

## AIR QUALITY PERMIT

Issued To: EnCana Gathering Services (USA), Inc. Permit #2671-04  
Shelby Kevin Field, Station 042 Administrative Amendment (AA) Received:  
600 South Excelsior 06/05/03  
Butte, MT 59701 Department Decision on AA: 08/20/03  
Permit Final: 09/05/03  
AFS #: 101-0004

An air quality permit, with conditions, is hereby granted to EnCana Gathering Services (USA), Inc. (EnCana) - Shelby Kevin Field, Station 042, pursuant to Sections 75-2-204 and 211, Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

### Section I: Permitted Facilities

#### A. Plant Location

EnCana operates a natural gas compressor station located approximately 8 miles northeast of Shelby, Montana in Toole County. The facility is known as Shelby Kevin Field, Station 042-2. A complete listing of the permitted equipment can be found in Section I.A. of the permit analysis.

#### B. Current Permit Action

On June 5, 2003, the Department of Environmental Quality (Department) received a letter from Aspen Consulting & Engineering, Inc., on behalf of EnCana requesting that the Department change the corporate name on Permit #2671-03 from EnCana Energy Resources, Inc. to EnCana. The current permitting action changes the name from EnCana Energy Resources, Inc. to EnCana and updates the permit to reflect current permit language and rule references used by the Department.

### SECTION II: Limitations & Conditions

#### A. Emission Limitations

1. Nitrogen oxide (NO<sub>x</sub>) emissions from the 360-horsepower (hp) White Superior compressor engine shall not exceed 11.9 pounds per hour (lb/hr) (ARM 17.8.752).
2. EnCana shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
3. EnCana 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. EnCana shall treat all unpaved portions of the access roads, parking lots, and general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.3 (ARM 17.8.749).

5. EnCana shall install and operate all control equipment as specified in their permit application (ARM 17.8.749).

B. Testing Requirements

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

C. Operational Reporting Requirements

1. EnCana 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.A. 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. 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).

2. EnCana 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 EnCana as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

SECTION III. General Conditions

- A. Inspection - EnCana 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 the recipient fails to appeal as indicated below.

- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving EnCana 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 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 Department's decision on the application is not final unless 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 conclusion of the hearing and issuance of a final decision by the Board.
- 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 Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by EnCana may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

Permit Analysis  
EnCana Gathering Services (USA), Inc.  
Shelby Kevin Field, Station 042  
Permit #2671-04

I. Introduction/Process Description

A. Permitted Equipment

EnCana Gathering Services (USA), Inc. (EnCana) operates a compressor station known as the Shelby Kevin Field, Station 042. The facility includes the following equipment:

- (1) 360-horsepower (hp) White Superior natural gas fueled compressor engine
- (1) Sivalls natural gas fired glycol reboiler

B. Source Description

The EnCana facility is located approximately 8 miles northeast of Shelby, Montana in Toole County. The facility has two primary purposes. The first purpose is to boost the field gas up to the required pressure in the natural gas transmission system. This initial compression of the gas is accomplished with the 360-hp White Superior compressor engine.

The second purpose of the complex is to "dry" the gas as it is being processed. The gas contains some moisture, which must be removed from the system prior to being sent into the transmission system. This is accomplished with a dehydrator, also commonly called a reboiler or glycol unit. The gas is treated with a glycol solution, which absorbs the water in the gas stream. The glycol is then heated to about 300 degrees Fahrenheit (°F) in order to drive off the water and return the glycol. The water that is driven off is released to the atmosphere in the form of steam. Burning natural gas in the dehydrator reboiler generates the heat necessary for this.

C. Permit History

The original application was submitted to the Department of Environmental Quality (Department) on December 4, 1990. After the initial review, the application was deemed incomplete on December 26, 1990, and a more detailed Best Available Control Technology (BACT) review was requested. The revised BACT information was received on February 13, 1991. After review by the Department and discussion with Montana Power Company (MPC) and the permitting consultant, Bison Engineering, Inc. (Bison), the application was declared complete as of February 13, 1991. Enforceable operating limits were placed on the compressor engine in **Permit #2671-00**, which became final on April 12, 1991.

As part of **Permit #2671-01**, the Department removed the testing requirements for the 360-hp White Superior compressor engine. Removing the testing requirements for this engine was consistent with the Department's testing guidance. The rule references were updated and the permitting language was changed to reflect the current format used for writing permits. Permit #2671-01 replaced Permit #2671-00. On October 21, 1998, Permit #2671-01 became final.

MPC requested a name change to Montana Power Gas Company (MPGC). The permit action changed the appropriate references in the permit to reflect the name change. **Permit #2671-02** replaced Permit #2671-01. On March 14, 1999, Permit #2671-02 became final.

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 MPGC, Xeno, Inc., and Entech Gas Ventures, Inc. merged into North American Resources Company (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 requesting a name change from PanCanadian to EnCana Energy Resources, Inc. The permit action transferred the permit from MPGC to EnCana Energy Resources, Inc. In addition, the permit format and permit language were updated. **Permit #2671-03** replaced Permit #2671-02. On August 23, 2003, Permit #2671-03 became final.

#### D. Current Permit Action

On June 5, 2003, the Department received a letter from Aspen Consulting & Engineering, Inc., on behalf of EnCana requesting that the Department change the corporate name on Permit #2671-03 from EnCana Energy Resources, Inc. to EnCana. The current permitting action changes the name from EnCana Energy Resources, Inc. to EnCana and updates the permit to reflect current permit language and rule references used by the Department. **Permit #2671-04** replaces Permit #2671-03.

#### E. Additional Information

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

## II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available upon request from the Department. Upon request, the Department will provide references for the location of all applicable rules and regulations 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 Department may require testing.
2. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source test 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).

EnCana 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.

3. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.
4. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means which, without resulting in 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. (2) 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
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<sub>10</sub>
11. ARM 17.8.230 Fluoride in Forage

EnCana 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. (1) This rule requires that no person may cause or authorize emissions to be discharged to an outdoor atmosphere from any source installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes. 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 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate. (2) Under this rule, EnCana shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set fourth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (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. EnCana will use pipeline-quality natural gas, which meets this limitation.
6. ARM 17.8.340 Standards of Performance for New Stationary Sources. The owner or operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, New Source Performance Standards (NSPS), shall comply with the standards and provisions of 40 CFR Part 60. The EnCana facility, is not an NSPS affected source because it does not meet any of the definitions of a natural gas processing plant, as defined in 40 CFR Part 60, Subpart KKK, or any other subpart under 40 CFR Part 60, as the facility was constructed prior to January 20, 1984.
7. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR 63, shall comply with the requirements of 40 CFR 63, as listed below:

40 CFR 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities. Owners or operators of oil and natural gas production facilities, as defined and applied in 40 CFR Part 63, shall comply with the applicable provisions of 40 CFR Part 63, Subpart HH. In order for a natural gas production facility to be subject to 40 CFR Part 63, Subpart HH requirements, certain criteria must be met. First, the facility must be a major source of Hazardous Air Pollutants (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, EnCana 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. Second, 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 two 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, EnCana is not subject to the provisions of 40 CFR 63, Subpart HHH.

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. EnCana 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. EnCana was not required to submit a permit application fee for the current permit action because it is an administrative action.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. 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 17.8.740 Definitions. This rule is a list of applicable definitions used in this subchapter, 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 greater than 25 tons per year of any pollutant. EnCana has the potential to emit more than 25 tons per year of nitrogen oxides (NO<sub>x</sub>); 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. This rule requires that a permit application be submitted prior to installation, alteration or use of a source. EnCana was not required to submit an application for the current permit action because the change is considered administrative.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. A BACT analysis was not required for the current permit action because there are no new or altered sources permitted as a part of this action.
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 EnCana of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
  14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.
- F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:
1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this sub-chapter.
  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 FCAA 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 (PTE) 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 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<sub>10</sub>) in a serious PM<sub>10</sub> nonattainment 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 #2671-04 for EnCana, 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<sub>10</sub> nonattainment area;
- d. This source is not subject to any current NSPS standards;
- e. This facility is not subject to any current NESHAP standards;
- f. This source is not a Title IV affected source nor a solid waste combustion unit; and
- g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that EnCana will be a minor source of emissions as defined under Title V.

### III. BACT Determination

A BACT determination is required for each new or altered source. EnCana 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. However, the current permit action is an administrative action that will not increase emissions or add or alter any emitting units; therefore, a BACT analysis is not required.

### IV. Emission Inventory

Emission Unit	Air Pollutants (Tons/year)					
	PM	PM <sub>10</sub>	SO <sub>x</sub>	NO <sub>x</sub>	CO	VOC
360-hp White Superior compressor engine	0.07	0.13	0.01	52.00	6.26	0.70
Sivalls Glycol Reboiler	0.01	0.01	0.00	0.04	0.01	0.00
Totals	0.08	0.14	0.01	52.04	6.27	0.70

#### 360-hp White Superior compressor engine

Brake Horsepower: 360-hp  
 Hours of operation: 8760 hr/yr  
 Fuel Consumption: 8500 Btu/hp-hr

##### PM Emissions

Emission Factor: 5.0 lb/10<sup>6</sup> ft<sup>3</sup>

Calculation: 5.0 lb/10<sup>6</sup> ft<sup>3</sup> \* 8500 Btu/hp-hr \* 1 ft<sup>3</sup>/1000 Btu \* 360-hp = 0.0153 lb/hr  
 0.0153 lb/hr \* 1 ton/2000 lb \* 8760 hr/yr = 0.067 ton/yr

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

Emission Factor: 10.0 lb/10<sup>6</sup> ft<sup>3</sup>

Calculation: 10.0 lb/10<sup>6</sup> ft<sup>3</sup> \* 8500 Btu/hp-hr \* 1 ft<sup>3</sup>/1000 Btu \* 360-hp = 0.0306 lb/hr  
 0.0306 lb/hr \* 1 ton/2000 lb \* 8760 hr/yr = 0.134 ton/yr

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

Emission factor: 15.0 gram/bhp-hr {Based on BACT determination}

Calculation: 15.0 gram/bhp-hr \* 360 bhp \* 0.002205 lb/gram = 11.9 lb/hr  
 11.9 lb/hr \* 8760 hr/yr \* 1 ton/2000 lb = 52.0 ton/yr

##### VOC Emissions

Emission factor: 0.2 gram/bhp-hr {Based on BACT determination}

Calculation: 0.2 gram/bhp-hr \* 360 bhp \* 0.002205 lb/gram = 0.1588 lb/hr  
 0.1588 lb/hr \* 8760 hr/yr \* 1 ton/2000 lb = 0.70 ton/yr

CO Emissions

Emission factor: 1.8 gram/bhp-hr {Based on BACT determination}  
Calculation: 1.8 gram/bhp-hr \* 360 bhp \* 0.002205 lb/gram = 1.43 lb/hr  
1.43 lb/hr \* 8760 hr/yr \* 1 ton/2000 lbs = 6.26 ton/yr

SO<sub>x</sub> Emissions

Emission factor: 0.002 gram/bhp-hr {Based on BACT determination}  
Calculation: 0.002 gram/bhp-hr \* 360 bhp \* 0.002205 lb/gram = 0.0016 lb/hr  
0.0016 lb/hr \* 8760 hr/yr \* 1 ton/2000 lbs = 0.0070 ton/yr

**Sivalls Model GCR-100-90 Natural Gas Fired Glycol Reboiler**

Hours of operation: 8760 hr/yr  
Size: 100 ft<sup>3</sup>/hr

TSP Emissions

Emission factor: 12.0 lb/10<sup>6</sup> ft<sup>3</sup>  
Calculation: 12.0 lb/10<sup>6</sup> ft<sup>3</sup> \* 100 ft<sup>3</sup>/hr = 0.0012 lb/hr  
0.0012 lb/hr \* 8760 hr/yr \* 1 ton/2000 lb = 0.0053 ton/yr

PM-10 Emissions

Emission factor: 12.0 lb/10<sup>6</sup> ft<sup>3</sup>  
Calculation: 12.0 lb/10<sup>6</sup> ft<sup>3</sup> \* 100 ft<sup>3</sup>/hr = 0.0012 lb/hr  
0.0012 lb/hr \* 8760 hr/yr \* 1 ton/2000 lb = 0.0053 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 94.0 lb/10<sup>6</sup> ft<sup>3</sup>  
Calculation: 94.0 lb/10<sup>6</sup> ft<sup>3</sup> \* 100 ft<sup>3</sup>/hr = 0.0094 lb/hr  
0.0094 lb/hr \* 8760 hr/yr \* 1 ton/2000 lb = 0.041 ton/yr

VOC Emissions

Emission factor: 5.80 lb/10<sup>6</sup> ft<sup>3</sup>  
Calculation: 5.80 lb/10<sup>6</sup> ft<sup>3</sup> \* 100 ft<sup>3</sup>/hr = 0.0006 lb/hr  
0.0006 lb/hr \* 8760 hr/yr \* 1 ton/2000 lb = 0.0025 ton/yr

CO Emissions

Emission factor: 21.0 lb/10<sup>6</sup> ft<sup>3</sup>  
Calculation: 21.0 lb/10<sup>6</sup> ft<sup>3</sup> \* 100 ft<sup>3</sup>/hr = 0.0021 lb/hr  
0.0021 lb/hr \* 8760 hr/yr \* 1 ton/2000 lb = 0.0092 ton/yr

SO<sub>x</sub> Emissions

Emission factor: 0.6 lb/10<sup>6</sup> ft<sup>3</sup>  
Calculation: 0.6 lb/10<sup>6</sup> ft<sup>3</sup> \* 100 ft<sup>3</sup>/hr = 0.0001 lb/hr  
0.0001 lb/hr \* 8760 hr/yr \* 1 ton/2000 lb = 0.0003 ton/yr

V. Existing Air Quality

The current permit action is an Administrative Amendment to Permit #2671-03 and will not increase emissions from this source. In the view of the Department, EnCana is capable of continuing to operate in compliance with all applicable rules and regulations that apply to the facility.

VI. Taking or Damaging Implication Analysis

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

VII. Environmental Assessment

An environmental assessment was not required for this permitting action because it is considered an administrative action.

Permit Analysis Prepared By: Chris Ames  
Date: August 14, 2003