Montana Department of
ENVIRONMENTAL QUALITY
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November 3, 2010

Scarlet Holguin
Abraxas Petroleum
Belle Creek Compressor Station
18803 Meisner Drive
San Antonio, TX 78258

Dear Ms Holguin:

Montana Air Quality Permit #4569-00 is deemed final as of November 2, 2010, 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,

Vickie Walsh
Air Permitting Program Supervisor
Air Resources Management Bureau
(406) 444-9741

Julie Merkel
Air Quality Specialist
Air Resources Management Bureau
(406) 444-3626

VW:JM
Enclosure

MONTANA AIR QUALITY PERMIT

Issued To: Abraxas Petroleum
Belle Creek Compressor Station
18803 Meisner Drive
San Antonio, TX 78258

Montana Air Quality Permit: #4569-00
Application Complete: 08/26/10
Preliminary Determination Issued: 9/29/10
Department Decision Issued: 10/15/10
Permit Final: 11/2/10
AFS #: 075-0004

A Montana air quality permit (MAQP), with conditions, is hereby granted to Abraxas Petroleum (Abraxas), pursuant to Sections 75-2-204 and 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. Permitteed Equipment

Abraxas proposes to operate a natural gas compressor station. The facility includes a 174 brake-horsepower (bhp) engine, a 100,000 British thermal unit per hour (Btu/hr) Glycol Heater, and a Glycol Still Column. A complete list of the permitted equipment is contained in Section I.A of the permit analysis.

B. Plant Location

Abraxas owns and operates a natural gas compressor station and associated equipment located in Section 13, Township 9 South, Range 54 East in Powder River County, Montana. The facility is known as the Belle Creek Compressor Station.

Section II: Conditions and Limitations

A. Emission Limitations

1. Abraxas shall operate no more than one natural gas-fired generator engine and the maximum rated design capacity shall not exceed 174 hp. The engine shall be a four-stroke rich-burn design and employ an air-to-fuel ratio (AFR) controller and a non-selective catalytic reduction (NSCR) pollution control device (ARM 17.8.749 and ARM 17.8.752).

2. The pound per hour (lb/hr) emission limits for the natural gas-fired generator engine shall be determined using the following equation and grams per brake horsepower hour (g/bhp-hr) pollutant-specific emission factors (ARM 17.8.752)

Equation:

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

Emission Factors:

Oxides of Nitrogen (NO_x):	2.0 g/bhp-hr
Carbon Monoxide (CO):	2.0 g/bhp-hr
Volatile Organic Compounds (VOC):	1.0 g/bhp-hr

3. Abraxas 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).

4. Abraxas shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

5. Abraxas 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.5 (ARM 17.8.749).

6. Abraxas shall comply with any applicable standards, limitations, reporting, recordkeeping, and notification requirements contained in Title 40 Code of Federal Regulations (40 CFR) 60, Subpart JJJJ – *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines* and 40 CFR 63, Subpart ZZZZ – *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines* (ARM 17.8.340; 40 CFR 60, Subpart JJJJ; and 40 CFR 63, Subpart ZZZZ).

B. Testing Requirements

1. The engine shall be tested for NO_x and CO, concurrently, and demonstrate compliance with the NO_x and CO emission limits contained in Section II.A.1 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. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

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

C. Operational Reporting Requirements

1. Abraxas 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 most recent emission inventory report and sources identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations.

2. Abraxas shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745 that would include ***the addition of a new emissions unit***, 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. 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 Abraxas 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 - Abraxas shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (Continuous Emissions Monitoring System (CEMS), Continuous Emission Rate Monitoring System (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 Abraxas fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving Abraxas 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 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 Department personnel at the location of the permitted source.

G. Permit Fees - Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Abraxas may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit (MAQP) Analysis
Abraxas Petroleum
MAQP #4569-00

I. Introduction/Process Description

Abraxas Petroleum (Abraxas) owns and operates a natural gas compressor station and associated equipment located in Section 13, Township 9 South, Range 54 East in Powder River County, Montana. The facility is known as the Belle Creek Compressor Station.

A. Permitted Equipment

The Belle Creek Compressor Station includes the following equipment:

1. One 174 brake horsepower (bhp) rich-burn compressor engine with air-to-fuel ratio (AFR) controller and non-selective catalytic reduction (NSCR) unit;
2. One Glycol Heater (100,000 British thermal units per hour (BTU/hr)); and
3. One Glycol Still Column

B. Source Description

Low pressure natural gas is gathered directly from two wells, the Bruner Federal 11-16 and the Francis Hayes – 1, which is routed to a compressor engine that compresses the natural gas, sending it to a pipeline for sales. Prior to entering the pipeline sales meter, the gas is routed through a dehydrator to remove moisture to meet pipeline specifications.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department of Environmental Quality (Department). Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary, using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

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

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

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

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

1. ARM 17.8.204 Ambient Air Monitoring
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}

Abraxas must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this section, Abraxas shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

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

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

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. 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. Abraxas will comply with this limitation by burning pipeline-quality natural gas in the compressor engines and the dehydration unit reboiler.

6. ARM 17.8.324(3) Hydrocarbon Emissions--Petroleum Products. 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 a tank is equipped with a vapor loss control device as described in (1) of this rule, or is a pressure tank as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). Abraxas Belle Creek Compressor Station is not currently an NSPS-affected source because it does not currently meet the definition of any NSPS subpart defined in 40 CFR Part 60.

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

   b. 40 CFR 60, Subpart JJJJ – Standard of Performance for Stationary Spark Ignition Internal Combustion Engines. Pursuant to 40 CFR 60.4230, owners and operators of stationary spark ignition internal combustion engines (SI ICE) that commence construction after June 12, 2006, where the stationary SI ICE with a maximum capacity of less than 500 hp are manufactured on or after July 1, 2008, are subject to this subpart.

      Abraxas operates a 174 bhp compressor engine with a reconstruction date of February 3, 2008. The engine's original manufacture date pre-dates the requirements of Subpart JJJJ applicability, and the reconstruction costs does not exceed 50% of new like-kind cost. Therefore, the engine does not trigger JJJJ applicability. However, as this permit is written in a de minimis friendly manner, future changes may trigger the applicability of this subpart.

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

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

   b. 40 CFR 63, Subpart HH-National Emission Standards for Hazardous Air Pollutants (HAPs) 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 standards and provisions of 40 CFR 63, Subpart HH. For area sources, the affected source includes each

TEG dehydration unit located at a facility and all area sources with TEG units need to meet specific requirements of 40 CFR 63, Subpart HH. Because the facility is an area source of HAPs and contains a triethylene glycol dehydration unit which is considered an affected source pursuant to paragraph (b)(2) of 40 CFR 63, Subpart HH, Abraxas is subject to Subpart HH under the area source provisions.

c. 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 63, Subpart HHH. In determining whether Abraxas's facility was a 40 CFR 63, Subpart HHH affected source, the Department compared the facility to larger facilities permitted in Montana. The Department made a determination that several of the larger facilities in Montana do not meet the definition of a major source of HAPs as defined in 40 CFR 63, Subpart HHH. Based upon the previous determinations and the size of Abraxas's facility, 40 CFR 63, Subpart HHH would not apply to the Abraxas facility because it is not a major source of HAPs.

d. 40 CFR 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. A stationary reciprocating internal combustion engine (RICE) at a major or area source of HAPs is subject to this subpart.

Pursuant to 40 CFR 63.6590, an affected source that is a new or reconstructed stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR 60, Subpart JJJJ for spark ignition engines (even in the event that Subpart JJJJ would not normally be applicable). No further requirements apply for such engines under this part.

The application indicated the source does not fit the definition of a reconstructed source, based on fixed capital costs, and review of maintenance records. Therefore, the engine in the application is currently subject to this rule as an existing unit. Pursuant to 40 CFR 63.6490(b)(3), a stationary RICE which is an existing spark ignition 4 stroke rich burn stationary RICE located at an area source does not have to meet the requirements of this Subpart and of Subpart A of this Part. No initial notification is necessary.

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. Abraxas 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. Abraxas submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

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

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

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. Abraxas's Belle Creek Compressor Station has a PTE more than 25 tons per year of oxides of nitrogen (NO_X); 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, modification, or use of a source. Abraxas submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Abraxas submitted an affidavit of publication of public notice for the July 21, 2010, issue of the *Billings Gazette*, a newspaper of general circulation in Powder River County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Abraxas 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 modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

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 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 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

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

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

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

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

   b. PTE > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAPs, or a 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 #4569-00 for the Abraxas Belle Creek Compressor Station, the following conclusions were made:

   a. The facility's PTE is < 100 tons/year for any pollutant.

   b. The facility's PTE is < 10 tons/year of any one HAP and < 25 tons/year of all HAPs.

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

   d. This facility is not currently subject to any NSPS; however, 40 CFR 60, Subpart JJJJ may become applicable depending on the type of engine that is used.

   e. This facility is subject to area source provisions of a NESHAP standard (40 CFR 63, Subpart HH and Subpart ZZZZ).

   f. This source is not a Title IV affected source.

   g. This source is not a solid waste combustion unit.

   Based on these facts, the Department determined that Abraxas will be 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, Abraxas may be required to obtain a Title V Operating Permit.

III. BACT Determination

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

The primary criteria pollutants from natural gas-fired reciprocating engines are NO_x, carbon monoxide (CO), and volatile organic compounds (VOC). CO and VOC species are primarily the result of incomplete combustion. Particulate matter (PM) emissions include trace amounts of metals, non-combustible inorganic material, and condensable semi-volatile organics which result from volatized lubricating oil, engine wear, or from products of incomplete combustion. Sulfur oxides (SO_x) are very low since sulfur compounds are removed from natural gas at processing plants. However, trace amounts of sulfur containing odorant are added to natural gas for the purpose of leak detection.

Three generic control techniques have been developed for reciprocating engines: parametric controls (timing and operating at a leaner air-to-fuel ratio); combustion modifications such as advanced engine design (clean-burn cylinder head designs and prestratified charge combustion for rich-burn engines); and post combustion catalytic controls installed on the engine exhaust system. Post-combustion catalytic technologies include selective catalytic reduction (SCR) for lean-burn engines, NSCR for rich burn engines, and CO oxidation catalysts for lean-burn engines.

The proposed compressor engine is of a 4-stroke rich-burn engine class. These engines may be either naturally aspirated, using the suction from the piston to entrain the air charge, or turbocharged, using an exhaust-driven turbine to pressurize the charge. Rich-burn engines operate near the stoichiometric air-to-fuel ratio with exhaust excess oxygen levels less than 4 percent (typically closer to 1 percent).

NO_x and CO BACT

The only technically feasible option for control of NO_x and CO for the rich-burn 4-stroke compressor engine is NSCR with AFR Control. Selective catalytic reduction and oxidation catalysts require the stoichiometry of a lean-burn engine.

NSCR with AFR

This technique uses the residual hydrocarbons and CO in the rich-burn engine exhaust as a reducing agent for NO_x. In an NSCR, hydrocarbons and CO are oxidized by oxygen (O_2) and NO_x. The excess hydrocarbons, CO, and NO_x pass over a catalyst (usually a noble metal such as platinum, rhodium, or palladium) that oxidizes the excess hydrocarbons and CO to water (H_2O) and carbon dioxide (CO_2), while reducing NO_x to nitrogen gas (N_2). NO_x reduction efficiencies are usually greater than 90 percent, while CO reduction efficiencies are approximately 90 percent. The NSCR technique is effectively limited to engines with normal exhaust oxygen levels of 4 percent or less. This includes 4-stroke rich-burn naturally aspirated engines and some 4-stroke rich-burn turbocharged engines. Engines operating with NSCR require tight air-to-fuel control to maintain high reduction effectiveness without high hydrocarbon emissions. To achieve effective NO_x reduction performance, the engine may need to be run with a richer fuel adjustment than normal. Therefore, because NSCR requires tight air-to-fuel control to maintain high reduction effectiveness, AFR control is usually required for optimized NSCR operation.

As proposed by Abraxas, the Department determined that properly operated and maintained NSCR and AFR constitutes BACT for NO_x and CO. The resulting BACT limit will be 1.0 g/bhp-hr (based on 90% control efficiency, and prior BACT determinations) and 2.0 g/bhp-hr (based on prior BACT determinations) for NO_x and CO respectively. These limits are comparable to other recently permitted sources.

VOC BACT

The Department is not aware of any BACT determination that has required controls for VOC emissions from compressor engines. The uncontrolled potential to emit of VOC emissions is relatively small and any add-on controls would be cost prohibitive.

However, the NSCR technology selected as BACT for NO_x and CO also reduces VOC emissions. The Department determined that no additional controls for control of VOC emissions and the use of best management practices will constitute as BACT for VOC. Best management practices would include operating the equipment, including control equipment as it was designed to be operated, ensuring proper maintenance of the equipment, and fixing any malfunctions as soon as reasonably practicable.

As proposed by Abraxas, the BACT limit will be 1 g/bhp-hr for VOC. This limit is comparable to other recently permitted sources.

SO_x BACT

The Department is not aware of any BACT determinations that have required add on controls for SO_x emissions from natural gas-fired compressor engines is relatively small due to the low amount of sulfur present in natural gas. Therefore, any add-on controls would be cost prohibitive. The Department determined that the burning of natural gas constitutes BACT for SO_x.

PM BACT

The Department is not aware of any BACT determination that have required controls for PM emissions fromnatural gas-fired compressor engines. The uncontrolled potential to emit of PM emissions from natural gas-fired compressor engines is relatively small. Therefore, any add-on controls would be cost prohibitive.

The Department determined that no additional controls, the burning of natural gas, and the use of best management practices will constitute as BACT for PM emissions. Best management practices would include operating the equipment as it was designed to be operated, ensuring proper maintenance of the equipment, and fixing any malfunctions as soon as reasonably practicable.

Permit conditions require Abraxas to adhere to these best management practices based on this BACT analysis.

All control options selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory

	TPY					
Emission Source	**PM_{10}**	**NO_x**	**CO**	**VOC**	**SO_x**	**HAPs**
174 bhp CAT 3406 NA	0.55	3.36	3.36	1.66	.0034	---
100,000 BTU/hr Glycol Heater	---	0.04	0.36	0.0024	---	---
Glycol Still Vent	0.0033	---	---	0.675	0.0003	0.0008
Total	0.5533	3.40	3.72	2.34	0.0037	0.0008

174 bhp Caterpillar 3460 Compressor Engine
Brake Horse Power: 174
Hours of Operation: 8,760 hr/yr

PM_{10} Emissions
Emission Factor: 0.0095 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Calculations: 0.0095 lb/MMBtu/hr * 1.3146 MMBtu/hr = 0.01249 lb/hr
0.01249 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.055 ton/yr

NO_x Emissions
Emission factor: 2.0 gram/bhp-hour (BACT Determination)
Calculations: 2.0 gram/bhp-hour * 174 bhp * 0.002205 lbs/gram = 0.767 lb/hr
0.767 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.36 ton/yr

VOC Emissions
Emission factor: 1.0 gram/bhp-hour (BACT Determination)
Calculations: 1.0 gram/bhp-hour * 174 bhp * 0.002205 lbs/gram = 0.38 lb/hr
0.38 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 1.66 ton/yr

CO Emissions
Emission factor: 2.0 gram/bhp-hour (BACT Determination)
Calculations: 2.0 gram/bhp-hour * 174 bhp * 0.002205 lbs/gram = 0.77 lb/hr
0.77 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.36 ton/yr

SO_2 Emissions
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Calculations: 1.3146 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00077 lb/hr
0.00077 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.0034 ton/yr

Glycol Heater
Fuel Heating Value: 0.1 MMBtu/MMScf (AP-42, Table 1.4-1)
Fuel Consumption Rate: 0.1 MMBtu/hr (Company Information)

NO_x Emissions:
Emission Factor: 100 lb/MMscf (AP-42, Table 1.4-1, 7/98)
Calculations: 100 lb/MMscf * 0.00098 MMscf/MMBtu * 0.1 MMBtu/hr = 0.0098 lb/hr
0.0098 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.04 ton/yr

CO Emissions:
Emission Factor: 84 lb/MMscf (AP-42, Table 1.4-1, 7/98)
Calculations: 84 lb/MMscf * 0.00098 MMscf/MMBtu * 0.1 MMBtu/hr = 0.0082 lb/hr
0.0082 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.036 ton/yr

VOC Emissions:
Burner
Emission Factor: 5.5 lb/MMscf (AP-42, Table 1.4-2, 7/98)
Calculations: 5.5 lb/MMscf * 0.00098 MMscf/MMBtu * 0.1 MMBtu/hr = 0.0005 lb/hr
0.0005 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.0024 ton/yr

Still Vent
Emission Factor: 1259 lb/MMscf (AP-42, Table 1.4-2, 7/98)
Calculations: 1259 lb/MMscf * 0.00098 MMscf/MMBtu * 0.125 MMBtu/hr = 0.154 lb/hr
0.154 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.675 ton/yr

Total VOC Emissions: 0.003 ton/yr + 0.675 ton/yr = 0.678

SO_2 Emissions:
Emission Factor: 0.6 lb/MMscf (AP-42, Table 1.4-2, 7/98)
Calculations: 0.6 lb/MMscf * 0.00098 MMscf/MMBtu * 0.1 MMBtu/hr = 0.00006 lb/hr
0.00006 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.0003 ton/yr

PM_{10} Emissions:
Emission Factor: 7.6 lb/MMscf (AP-42, Table 1.4-2, 7/98)
Calculations: 7.6 lb/MMscf * 0.00098 MMscf/MMBtu * 0.1 MMBtu/hr = 0.0007 lb/hr
0.0007 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.0033 ton/yr

HAP's Emissions:
Emission Factor: 1.8879582 lb/MMscf (AP-42, Table 1.4-2, 7/98)
Calculations: 1.8879582 lb/MMscf * 0.00098 MMscf/MMBtu * 0.1 MMBtu/hr = 0.00019 lb/hr
0.00019 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.0008 ton/yr

V. Existing Air Quality

The Belle Creek Compressor Station is located in Section 13, Township 9 South, Range 54 East in Powder River County. Powder River County is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

VI Ambient Air Impact Analysis

The Department determined that the impacts from this permitting action will be minor The Department believes the current permitting action will not cause or contribute to a violation of any ambient air quality standard.

VII. Taking or Damaging Implication Analysis

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

YES	NO	
x		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?
	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.

VIII. Environmental Assessment

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

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

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Abraxas Petroleum
Belle Creek Compressor Station
18803 Meisner Drive
San Antonio, TX 78258

Montana Air Quality Permit Number: 4569-00

Preliminary Determination Issued: September 29, 2010
Department Decision Issued: October 15, 2010
Permit Final: November 2, 2010

1. *Legal Description of Site*: The legal description of the site is the Section 13, Township 9 South, Range 54 East in Powder River County, Montana.

2. *Description of Project*: Abraxas is proposing to operate a 174 bhp compressor engine with an AFR controller and NSCR. In addition, Abraxas is proposing to operate a TEG dehydration unit and a glycol still vent.

3. *Objectives of Project*: The objective of the project is to permit an existing compressor engine and associated equipment. The objective of the compressor station is to gather and compress natural gas, route it through a dehydrator to remove the moisture and send it to a pipeline for sales.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because Abraxas demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in MAQP #4569-00.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			XX			Yes
B	Water Quality, Quantity, and Distribution			XX			Yes
C	Geology and Soil Quality, Stability and Moisture			XX			Yes
D	Vegetation Cover, Quantity, and Quality			XX			Yes
E	Aesthetics			XX			Yes
F	Air Quality			XX			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			XX			Yes
H	Demands on Environmental Resource of Water, Air and Energy			XX			Yes
I	Historical and Archaeological Sites			XX			Yes
J	Cumulative and Secondary Impacts			XX			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

The proposed facility would have a minor impact on terrestrial and aquatic life and habitats in the project area. The generator engine would be a minor source of air emissions as well as a source of noise. The Department has determined that any impacts from emissions or deposition of pollutants would be minor due to the dispersion characteristics of the pollutants, the atmosphere, and the conditions contained in MAQP #4569-00.

B. Water Quality, Quantity and Distribution

The proposed facility would have a minor impact on water quality, quantity, and distribution in the project area. The proposed project would not have any discharges into surface water or onto the proposed project site. However, water may be required for fugitive dust control of the access roads and the general facility property.

C. Geology and Soil Quality, Stability and Moisture

The proposed facility would have a minor impact on geology and soil quality, stability, and moisture. The project would be at an existing site that has a compressor engine and associated equipment. Water may be required for fugitive dust control of the access roads and the general facility property.

D. Vegetation Cover, Quantity, and Quality

The project would have a minor affect on the local vegetation. The impacts from emissions or deposition of pollutants would be minor due to dispersion characteristics of the pollutants, the atmosphere, and the conditions that would be placed in MAQP #4569-00.

E. Aesthetics

The proposed project would have a minor affect on the local aesthetics. The surrounding land use is primarily agricultural. The proposed equipment would be at an existing site and therefore a change in aesthetics would be minor.

F. Air Quality

The area surrounding the proposed project is unclassifiable/attainment for the NAAQS for all criteria air pollutants. Emissions of air pollutants would occur as a result of the permit action; however, MAQP #4569-00 would contain conditions limiting opacity and generator emissions and require Abraxas to minimize airborne dust through the use of water or chemical dust suppressants and to operate pollution control equipment to minimize engine emissions of NO_x, CO, and VOC. Compliance with all of the permit conditions would ensure that effects to the local air quality would be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The proposed project would impact the unique endangered, fragile, or limited environmental resources because emissions of PM_{10}, NO_x, CO, VOC, and SO_x would increase in the area because of the operation of the facility. However, the Department believes that any impacts would be minor due to the relatively small amount of the above listed pollutants emitted, dispersion characteristics of the pollutants and the atmosphere, and conditions placed in MAQP #4569-00, including, but not limited to, BACT requirements discussed in Section III of the permit analysis for this permit.

The Montana Natural Heritage Program (MNHP) identified occurrences of five animal species of concern within the vicinity of the proposed project location that are classified either as sensitive or without classification by the U.S. Bureau of Land Management. Sensitive animal species of concern are the Sprague's Pipit, Baird's Sparrow, McCown's Longspur, and Chestnut-collared Longspur. The unclassified animal is the Grasshopper Sparrow.

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

The proposed project would have a minor impact on environmental resources of water, air, and energy. Water may be required to control dust from the access roads and overall plant area. Energy would be provided by the generator engine, so no line power would be necessary at the site. The engine would be a source of air emissions. The Department has determined that any impacts from emissions or deposition of pollutants would be minor due to the dispersion characteristics of the pollutants, the atmosphere, and the conditions contained in MAQP #4569-00.

I. Historical and Archaeological Sites

The Department contacted the Montana Historical Society, State Historical Preservation Office (SHPO) in an effort to identify any historical and archaeological sites that may be present in the area of operation. According to their records there are no previously recorded sites in the area of the proposed project location and there is a low likelihood of adverse disturbance to any known archaeological or historic site. Therefore, no impacts upon historical or archaeological sites would be expected as a result of this project.

J. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project on the physical and biological environment in the immediate area would be minor due to the relatively small size and potential environmental impact of the operation. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #4569-00.

8. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores				XX		Yes
B	Cultural Uniqueness and Diversity				XX		Yes
C	Local and State Tax Base and Tax Revenue			XX			Yes
D	Agricultural or Industrial Production			XX			Yes
E	Human Health			XX			Yes
F	Access to and Quality of Recreational and Wilderness Activities				XX		Yes
G	Quantity and Distribution of Employment				XX		Yes
H	Distribution of Population				XX		Yes
I	Demands for Government Services			XX			Yes
J	Industrial and Commercial Activity			XX			Yes
K	Locally Adopted Environmental Plans and Goals				XX		Yes
L	Cumulative and Secondary Impacts			XX			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The operation would cause no disruption to the native or traditional lifestyles or communities of the area because the facility would be located at an existing site.

B. Cultural Uniqueness and Diversity

The operation would have no impact on the cultural uniqueness and diversity of the area because the facility would be located at an existing site. No current culturally unique or diverse activities are known to be occurring at the proposed site location.

C. Local and State Tax Base and Tax Revenue

The project would have a minor effect on the local and state tax base and revenue due to the taxes generated from the purchase of supplies and the employee payroll.

D. Agricultural or Industrial Production

The project would have a minor effect on the agricultural production because it would be located within land that is primarily used for agriculture. There is no other known industrial activity occurring at or near the proposed site.

E. Human Health

MAQP #4569-00 would incorporate conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed operations would not affect any access to or aesthetic attribute of recreational and wilderness activities in the area.

G. Quantity and Distribution of Employment

The proposed operations would not disrupt the distribution of employment in the area because no additional employees would be hired, nor would permanent employees be located at the facility.

H. Distribution of Population

The proposed operations would not disrupt the normal population distribution in the area because the facility would be located at an existing site. No additional employees would be hired, nor would permanent employees be located at the facility.

I. Demands for Government Services

Government services would be required for acquiring the appropriate permits from government agencies. In addition, the permitted sources of emissions would be subject to periodic inspections by government personnel. Demands for government services would be minor.

J. Industrial and Commercial Activity

The level of industrial or commercial activity would experience a minor increase as a result of the proposed facility's intent to use the electricity from the generator in the company's natural gas recovery process.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans or goals. MAQP #4569-00 would incorporate conditions to ensure that the facility would be operated in compliance with all applicable rules and standards; therefore, no impact on environmental plans and goals would be expected. .

L. Cumulative and Secondary Impacts

Overall, the revenue generated with this project would result in minor cumulative or secondary impacts that affect the economic and social environment in the immediate area. Air pollution from the facility would be controlled by Department determined BACT and conditions in MAQP #4569-00. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #4569-00.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the installation and operation of a natural gas compressor engine at an existing station. MAQP #4569-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, and previous information obtained from the Montana Historical Society – State Historic Preservation Office, and the Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: Julie Merkel
Date: 8/9/10