycol reboiler and a still vent (Unit PK-100 and PK-101), one 350,000-Btu/hr space heater boiler (Unit PK-70), and one 126-hp Caterpillar G3306 NA engine driving an 85-kW generator (Unit PK-60) (to be used for emergency backup). Miscellaneous VOC emissions from the methanol storage tank, emergency vent stack/compressor blowdowns, and component leaks were also considered.

On July 9, 1998, NARCO requested a modification to MAQP #2922-00. This permit action consisted of removing the 1665-hp Caterpillar G3606TA LE compressor engine and replacing it with a third 1085-hp Caterpillar G3516TA LE compressor engine. Also, the rule references were updated. **MAQP #2922-01** replaced MAQP #2922-00 on September 13, 1998.

In 1999, the U.S. Environmental Protection Agency (EPA) informed the Department of Environmental Quality (Department) that any condition in a Montana Air Quality Permit would be considered a federally enforceable condition. However, there are certain state rules that were never intended to be federally enforceable. The Department notified all facilities holding Montana Air Quality Permits that they could request deletion of those conditions based on the Administrative Rules of Montana (ARM) 17.8.717 and 17.8.315. Removing either of these conditions did not relieve the facility from complying with the rule upon which the permit condition was based; removal only ensured that enforcement of the condition remained solely with the Department. This permit action removed the condition, based on ARM 17.8.717, from the permit. Furthermore, the rule references and permit format were updated and the testing requirements contained in Sections II.B.3. and II.B.4. in MAQP #2922-01 were removed because NARCO had demonstrated compliance with the natural gas sample analysis requirement. **MAQP #2922-02** replaced MAQP #2922-01 on December 7, 2000.

On January 22, 2002, the Department received a notice of corporate merger and name change from PanCanadian Energy Resources, Inc. (PanCanadian). The letter notified the Department that Montana Power Gas Company, Xeno, Inc., and Entech Gas Ventures, Inc., merged into NARCO as of January 1, 2002. The letter also stated that at the same time, NARCO changed its corporate name to PanCanadian. In addition, on April 18, 2002, the Department received a letter from PanCanadian that requested a name change from PanCanadian to EnCana Energy Resources, Inc. This permit action transferred the permit from NARCO to EnCana Energy Resources, Inc. **MAQP #2922-03** replaced MAQP #2922-02 on August 7, 2002.

On July 7, 2003, the Department received a Montana Air Quality Permit Application for a modification to MAQP #2922-03 to include up to a 2,000-hp natural gas compressor engine and a 350,000-Btu/hr TEG dehydration unit. The permit action modified the permit to include the new equipment and updated the mailing address to reflect the current mailing address, as stated in the permit application. In addition,

the name on the permit was changed to incorporate a name change from EnCana Energy Resources Inc. to EnCana Gathering Services (USA), Inc. (EnCana), as requested by EnCana on June 5, 2003. Also, the permit was updated to reflect current permit language and rule references used by the Department. **MAQP #2922-04** replaced MAQP #2922-03.

On October 14, 2003, the Department received a letter from EnCana requesting the Department change the engine unit number, C-112 for the 1085-hp Caterpillar G3516TA LE compressor engine and change the make listed for the 126-hp generator (Unit PK-70) because it was misidentified as a Caterpillar. This permitting action changed the engine number C-112 to C-679, identified Unit PK-70 as a Ford not a Caterpillar, and updated the permit to reflect current permit language and rule references used by the Department. **MAQP #2922-05** replaced MAQP #2922-04.

On March 5, 2004, the Department received a letter from Omimex Canada, Ltd. requesting the Department change the corporate name on MAQP #2922-05 from EnCana Gathering Services (USA), Inc. to Omimex Canada, Ltd. This permitting action changed the corporate name and updated the permit to reflect current permit language and rule references used by the Department. **MAQP #2922-06** replaced MAQP #2922-05.

On October 7, 2005, the Department received a complete permit application from Omimex Canada, Ltd. to add a 1,050 hp HCR natural gas fired rich burn compressor engine with an NSCR catalyst to the existing compressor station. The permit was also updated to use the current permit language and rule references used by the Department. **MAQP #2922-07** replaced MAQP #2922-06.

D. Current Permit Action

On September 10, 2019, the Department received a change of ownership notice from Omimex Canada, Ltd. and Scout Energy Management, LLC (SEM) for the Bowdoin Compressor Station. The current permit action transfers ownership of the MAQP to SEM in accordance with ARM 17.8.764 and ARM 17.8.765(2).

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 ARMs and are available, upon request, from the Department. Upon request, the Department will provide references for locations 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).

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

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than four hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

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

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

SEM 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. (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. (2) Under this rule, SEM 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 (PM).

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere PM caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere PM in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1971, no person shall burn liquid or solid fuels containing sulfur in excess of one pound of sulfur per million Btu fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. SEM will burn pipeline-quality natural gas in its fuel burning equipment, which will meet this limitation.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank-truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR 60.

   40 CFR 60, Subpart A - General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:

   40 CFR 60, Subpart KKK Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants. Owners or operators of onshore natural gas processing plants, as defined and applied in 40 CFR Part 60, shall comply with standards and provisions of 40 CFR Part 60, Subpart KKK. This subpart does not apply to the SEM facility because

the facility does not meet the definition of a natural gas processing plant as defined in 40 CFR Part 60, Subpart KKK.

40 CFR 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. This rule contains provisions that apply to owners or operators of stationary spark ignition (SI) internal combustion engines (ICE) that commence construction, modification, or reconstruction after June 12, 2006, where the stationary ICE is manufactured after July 1, 2007, for engines greater than 500 bhp, or after July 1, 2008, for engines less than 500 bhp. The SI ICE equipment to be used under MAQP #2922-08 may be subject to this subpart based on manufacture date and size of the engines.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The owner or operator of any affected source, as defined and applied in 40 CFR Part 63, shall comply with the applicable subparts of 40 CFR Part 63.

40 CFR 63, Subpart A - General Provisions apply to all equipment or facilities subject to a NESHAPs Subpart as listed below.

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

40 CFR 63, Subpart HHH - National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities. Owners or operators of natural gas transmission or storage facilities, as defined and applied in 40 CFR Part 63, shall comply with the standards and provisions of 40 CFR Part 63, Subpart HHH. In order for a natural gas transmission and storage facility to be subject to 40 CFR Part 63, Subpart HHH requirements, certain criteria must be met. First, the facility must transport or store natural gas prior to the gas entering the pipeline to a local distribution company or to a final end user if there is no local distribution company. In addition, the

facility must be a major source of HAPs as determined using the maximum natural gas throughput as calculated in either paragraphs (a)(1) and (a)(2) or paragraphs (a)(2) and (a)(3) of 40 CFR Part 63, Subpart HHH. Third, a facility must contain an affected source (glycol dehydration unit) as defined in paragraph (b) of 40 CFR Part 63, Subpart HHH. Finally, if the first three criteria are met, and the exemptions contained in paragraph (f) of 40 CFR Part 63, Subpart HHH, do not apply, the facility is subject to the applicable provisions of 40 CFR Part 63, Subpart HHH. Because the facility is not a major source of HAPs, SEM is not subject to the provisions of 40 CFR 63, Subpart HHH.

40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants (HAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. An area source of HAP emissions is a source that is not a major source. The RICE equipment to be used under MAQP #2922-22 are subject to this subpart because they are RICE operating at an area source of HAP emissions.

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

1. ARM 17.8.401 Definitions. This rule includes a list of definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.402 Requirements. SEM must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The stack height for SEM is below the allowable 65-meter GEP stack height.

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

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

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 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 pro-rate the required fee amount.

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

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter, or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. SEM has a PTE greater than 25 tons per year of nitrogen oxides (NO_X), carbon monoxide (CO), and VOC; therefore, an air quality permit is required.

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

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

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

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 Statutes and Rules. This rule states that nothing in the permit shall be construed as relieving SEM of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement (EIS).

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than one year after the permit is issued.

12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

G. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

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

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

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

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

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

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

2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (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 #2922-08 for SEM, 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 of all HAPs.

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

   d. The facility is potentially subject to current NSPS (40 CFR Part 60 Subparts A and JJJJ).

   e. This facility is subject to current NESHAP (40 CFR Part 63 Subparts A and ZZZZ).

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

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

Based on these facts, the Department determined that SEM is a minor source of emissions as defined under Title V. However, if minor sources subject to NSPS are required to obtain a Title V Operating Permit, SEM may be required to obtain a Title V Operating Permit.

III. BACT Determination

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

A BACT determination was not required for the current permit action because the permit change is considered an administrative permit change.

IV. Emission Inventory

	Tons/Year					
Source	PM_{10}	NO_x	VOC	CO	SO_x	
1085-hp Caterpillar G3516TA LE (C-110)		0.36	20.96	2.20	15.61	0.02
1085-hp Caterpillar G3516TA LE (C-111)		0.36	20.96	2.20	15.61	0.02
1085-hp Caterpillar G3516TA LE (C-679)		0.36	20.96	2.20	15.61	0.02
Compressor Engine ≤ 2,000-hp (C-113)		0.30	19.32	19.32	38.63	0.02
1050-hp Caterpillar G33516TA HCR (C-114)	0.33	10.14	5.07	10.14	0.02	
TEG Regenerator Vent (PK-100)	0.00	0.00	0.95	0.00	0.00	
TEG Regenerator Vent (PK-101)	0.00	0.00	0.95	0.00	0.00	
TEG Regenerator Vent (PK-102)	0.00	0.00	0.95	0.00	0.00	
Dehydrator Reboiler (PK-100)	0.01	0.17	0.01	0.07	0.00	
Dehydrator Reboiler (PK-101)	0.01	0.17	0.01	0.07	0.00	
Dehydrator Reboiler (PK-102)	0.01	0.17	0.01	0.07	0.00	
Space Heating Boiler (PK-60)	0.01	0.17	0.01	0.07	0.00	
Emergency Electrical Generator (PK-70)		0.28	3.88	0.04	0.21	0.26
Fugitive VOC Sources		negl.				
Total		2.03	96.90	33.92	96.09	0.36

1085-hp Caterpillar G3516TA LE (C-110)

Brake Horsepower: 1085 hp @ 1200 rpm
Hours of operation: 8760 hr/yr
Fuel Input = 7700 BTU/bhp-hr * 1085 hp / 1E06 = 8.35 MMBtu/hr

PM_{10} Emissions
Emission Factor: 0.00991 lb/MMBtu (AP-42, Table 3.2-1, 7/00)
Fuel Consumption: 8.35 MMBtu/hr (Maximum Design)
Calculations: 0.00991 lb/MMBtu * 8.35 MMBtu/hr = 0.083 lb/hr
0.083 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.36 ton/yr

NO_x Emissions
Emission factor: 2.00 gram/bhp-hr (BACT Determination)
Calculations: 2.00 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 4.78 lb/hr
4.78 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 20.96 ton/yr

VOC Emissions

Emission factor: 0.21 gram/bhp-hr (BACT Determination)
Calculations: 0.21 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 0.50 lb/hr
0.50 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 2.20 ton/yr

CO Emissions

Emission factor: 1.49 gram/bhp-hr (BACT Determination)
Calculations: 1.49 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 3.56 lb/hr
2.56 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 15.61 ton/yr

SO_x Emissions

Emission Factor: 0.000588 lb/MMBtu (AP-42, Table 3.2-1, 7/00)
Fuel Consumption: 8.35 MMBtu/hr (Maximum Design)
Calculations: 0.000588 lb/MMBtu * 8.35 MMBtu/hr = 0.005 lb/hr
0.005 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

1085-hp Caterpillar G3516TA LE (C-111)

Brake Horsepower: 1085 hp @ 1200 rpm
Hours of operation: 8760 hr/yr
Fuel Input = 7700 BTU/bhp-hr * 1085 hp / 1E06 = 8.35 MMBtu/hr

PM_{10} Emissions

Emission Factor: 0.00991 lb/MMBtu (AP-42, Table 3.2-1, 7/00)
Fuel Consumption: 8.35 MMBtu/hr (Maximum Design)
Calculations: 0.00991 lb/MMBtu * 8.35 MMBtu/hr = 0.083 lb/hr
0.083 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.36 ton/yr

NO_x Emissions

Emission factor: 2.00 gram/bhp-hr (BACT Determination)
Calculations: 2.00 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 4.78 lb/hr
4.78 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 20.96 ton/yr

VOC Emissions

Emission factor: 0.21 gram/bhp-hr (BACT Determination)
Calculations: 0.21 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 0.50 lb/hr
0.50 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 2.20 ton/yr

CO Emissions

Emission factor: 1.49 gram/bhp-hr (BACT Determination)
Calculations: 1.49 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 3.56 lb/hr
2.57 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 15.61 ton/yr

SO_x Emissions

Emission Factor: 0.000588 lb/MMBtu (AP-42, Table 3.2-1, 7/00)
Fuel Consumption: 8.35 MMBtu/hr (Maximum Design)
Calculations: 0.000588 lb/MMBtu * 8.35 MMBtu/hr = 0.005 lb/hr
0.005 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

1085-hp Caterpillar G3516TA LE (C-679)

Brake Horsepower: 1085 hp @ 1200 rpm
Hours of operation: 8760 hr/yr
Fuel Input = 7700 BTU/bhp-hr * 1085 hp / 1E06 = 8.35 MMBtu/hr

PM_{10} Emissions
Emission Factor: 0.00991 lb/MMBtu (AP-42, Table 3.2-1, 7/00)
Fuel Consumption: 8.35 MMBtu/hr (Maximum Design)
Calculations: 0.00991 lb/MMBtu * 8.35 MMBtu/hr = 0.083 lb/hr
0.083 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.36 ton/yr

NO_x Emissions
Emission factor: 2.00 gram/bhp-hr (BACT Determination)
Calculations: 2.00 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 4.78 lb/hr
4.78 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 20.96 ton/yr

VOC Emissions
Emission factor: 0.21 gram/bhp-hr (BACT Determination)
Calculations: 0.21 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 0.50 lb/hr
0.50 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 2.20 ton/yr

CO Emissions
Emission factor: 1.49 gram/bhp-hr (BACT Determination)
Calculations: 1.49 gram/bhp-hr * 1085 hp * 0.002205 lb/gram = 3.56 lb/hr
2.58 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 15.61 ton/yr

SO_x Emissions
Emission Factor: 0.000588 lb/MMBtu (AP-42, Table 3.2-1, 7/00)
Fuel Consumption: 8.35 MMBtu/hr (Maximum Design)
Calculations: 0.000588 lb/MMBtu * 8.35 MMBtu/hr = 0.005 lb/hr
0.005 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

Compressor Engine ≤ 2,000-hp (C-113)

Brake Horsepower: 2,000 bhp
Hours of operation: 8760 hr/yr

PM_{10} Emissions
Emission Factor: 0.0.0095 lb/MMBtu (AP-42, Table 3.2-3, 7/00)
Fuel Consumption: 7.28 MMBtu/hr (Permit Application #2922-06)
Calculations: 7.28 MMBtu/hr * 0.0.0095 lb/MMBtu * = 0.069 lb/hr
0.069 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.30 ton/yr

NO_x Emissions
Emission factor: 1.00 gram/bhp-hr (BACT Determination)
Calculations: 1.00 gram/bhp-hr * 2,000 hp * 0.002205 lb/gram = 4.410 lb/hr
4.410 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 19.32 ton/yr

VOC Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)

Calculations: 1.00 gram/bhp-hr * 2,000 hp * 0.002205 lb/gram = 4.410 lb/hr

4.410 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 19.32 ton/yr

CO Emissions

Emission factor: 2.0 gram/bhp-hr (BACT Determination)

Calculations: 2.00 gram/bhp-hr * 2,000 hp * 0.002205 lb/gram = 8.820 lb/hr

8.820 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 38.63 ton/yr

SO_x Emissions

Emission Factor: 0.000588 lb/MMBtu (AP-42, Table 3.2-3, 7/00)

Fuel Consumption: 7.28 MMBtu/hr

Calculations: 7.28 MMBtu/hr * 0.000588 lb/MMBtu * = 0.004 lb/hr

0.004 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

1,050-hp Caterpillar G33516TA HCR (C-114)

Brake Horsepower: 1,050 bhp

Hours of operation: 8760 hr/yr

PM_{10} Emissions

Emission Factor: 0.0095 lb/MMBtu (AP-42, Table 3.2-3, 7/00)

Fuel Consumption: 7.82 MMBtu/hr (Permit Application #2922-07)

Calculations: 7.82 MMBtu/hr * 0.0095 lb/MMBtu * = 0.074 lb/hr

0.074 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.33 ton/yr

NO_x Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)

Calculations: 1.00 gram/bhp-hr * 1,050 hp * 0.002205 lb/gram = 2.315 lb/hr

2.315 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 10.14 ton/yr

VOC Emissions

Emission factor: 0.50 gram/bhp-hr (BACT Determination)

Calculations: 0.50 gram/bhp-hr * 1,050 hp * 0.002205 lb/gram = 1.158 lb/hr

1.158 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 5.07 ton/yr

CO Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)

Calculations: 1.00 gram/bhp-hr * 1,050 hp * 0.002205 lb/gram = 2.315 lb/hr

2.315 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 10.14 ton/yr

SO_x Emissions

Emission Factor: 0.000588 lb/MMBtu (AP-42, Table 3.2-3, 7/00)

Fuel Consumption: 7.82 MMBtu/hr

Calculations: 7.82 MMBtu/hr * 0.000588 lb/MMBtu * = 0.005 lb/hr

0.005 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

TEG Regenerator Vent (PK-100)

The following emission summary has been estimated using the GRI-GLYCalc program.

Regenerator Vent

Glycol Type:	TEG
Annual Hours of Operation:	8760
Dry Gas Flow Rate:	12.00 MMScf/day (maximum)
Control Device:	Underground storage tank
Control Efficiency:	30%
Flash Separator:	N/A
Stripping Gas:	42,000 Scf/day Dry Product Gas

Uncontrolled Regenerator Emissions	lb/hr	ton/yr
Total VOC Emissions	0.31	1.35
Total HAP Emissions	0.24	1.05

Controlled Regenerator Emissions	lb/hr	ton/yr
Total VOC Emissions	0.22	0.95
Total HAP Emissions	0.17	0.74

TEG Regenerator Vent (PK-101)

The following emission summary has been estimated using the GRI-GLYCalc program.

Regenerator Vent

Glycol Type:	TEG
Annual Hours of Operation:	8760
Dry Gas Flow Rate:	12.00 MMScf/day (maximum)
Control Device:	Underground storage tank
Control Efficiency:	30%
Flash Separator:	N/A
Stripping Gas:	42,000 Scf/day Dry Product Gas

Uncontrolled Regenerator Emissions	lb/hr	ton/yr
Total VOC Emissions	0.31	1.35
Total HAP Emissions	0.24	1.05

Controlled Regenerator Emissions	lb/hr	ton/yr
Total VOC Emissions	0.22	0.95
Total HAP Emissions	0.17	0.74

TEG Regenerator Vent (PK-102)

The following emission summary has been estimated using the GRI-GLYCalc program.

Regenerator Vent

Glycol Type: TEG
Annual Hours of Operation: 8760
Dry Gas Flow Rate: 12.00 MMScf/day (maximum)
Control Device: Underground storage tank
Control Efficiency: 30%
Flash Separator: N/A
Stripping Gas: 42,000 Scf/day Dry Product Gas

Uncontrolled Regenerator Emissions	lb/hr	ton/yr
Total VOC Emissions	0.31	1.35
Total HAP Emissions	0.24	1.05

Controlled Regenerator Emissions	lb/hr	ton/yr
Total VOC Emissions	0.22	0.95
Total HAP Emissions	0.17	0.74

Dehydrator Reboiler (PK-100) 350,000 Btu/hr (Information from company)

Fuel Consumption: 350,000 Btu/hr * 0.0012 Scf/Btu * 8760 hr/yr = 3.5872 MMScf/yr

PM_{10} Emissions

Emission Factor: 7.60 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 7.60 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.01 ton/yr

NO_x Emissions

Emission Factor: 94.00 lb/MMScf (AP-42, 1.4-1, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 94.00 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.17 ton/yr

VOC Emissions

Emission Factor: 5.50 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 5.50 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.01 ton/yr

CO Emissions

Emission Factor: 40.00 lb/MMScf (AP-42, 1.4-1, 7/98)
Fuel Consumption: 3.587 MMscf/yr
Calculations: 40.00 lb/MMScf * 3.587 MMscf/yr * 0.0005 ton/lb = 0.07 ton/yr

SO_x Emissions

Emission Factor: 0.60 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 0.60 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.00 ton/yr

Dehydrator Reboiler (PK-101) 350000 Btu/hr (Information from company)

Fuel Consumption: 350,000 Btu/hr * 0.0012 Scf/Btu * 8760 hr/yr = 3.5872 MMScf/yr

PM_{10} Emissions

Emission Factor: 7.60 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 7.60 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.01 ton/yr

NO_x Emissions

Emission Factor: 94.00 lb/MMScf (AP-42, 1.4-1, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 94.00 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.17 ton/yr

VOC Emissions

Emission Factor: 5.50 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 5.50 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.01 ton/yr

CO Emissions

Emission Factor: 40.00 lb/MMScf (AP-42, 1.4-1, 7/98)
Fuel Consumption: 3.587 MMscf/yr
Calculations: 40.00 lb/MMScf * 3.587 MMscf/yr * 0.0005 ton/lb = 0.07 ton/yr

SO_x Emissions

Emission Factor: 0.60 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 0.60 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.00 ton/yr

Dehydrator Reboiler (PK-102) 350,000 Btu/hr (Information from company)

Fuel Consumption: 350,000 Btu/hr * 0.0012 Scf/Btu * 8760 hr/yr = 3.5872 MMScf/yr

PM_{10} Emissions

Emission Factor: 7.60 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 7.60 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.01 ton/yr

NO_x Emissions

Emission Factor: 94.00 lb/MMScf (AP-42, 1.4-1, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 94.00 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.17 ton/yr

VOC Emissions

Emission Factor: 5.50 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 5.50 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.01 ton/yr

CO Emissions

Emission Factor: 40.00 lb/MMScf (AP-42, 1.4-1, 7/98)
Fuel Consumption: 3.587 MMscf/yr
Calculations: 40.00 lb/MMScf * 3.587 MMscf/yr * 0.0005 ton/lb = 0.07 ton/yr

SO_x Emissions

Emission Factor: 0.60 lb/MMScf (AP-42, 1.4-2, 7/98)

Fuel Consumption: 3.587 MMScf/yr
Calculations: 0.60 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.00 ton/yr

Space Heating Boiler (PK-60) 350000 Btu/hr (Information from company)

Fuel Consumption: 350,000 Btu/hr * 0.0012 Scf/Btu * 8760 hr/yr = 3.5872 MMScf/yr

PM_{10} Emissions
Emission Factor: 7.60 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 7.60 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.01 ton/yr

NO_x Emissions
Emission Factor: 94.00 lb/MMScf (AP-42, 1.4-1, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 94.00 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.17 ton/yr

VOC Emissions
Emission Factor: 5.50 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 5.50 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.01 ton/yr

CO Emissions
Emission Factor: 40.00 lb/MMScf (AP-42, 1.4-1, 7/98)
Fuel Consumption: 3.587 MMscf/yr
Calculations: 40.00 lb/MMScf * 3.587 MMscf/yr * 0.0005 ton/lb = 0.07 ton/yr

SO_x Emissions
Emission Factor: 0.60 lb/MMScf (AP-42, 1.4-2, 7/98)
Fuel Consumption: 3.587 MMScf/yr
Calculations: 0.60 lb/MMScf * 3.587 MMScf/yr * 0.0005 ton/lb = 0.00 ton/yr

Emergency Electrical Generator (PK-70)

Brake Horsepower: 126 hp @ 1800 rpm
Hours of operation: 2000 hr/yr

PM_{10} Emissions
Emission Factor: 0.0022 lb/bhp-hr (AP-42, 3.3-1, 10/96)
Calculations: 0.0022 lb/bhp-hr * 126 hp = 0.277 lb/hr
0.277 lb/hr * 2000 hr/yr * 0.0005 ton/lb = 0.28 ton/yr

NO_x Emissions
Emission factor: 13.95 gram/bhp-hr (BACT Determination)
Calculations: 13.95 gram/bhp-hr * 126 bhp * 0.002205 lb/gram = 3.88 lb/hr
3.88 lb/hr * 2000 hr/yr * 0.0005 ton/lb = 3.88 ton/yr

VOC Emissions
Emission factor: 0.16 gram/bhp-hr (BACT Determination)
Calculations: 0.16 gram/bhp-hr * 126 bhp * 0.002205 lb/gram = 0.04 lb/hr
0.04 lb/hr * 2000 hr/yr * 0.0005 ton/lb = 0.04 ton/yr

CO Emissions

Emission factor: 0.75 gram/bhp-hr (BACT Determination)

Calculations: 0.75 gram/bhp-hr * 126 bhp * 0.002205 lb/gram = 0.21 lb/hr

0.21 lb/hr * 2000 hr/yr * 0.0005 ton/lb = 0.21 ton/yr

SO_x Emissions

Emission Factor: 0.00205 lb/bhp-hr (AP-42, 3.3-1, 10/96)

Calculations: 0.00205 lb/bhp-hr * 126 hp = 0.258 lb/hr

0.258 lb/hr * 2000 hr/yr * 0.0005 ton/lb = 0.26 ton/yr

V. Existing Air Quality

SEM's Bowdoin Compressor Station is located in the SW¼ of the SE¼ of Section 35, Township 35 North, Range 31 East, in Phillips County, Montana. Phillips County is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

VI. Air Quality Impacts

The Department determined that there will be no impacts from this permitting action because this permitting action is considered an administrative action. Therefore, the Department believes this action will not cause or contribute to a violation of any ambient air quality standard.

VII. Ambient Air Impact Analysis

Based on the information provided and the conditions established in MAQP #2922-08, the Department determined that there will be no impacts from this permitting action and therefore no ambient air impact analysis was performed. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VIII. Taking or Damaging Implication Analysis

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

YES	NO	
		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?

YES	NO	
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

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

IX. Environmental Assessment

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: Ed Warner
Date: September 27, 2019