AIR QUALITY PERMIT

Issued To:	ECA Holdings, L.P. Orr Compressor Station 245 Commerce Green Blvd, Suite 270 Sugar Land, TX 77478	Permit: #3869-00 Application Complete: 8/14/06 Preliminary Determination Issued: 9/08/06 Department's Decision Issued: 9/26/06 Permit Final: 10/12/06 AFS: #095-0006

An air quality permit, with conditions, is hereby granted to ECA Holdings, L.P. – Orr Compressor Station (ECA), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq*., as amended, for the following:

SECTION I: Permitted Facilities

A. Permitted Equipment

Permit #3869-00 is issued to ECA for the construction and operation of the Orr Compressor Station. The facility is a natural gas compressor station. A complete list of the permitted equipment is contained in Section I.A of the permit analysis.

B. Plant Location

The legal description of ECA's Orr Compressor Station site is Section 18, Township 5 South, Range 17 East, in Stillwater County, Montana.

SECTION II. Conditions and Limitations

A. Emission Limitations

1. The 395-horsepower (hp) Waukesha F2895G rich-burn natural gas-fired compressor engine shall be controlled with a non-selective catalytic reduction (NSCR) unit and an air-to-fuel (AFR) controller. The pound per hour (lb/hr) emission limit for the engine shall be determined using the following equation and pollutant specific grams per horsepower-hour (g/hp-hr) emission factors (ARM 17.8.752):

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

<u>Emission Factors</u>

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

2. If the natural gas collected from the ECA field requires dehydration to meet pipeline specifications, ECA shall install and operate a desiccant dehydrator for natural gas dehydration activities (ARM 17.8.752).

3. ECA 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. ECA 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. ECA shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.4 (ARM 17.8.749).

B. Testing Requirements

1. The compressor engine shall be initially tested for NO_x and CO, concurrently, to demonstrate compliance with the emission limits as calculated in Sections II.A.1. The initial source testing shall be conducted within 180 days of the initial start up date of the compressor engine. After the initial source test, additional testing shall continue on an every 4-year basis or according to another testing/monitoring schedule as may be approved by the Department of Environmental Quality (Department) in writing (ARM 17.8.105 and ARM 17.8.749).

2. All compliance source tests shall conform to the requirements of 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. ECA shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis. Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. ECA 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 ECA 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).

D. Notification

1. ECA shall provide the Department with written notification of commencement of construction of the Orr Compressor Station within 30 days after commencement of construction.

2. ECA shall provide the Department with written notification of the actual start-up date of the Orr Compressor Station compressor engine within 15 days after the actual start-up date.

SECTION III: General Conditions

A. Inspection – ECA 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 or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

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

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving ECA 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. 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 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 ECA may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Construction Commencement – 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).

PERMIT ANALYSIS
ECA Holdings, L.P.
Orr Compressor Station
Permit #3869-00

I. Introduction/Process Description

ECA Holdings, L.P. (ECA), is permitted for the construction and operation of the Orr Compressor Station. The facility is a natural gas compressor station located in Section 18, Township 5 South, Range 17 East, in Stillwater County, Montana.

A. Permitted Equipment

The facility consists of separation, compression, and dehydration equipment for two natural gas field wells. Specifically, ECA operates a 395-brake horsepower (bhp) capacity Waukesha Model F2895G rich-burn natural gas compressor engine incorporating a non-selective catalytic reduction (NSCR) unit and an air-to-fuel ratio controller (AFR). In addition, the Orr Compressor Station incorporates a desiccant dehydrator for the dehydration of field gas to meet pipeline specifications and a 50 barrel water tank for the storage of free water removed by the separator.

B. Source Description

The Orr Compressor Station compresses and transports natural gas from the nearby gas field. The natural gas-fired compressor engine compresses the gas for transmission through the pipeline.

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).

ECA 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}

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

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

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

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter (PM). (2) Under this rule, ECA shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne 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, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 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. ECA will utilize natural gas for operating 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.

   The Orr Compressor Station is not an NSPS affected source because it does not meet the definition of a natural gas processing plant defined in 40 CFR 60, Subpart KKK. In addition, 40 CFR 60, Subpart LLL is not applicable to the Orr Compressor Station because the facility does not utilize a sweetening unit to process sour gas.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. A major source of Hazardous Air Pollutants (HAPs), as defined and applied in 40 CFR 63, shall comply with the requirements of 40 CFR 63, as applicable, including the following subparts:

   - Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities.
   - Subpart HHH –National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities
   - Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (Internal Combustion engines > 500 hp)

   Based on the information submitted by ECA, the Orr Compressor Station is not subject to the provisions of 40 CFR Part 63, because the facility is not a major source of HAPs.

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. ECA must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The proposed heights of the new or altered stacks for ECA are 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. ECA submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Permit 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.

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. ECA's Orr Compressor Station has a PTE greater than 25 tons per year of carbon monoxide (CO) and 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, alteration or use of a source. ECA 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. ECA submitted an affidavit of publication of public notice for the July 20, 2006, issue of the *Stillwater County News*, a newspaper of general circulation in Stillwater 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 Best Available Control Technology (BACT) shall be utilized. The 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 ECA 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.

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 this facility is not a listed source and the facility's PTE is below 250 tons per year of any 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) Major Source under Section 7412 of the FCAA is defined as any source having:

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

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

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

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #3869-00 for ECA, the following conclusions were made:

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

b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year for all HAPs.

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

d. This facility is not subject to any current NSPS.

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.

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

Based on these facts, the Department determined that the Orr Compressor Station is a minor source of emissions as defined under Title V.

III. BACT Determination

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

A BACT analysis was submitted by ECA in Permit Application #3869-00, addressing some available methods of controlling NO_x, CO, and VOC emissions from the affected equipment at the Orr Compressor Station. The Department reviewed these methods, as well as previous BACT determinations in order to make the following BACT determination.

A. Compressor Engine

1. NO_x and CO BACT Analysis

For the purposes of this BACT analysis, a combined analysis of NO_x and CO emissions was conducted because NO_x and CO emissions from internal combustion engines are

generally inversely proportional to one another. Under the NO_x and CO BACT analysis, the following control technologies, which are ranked in order of the highest control efficiency (lowest emission rate) to the lowest control efficiency, were reviewed:

a. Lean-burn engine with selective catalytic reduction (SCR), an oxidation catalyst, and an AFR controller;
b. Rich-burn engine with NSCR and an AFR controller;
c. Lean-burn engine with SCR alone;
d. Lean-burn engine with an AFR controller alone;
e. Rich burn engine with an AFR controller alone;
f. Rich-burn engine with NSCR alone; and
g. Rich-burn or lean-burn engine with no additional controls.

The Department reviewed these methods, as well as previous BACT determinations in order to make the following BACT determination. Under the current permit action, ECA proposed the use of a rich-burn internal combustion engine incorporating NSCR and an AFR controller to reduce NO_x and CO emissions from the proposed engine used for the purpose of compressing natural gas for transmission.

a. Lean-Burn Engine with SCR and Catalytic Oxidation

SCR, which is a post-combustion emission reduction technology, has been shown to be effective at reducing NO_x emissions from lean-burn engines. SCR units can achieve NO_x control efficiencies as high as 90% for lean-burn engines that are operated at a constant load. An SCR unit selectively reduces NO_x emissions by injecting either liquid anhydrous ammonia or aqueous ammonium hydroxide into the exhaust gas stream prior to the gas stream reaching the catalyst. The catalyst is typically made from noble metals, base metal oxides such as vanadium and titanium, and zeolite-based material. NO_x, NH_3, and O_2 react on the surface of the catalyst to form N_2 and H_2O. For an SCR unit to operate properly, the exhaust gas must be within a particular effective temperature range (typically between 450°F and 850°F). The type of catalyst used dictates the effective temperature range. Exhaust gas temperatures greater than the upper limit of the effective temperature range will pass the NO_x and NH_3 through the catalyst prior to the reaction. NH_3 emissions, called ammonia slip, are a key consideration when specifying an SCR unit. SCR units are only applicable to lean-burn engines because a high oxygen concentration (as found in lean-burn engines) is needed for the unit to operate properly. In addition, for engines that typically operate at variable loads, such as engines utilized for natural gas transmission, an SCR unit may not function effectively and may cause either periods of ammonia slip or periods of insufficient ammonia injection.

While an SCR unit can be utilized to effectively reduce NO_x emissions, as previously described, CO emissions are typically increased with the use of lean-burn technology. An oxidation catalyst may be used in conjunction with an SCR unit to effectively reduce CO emissions. In a catalytic oxidation system, CO passes over a catalyst, usually a noble metal, which oxidizes the CO to CO_2 at efficiencies of 70-90%. Further, as with an SCR unit, oxidation catalysts are only applicable to lean-burn engines because a high oxygen concentration is needed for the unit to operate properly. An oxidation catalyst is not typically used on engines that operate at variable loads (such as natural gas compressor engines) due to technical difficulties arising from this type of operation in conjunction with the SCR control technology. As discussed above, the Department determined that a lean-burn engine operating with an SCR unit and an oxidation catalyst may lead to technical difficulties when

operated for the purpose of natural gas compression and transmission, as proposed under the current permit action. Technical difficulties may include, but are not limited to, periods of ammonia slip or periods of insufficient ammonia injection for engines that typically operate at variable loads. Therefore, due to concerns over technical feasibility and the subsequent potential increase in collateral environmental impact associated with these technical difficulties (ammonia emissions), the Department determined that a lean-burn engine operated with an SCR unit and an oxidation catalyst does not constitute BACT, in this case.

b. Rich-Burn Engine with an NSCR unit and an AFR Controller

An NSCR unit controls NO_x emissions by using available CO and residual hydrocarbons in the exhaust of a rich-burn engine as a NO_x reducing agent. Without the catalyst, in the presence of oxygen, the hydrocarbons will be oxidized instead of reacting with NO_x. As the excess hydrocarbon and NO_x pass over a honeycomb or monolithic catalyst (usually a combination of noble metals such as platinum, palladium, and/or rhodium), the reactants are reduced to N_2, H_2O, and CO_2. The noble metal catalyst usually operates between 800 degrees Fahrenheit (°F) and 1,200°F; therefore, the unit would normally be mounted near the engine exhaust to maintain a high enough temperature to allow the various reactions to occur. In order to achieve maximum performance, 80% to 90% reduction of NO_x concentration, the engine must burn a rich fuel mixture, causing the engine to operate less efficiently.

In order to provide for the most effective use of the catalyst in an NSCR unit, it is necessary to install an electronic AFR controller. This device maintains the proper air-to-fuel ratio thereby increasing fuel efficiency, optimizing the level of reducing agents, and minimizing agents that can poison the catalyst thus providing for the maximum NO_x and CO emission reduction and limiting technical difficulties such as engine down time.

ECA proposed a rich-burn engine with an NSCR unit and an AFR controller as BACT for the proposed project. The Department determined that an NSCR unit with an AFR controller constitutes BACT for the reduction of NO_x and CO emissions resulting from the operation of the proposed rich-burn natural gas compressor engine. NSCR/AFR control typically constitutes BACT for rich-burn compressor engines. NSCR/AFR control effectively reduces NO_x and CO emissions and represents a technically, economically, and environmentally feasible option for the control of NO_x and CO resulting from internal combustion engines such as those proposed for the current permit action. Further, it has been demonstrated that these technologies operated together are capable of achieving the pound per hour BACT emission limits established for the 395-bhp Waukesha Model F2895G rich-burn compressor engine. These pound per hour emission limits were established as BACT by using 1.0 gram per horsepower-hour (g/hp-hr) for NO_x and 1.0 g/hp-hr for CO.

c. Lean-Burn Engine with an SCR Unit

As discussed above, an SCR unit has been shown to be effective at reducing NO_x emissions from lean burn engines with SCR units achieving NO_x control efficiencies as high as 90% for lean-burn engines that are operated at a constant load. While an SCR unit can be utilized to effectively reduce NO_x emissions as previously described, CO emissions are typically increased with lean-burn technology. The potential increase in CO emissions constitutes a negative collateral environmental impact resulting from the operation of a lean-burn engine with an SCR unit alone.

Further, the Department determined that a lean-burn engine operating with an SCR unit may lead to technical difficulties when operated for the purpose of natural gas compression, as proposed under the current permit action. Technical difficulties may include, but not be limited to, periods of ammonia slip or periods of insufficient ammonia injection for engines that typically operate at variable loads while the potential increase in CO emissions and the potential for ammonia emissions constitute collateral negative environmental impacts. Therefore, due to concerns over technical feasibility, the subsequent potential increase in collateral environmental impact associated with these technical difficulties, and the inherent increase in CO emissions, the Department determined that a lean-burn engine operating with an SCR unit does not constitute BACT, in this case.

d. Lean-Burn Engine with an AFR Controller (NO_x Control at the Crossover Point)

NO_x and CO emissions from a lean-burn engine can be stabilized by installing an electronic AFR controller. This device maintains the proper air-to-fuel ratio that will optimize the performance of the lean-burn engine. A lean-burn engine with an AFR controller and a rich-burn engine incorporating an NSCR and AFR achieve approximately the same NO_x and CO emission rate while the rich-burn engine with an NSCR and AFR controller typically achieves a higher total reduction in potential uncontrolled emissions than the lean-burn engine fitted with an AFR controller.

Lean-burn engines with an AFR controller have a higher initial cost when compared to rich-burn engines fitted with an NSCR unit and an AFR controller. However, since there is limited add-on equipment, the lean-burn engine may require less maintenance than a rich-burn engine fitted with an NSCR unit and an AFR controller and thus operation of the lean-burn engine may result in less technical difficulty and down-time and lower operating costs.

A lean-burn engine with an AFR controller effectively reduces NO_x and CO emissions and represents a technically, economically, and environmentally feasible option for the control of these emissions resulting from internal combustion engines, such as that proposed for the current permit action. However, since ECA proposed to install a rich-burn engine with an NSCR unit and an AFR controller and because these engines with their respective controls achieve approximately the same NO_x and CO emission rates, the Department determined that the use of a lean-burn engine with an AFR controller does not constitute BACT, in this case.

e. Rich-Burn Engine with an AFR Controller (NO_x Control at the Crossover Point)

Under this control strategy, the proper air-to-fuel ratio is obtained by adjusting the engine to operate at the crossover point, where NO_x and CO emissions are equal. At the crossover point, the engine operates neither too lean nor too rich. Excess hydrocarbon in a rich fuel mixture causes incomplete combustion thereby lowering the exhaust temperature to a point where the concentration of NO_x decreases and the concentration of CO increases. Conversely, combustion of a lean fuel mixture occurs at higher temperatures accompanied by higher concentration of NO_x and a lower concentration of CO.

Internal combustion engines can operate manually at the crossover point; however, the engine must be tuned frequently to account for operational changes such as varying engine load, operating temperature, fuel gas quality, etc. Therefore, the use of an AFR controller with no additional control may present technical difficulties resulting

in decreased run time. Further, while the use of an AFR controller to adjust the engine to operate at the crossover point results in a reasonable reduction of both NO_x and CO emissions, an AFR controller operated without additional control does not provide for a reduction in NO_x and CO emissions as effectively as other control strategies such as an NSCR unit or an NSCR unit operated in conjunction with an AFR controller. Therefore, due to concerns over technical feasibility resulting in increased engine down-time and the potential for increased NO_x and CO emissions when compared to other strategies, the Department determined that a rich-burn engine with an AFR controller, operated alone, does not constitute BACT, in this case.

f. Rich-Burn Engine with NSCR

Similar to the use of an AFR controller alone, the use of an NSCR unit alone can be used to effectively reduce NO_x and CO emissions. However, to effectively reduce these pollutants in the gas stream when operated as the only control, the engine must burn a rich fuel mixture to achieve maximum performance thereby resulting in lower engine operating efficiency and increased fuel use. Subsequently, an NSCR unit operated alone does not provide as high of a reduction in NO_x and CO emissions as an NSCR unit with an AFR controller where engine efficiency is increased. Therefore, due to concerns over technical feasibility resulting in lowered engine efficiency and the subsequent potential for increased NO_x and CO emissions when compared to other strategies, the Department determined that a rich-burn engine with an NSCR unit, operated alone, does not constitute BACT, in this case.

g. No Additional Controls

This practice would consist of operating technically available natural gas compressor engines without any add-on pollution control equipment.

Internal combustion engine operation with no additional controls is a technically feasible option for the compression and transmission of natural gas, as proposed by ECA. This approach would result in no additional energy or economic impacts on ECA; however, no additional controls would result in negative impacts on air quality due to increased NO_x and CO emissions when compared to other existing and technically feasible control options. Therefore, after consideration of all potential impacts including, but not limited to, energy impacts, impacts to the environment, and economic impacts and other costs, the Department determined that no additional control does not constitute BACT, in this case.

2. VOC BACT Analysis

The Department is not aware of any BACT determinations that have required controls for VOC emissions from natural gas fired compressor engines comparable to the proposed Waukesha Model F2895G rich-burn compressor engine. Further, the BACT determined controls for NO_x and CO (NSCR and an AFR controller) will result in a co-benefit control of VOCs. Therefore, the Department determined that no additional VOC specific controls and the lb/hr emission limit contained in Section II.A.1 of Permit #3869-00, constitutes BACT for VOC emissions, in this case.

3. PM_{10} BACT Analysis

The Department is not aware of any BACT determinations that have required controls for PM_{10} emissions from natural gas fired compressor engines comparable to the proposed Waukesha Model F2895G rich-burn compressor engine. Due to the relatively small

amount of PM_{10} emissions from the proposed engine, any add-on controls would be cost prohibitive and likely would not result in a great deal of environmental benefit. Therefore, the Department determined that no additional controls will constitute BACT for PM_{10} emissions, in this case.

4. SO_x BACT Analysis

The Department is not aware of any BACT determinations that have required controls for SO_x emissions from natural gas fired compressor engines comparable to the proposed Waukesha Model F2895G rich-burn compressor engine. Due to the relatively small amount of SO_x emissions from the proposed engine, any add-on controls would be cost prohibitive and likely would not result in a great deal of environmental benefit. Therefore, the Department determined that no additional controls will constitute BACT for SO_x emissions, in this case.

Compressor Engine BACT Summary:

After consideration of potential impacts including, but not limited to, energy impacts, impacts to the environment, economic impacts and other costs, and taking into consideration previous BACT determinations for similar source internal combustion engines, the Department determined that the emission limits contained in Section II.A.1 of Permit #3869-00 constitute BACT for the proposed project. The Department believes that the proposed Waukesha Model F2895G rich-burn compressor engine, operating with NSCR and an AFR controller, is capable of meeting the applicable BACT emission limits. In addition, the Department does not believe that any environmental, energy, or economic impacts preclude the use of a rich-burn engine with an NSCR and an AFR controller. Therefore, the Department determined that this control strategy constitutes BACT, in this case.

B. Desiccant Dehydrator

Under the current permit action, ECA proposed the incorporation of a natural gas dehydrator utilizing a solid desiccant to dry the collected gas to pipeline quality specifications. The desiccant-based dehydration system is a closed system where the only pollutants released are relatively small volumes of natural gas released when the vessel is opened to add or remove desiccant.

Typically, gas dehydration such as that proposed under the current permit action is accomplished using a glycol-based dehydrator. Glycol-based dehydrators vent relatively significant amounts of methane, VOCs, and hazardous air pollutants (HAPs) to the atmosphere from the glycol regenerator and also bleed natural gas from pneumatic control devices. Because the proposed desiccant dehydrator will result in considerably lower levels of air pollutants released to the atmosphere, when compared to the glycol-based system, the Department determined that the desiccant dehydrator constitutes BACT, in this case.

The control options selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the BACT emission limits.

IV. Emission Inventory

ton/year					
Source	**PM_{10}**	**NO_x**	**VOC**	**CO**	**SO_x**
Compressor Engine	0.05	3.81	7.63	3.81	0.003

* The permitted desiccant dehydrator and process water storage tank result in negligible emissions of regulated air pollutants and thus have not been quantified in this emission inventory.

395-hp Waukesha F2895G 4-Stroke Rich-Burn Natural Gas Compressor Engine

Brake Horsepower: 395 brake-horsepower (bhp)
Hours of operation: 8760 hr/yr

PM_{10} Emissions
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 1.173 MMBtu/hr (Maximum Design – Company Information)
Calculations: 1.173 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.01 lb/hr
0.01 lb/hr * 8760 hr/hr * 0.0005 ton/lb = 0.05 ton/yr

NO_x Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 395 bhp * 0.002205 lb/gram = 0.87 lb/hr
0.87 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.81 ton/yr

VOC Emissions
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 395 bhp * 0.002205 lb/gram = 1.74 lb/hr
1.74 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 7.63 ton/yr

CO Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 395 bhp * 0.002205 lb/gram = 0.87 lb/hr
0.87 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.81 ton/yr

SO_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Fuel Consumption: 1.173 MMBtu/hr (Maximum Design)
Calculations: 1.173 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.0007 lb/hr
0.0007 lb/hr * 8760 hr/hr * 0.0005 ton/lb = 0.003 ton/yr

V. Existing Air Quality

The legal description of the ECA Orr Compressor Station site is Section 18, Township 5 South, Range 17 East, in Stillwater County, Montana. The air quality of this area is classified as better than National Standards or unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for criteria pollutants.

VI. Ambient Air Impact Analysis

The Department determined, based on ambient air quality modeling, that the impact from this permitting action will be minor. The Department believes the proposed project will not cause or contribute to a violation of any ambient air quality standard.

Because the proposed facility is located in a county currently undergoing relatively significant industrial growth associated with coal bed methane (CBM) development, the Department determined that modeling for nitrogen dioxide (NO_2) emissions is required for the proposed project. The modeling was conducted to demonstrate compliance with the National and Montana Ambient Air Quality Standards (NAAQS/MAAQS). In addition, although a New Source Review (NSR) - Prevention of Significant Deterioration (PSD) increment analysis was not required for this permitting action, the Department has requested that all permittees of coal bed methane natural gas compressor stations model for PSD increments for NO_x; therefore, a PSD increment analysis was also conducted.

The NAAQS limit concentrations of NO_2 in areas classified as PSD Class 2, such as the proposed site, to 100 micrograms per cubic meter ($\mu g/m^3$) of air on an annual basis. The MAAQS are more stringent in limiting NO_2 emissions to 94$\mu g/m^3$ on an annual basis and 564$\mu g/m^3$ on a 1-hour basis. Background NO_2 concentrations are assumed to be 6 $\mu g/m^3$ on an annual basis and

75 µg/m^3 on a 1-hour basis. The EPA-approved SCREEN3 model was run for the proposed source using a point source input, actual stack parameters supplied by the engine manufacturer, building downwash, rural dispersion, and default regulatory options in SCREEN3 with full screening meteorology. Both complex and simple terrain scenarios were run. Five discrete points in the vicinity of the proposed station were obtained from DEM files for terrain above the stack height for the complex scenario. For simple terrain, points from 40 meters (m) (fenceline) out to 5000 m were analyzed at 100 m intervals. All inputs to the model are contained in the application for air quality permit #3869-00 on file with the Department.

The highest NO_2 concentration output of 382.2 µg/m^3 on a 1-hour basis occurred at the facility fenceline (40 m) likely due to stack downwash caused by the building used to house the compressor engine. Taking into account the conversion of NO_x to NO_2 using the ambient ratio method (ARM), a 1-hour maximum NO_2 concentration of 286.7 µg/m^3 is obtained. Conversion of this value to an annual concentration yields a concentration of 22.9 µg/m^3. Addition of the appropriate background concentrations results in a maximum annual concentration of 28.9 µg/m^3 and a maximum 1-hour concentration of 361.7 µg/m^3 at the facility fenceline, both of which are below the NO_2 MAAQS of 94 µg/m^3 and 564 µg/m^3, respectively. The NAAQS/MAAQS model results for NO_X are summarized in Table 1.

Table 1. NAAQS/MAAQS Modeling Results

Pollutant	Avg. Period	ARM Adjusted NO_2 Conc. (µg/m^3)	Background Conc. (µg/m^3)	Ambient Conc. (µg/m^3)	NAAQS (µg/m^3)	MAAQS (µg/m^3)	% of NAAQS/ MAAQS
NO_2	1-hr	286.7*	75	361.7	--------	564	64.1
	Annual	22.9*	6	28.9	100	94	28.9/30.7

* Concentration calculated using Ambient Ratio Method (ARM)

Although a PSD increment analysis was not required, due to the high projected development of CBM in Montana, the Department required that ECA demonstrate compliance with PSD increments for NO_x. A Class II increment analysis has been conducted for the region. The modeling demonstrated compliance with the Class II increments. The regional Class II modeling results are summarized in Table 2.

Table 2. Regional Class II Modeling Results

Pollutant	Avg. Period	Class II Modeled Conc. (µg/m^3)	Class II Increment (µg/m^3)	% Class II Increment
NO_x	Annual [a]	20	25	80.0

[a] Applying ARM with national default of 75%

[b.] These results are cumulative; Impacts from the Orr Compressor Station alone are lower

In summary, modeling was conducted to determine project compliance with the MAAQS and the NAAQS, and the NO_x PSD increments. The modeling results demonstrate that neither the MAAQS, NAAQS, or PSD Class II NO_x increment would be violated as a result of the current permit action.

VII. Taking or Damaging Implication Analysis

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

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: ECA Holdings, L.P.
Orr Compressor Station
245 Commerce Green Blvd., Suite 270
Sugar Land, TX 77478

Air Quality Permit Number: 3869-00

Preliminary Determination Issued: September 8, 2006
Department Decision Issued: September 26, 2006
Permit Final: October 12, 2005

1. *Legal Description of Site*: The legal description of the ECA Orr Compressor Station site is Section 18, Township 5 South, Range 17 East, in Stillwater County, Montana.

2. *Description of Project*: Permit #3869-00 is issued to ECA for the construction and operation of the Orr Compressor Station. The facility is a natural gas compressor station incorporating a 395-brake horsepower (bhp) capacity Waukesha Model F2895G rich-burn natural gas compressor engine with a non-selective catalytic reduction (NSCR) unit and an air-to-fuel ratio controller (AFR), a desiccant dehydrator for the dehydration of field gas to meet pipeline specifications, and a 50 barrel water tank for the storage of free water removed by the separator. The Orr Compressor Station compresses and transports natural gas from the nearby gas field. The natural gas fired compressor engine compresses the gas for transmission through the pipeline.

3. *Objectives of Project*: The proposed project would provide business and revenue for ECA by allowing the company to extract natural gas from the field. Natural gas would be received and compressed for transmission through the pipeline.

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 Montana Air Quality Permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because ECA 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 Permit #3869-00.

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 would be reasonably necessary to ensure compliance with applicable requirements and to demonstrate compliance with those requirements and would 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			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites			X			Yes
J	Cumulative and Secondary Impacts			X			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

Minor impacts to terrestrial and aquatic life and habitats would be expected from the proposed project because deer, antelope, coyotes, geese, ducks, and other terrestrials would potentially use the area around the facility and because the facility would be a source of air pollutants. The facility would emit air pollutants and, through modeling, the Department determined corresponding deposition of pollutants would occur; however, the Department determined that any impacts from deposition would be minor. In addition, minor land disturbance would occur through facility construction activities. Any impacts from facility construction would be minor due to the relatively small size of the project and the relatively short period of time required for construction. Overall, any impacts to terrestrial and aquatic life and habitats would be minor.

B. Water Quality, Quantity, and Distribution

Minor impacts would be expected on water quality, quantity, and distribution from the proposed project because the facility would be a source of pollutants. The facility would have no direct discharges into surface water. However, minor amounts of water may be required to control fugitive dust emissions from the access roads and the general facility property. In addition, the facility would emit air pollutants and corresponding deposition of pollutants would occur. However, the Department determined because of the relative size of the facility that any impact resulting from the deposition of pollutants on water quality, quantity, and distribution would be minor.

In addition, water quality, quantity, and distribution would not be impacted from constructing the facility because there is no surface water at or relatively close to the site. Furthermore, no direct discharges into surface water would occur and no use of surface water would be expected for facility construction. Therefore, no impacts to water quality, quantity, and distribution would be expected from facility construction. Overall, any impacts to water quality, quantity, and distribution would be minor.

C. Geology and Soil Quality, Stability, and Moisture

Minor impacts would occur on the geology and soil quality, stability, and moisture from the proposed project because minor construction would be required to develop the facility. Small buildings would be constructed, natural gas pipelines would be installed, and an access road would be developed. In addition, no discharges, other than air emissions, would occur at the facility. Any impacts to the geology and soil quality, stability and moisture from facility construction would be minor due to the relatively small size of the project.

Further, deposition of pollutants would occur; however, the Department determined, through modeling, that any impacts resulting from the deposition of pollutants on the soils surrounding the site would be minor. Overall, any impacts to the geology and soil quality, stability, and moisture would be minor because of deposition of pollutants.

D. Vegetation Cover, Quantity, and Quality

Minor impacts would occur on vegetation cover, quantity, and quality because minor construction would be required to develop the facility. Small buildings would be constructed, natural gas pipelines would be installed, and an access road would be developed.

In addition, no discharges, other than air emissions, would occur at the facility. Any impacts to the vegetation cover, quantity, and quality from facility construction would be minor due to the relatively small size of the project.

The facility would be a source of air pollutants and corresponding deposition of pollutants would occur. However, the Department determined that any impacts resulting from the deposition of pollutants on the existing vegetation cover, quantity, and quality would be minor. Overall, any impacts to vegetation cover, quantity, and quality would be minor because of deposition of pollutants.

E. Aesthetics

Minor impacts would result on the aesthetic values of the area because the facility would be a new facility. Small buildings would be constructed to house the engines, natural gas pipelines would be installed, and an access road would be developed. However, any visual aesthetic impacts would be minor because the natural gas gathering plant is a relatively small industrial facility.

The facility would also create additional noise in the area. However, any auditory aesthetic impacts would be minor because the compressor engine would generally operate enclosed indoors and with a non-Selective Catalytic Reduction (NSCR) unit. NSCR units are typically designed to be installed with mufflers. Overall, any aesthetic impacts would be minor.

F. Air Quality

The air quality of the area would realize minor impacts from the proposed project because the facility would emit the following air pollutants: PM_{10}; NO_x; CO; VOC, including HAPs; and SO_x. Air emissions from the facility would be minimized by limitations and conditions that would be included in Permit #3869-00. Conditions would include, but would not be limited to, BACT emission limits and opacity limitations on the proposed engines and the general facility. In addition, based on previous analysis of sources of this type operating under similar conditions, the Department believes that the emissions resulting from the proposed engines would exhibit good dispersion characteristics resulting in relatively low deposition impacts. While deposition of pollutants would occur as a result of operating the facility, the Department

determined that the impacts from deposition of pollutants would be minor due to dispersion characteristics of pollutants (stack height, stack temperature, etc.), the atmosphere (wind speed, wind direction, ambient temperature, etc.), and conditions that would be placed in Permit #3869-00. The amount of air concentration of pollutants would be relatively small, and the corresponding deposition of those air pollutants would be minor.

Since controlled emissions from the proposed station would exhibit good dispersion characteristics and would not exceed any Montana ambient air quality modeling threshold, the Department determined that controlled emissions from the source will not cause or contribute to a violation of any ambient air quality standard. Therefore, any impacts to air quality from the proposed facility would be minor. Finally, for NO_2, the Department determined through modeling that the proposed project will not meet or exceed any of the applicable National or Montana Ambient Air Quality Standards (NAAQS/MAAQS) or Class II increment. Overall, any impact to local air quality will be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to identify any unique endangered, fragile, or limited environmental resources in the proposed area of construction and operation, the Department contacted the Montana Natural Heritage Program, Natural Resource Information System (NRIS). NRIS search results concluded that there is one such environmental resource on file for the area. Area in this case is defined by the township and range of the proposed site, with an additional one-mile buffer. The species of special concern is the *Lynx Canadensis* commonly referred to as the Canadian Lynx. While the Canadian Lynx may be found in specific habitats within or near the defined area, the NRIS search did not indicate that this species of special concern would locate directly on or relatively near the proposed industrial site. Therefore, it is unlikely that this species of special concern would realize any impact from the proposed operations beyond minor air emission impacts.

Emissions from the proposed project could impact the previously highlighted unique, endangered, fragile, or limited environmental resource located in the proposed project area. However, as detailed in Section VI of the permit analysis, any emissions and resulting impacts from the project would be minor due to the low concentration of those pollutants emitted. Overall, any impact to this unique endangered, fragile, or limited environmental resource of the proposed project area would be minor.

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

The proposed project would have minor impacts on the demands for the environmental resources of air, because the facility would be a minor source of air pollutants. Demands for water would be minor because the facility may use water for dust suppression. Deposition of pollutants would occur as a result of operating the facility; however, the Department determined that any impacts from deposition of pollutants would be minor.

The proposed project would be expected to have minor impacts on the demand for the environmental resource of energy because power would be required at the site. The impact on the demand for the non-renewable environmental resource of energy would be minor because the facility would be relatively small by industrial standards. Overall, the impacts for the demands on the environmental resources of water, air, and energy would be minor.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites that may be located near the proposed initial site of operation, the Department contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to SHPO records, there are no

previously recorded historic or archaeological sites located within the proposed area. Therefore, the Department determined that it is unlikely that the proposed project would have any impact on any historical and archaeological site.

J. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts on the physical and biological aspects of the human environment in the immediate area would be minor due to the relatively small size of the project and negligible construction activities associated with this type of facility. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in Permit #3869-00.

Additional facilities (compressor stations, gas plants, etc.) could locate in the area to withdraw natural gas from the nearby area and/or to separate the components of natural gas. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate regulating authority. Environmental impacts from any future facilities would be assessed through the appropriate permitting process.

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			X			Yes
B	Cultural Uniqueness and Diversity			X			Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities			X			Yes
G	Quantity and Distribution of Employment			X			Yes
H	Distribution of Population			X			Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals			X			Yes
L	Cumulative and Secondary Impacts			X			Yes

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

A. Social Structures and Mores
B. Cultural Uniqueness and Diversity

The proposed project would cause minor, if any, impacts to the above social and economic resources in the area because the proposed project would take place in a relatively remote location. Further, the operation of a gas gathering plant of this type necessitates one half-time employee for normal operations and would likely not result in any, or very little, immigration of new people to the area for employment purposes; thereby, having little if any impact on the above social and economic resources of the area.

Additional activity (vehicle traffic, construction equipment, etc.) would be noticeable during facility construction and the gathering plant would typically require day-to-day employees. Once the facility is constructed, activities associated with the operation of the facility would be minor. Overall, any impacts to the above social and economic resources in the area would be minor.

C. Local and State Tax Base and Tax Revenue

The proposed project would result in minor impacts to the local and state tax base and tax revenue because relatively few new employees would be expected as a result of constructing the facility. Further, the proposed project would necessitate negligible construction activities and typically would not require an extended period of time for completion. Therefore, any construction related jobs would be temporary and any corresponding impacts on the tax base/revenue in the area would be minor. Overall, any impacts to the local and state tax base would be minor.

D. Agricultural or Industrial Production

The land at the proposed location is rural agricultural grazing land. However, because the facility would be relatively small, the proposed project would result in only minor impacts to agricultural production. The proposed project would have minor impacts to industrial production because the proposed project would be a new industrial source locating in the proposed area. However, because the facility would be relatively small by industrial standards, the project would likely not result in additional industrial sources

Additional facilities (compressor stations, gas plants, etc.) could locate in the area to withdraw natural gas from the nearby area and/or to separate the components of natural gas. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate regulating authority. Environmental impacts from any future facilities would be assessed through the appropriate permitting process. The Department is not aware of plans for any additional facilities at this time. Overall, any impacts to agricultural or industrial production of the area would be minor.

E. Human Health

The proposed project would result in minor, if any, impacts to human health. Deposition of pollutants would occur; however, the Department determined that the proposed project would comply with all applicable air quality rules, regulations, and standards. These rules, regulations, and standards are designed to be protective of human health. Overall any impacts to public health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would have minor, if any, impacts on access to recreational and wilderness activities because of the relatively remote location and the relatively small size of the facility. The proposed project would have minor impacts on the quality of recreational and wilderness activities in the area because the facility, while relatively small by industrial standards, would be visible and would produce noise. Overall any impacts to the access and quality of recreational and wilderness activities in the area would be minor.

G. Quantity and Distribution of Employment
H. Distribution of Population

The proposed project would have minor impacts on the employment and population because one half-time permanent employee would be required for normal operations thereby resulting in relatively minor, if any, new immigration to the area. In addition, temporary construction-

related positions would result from this project. However, any impacts to the quantity and distribution of employment from construction related employment would be minor due to the relatively small size of the facility and the relatively short time period that would be required for constructing the facility. Overall, any impacts to the above social and economic resources in the area would be minor.

I. Demands for Government Services

There would be minor impacts on the demands for government services because additional time would be required by government agencies to issue the appropriate permits for the facility and to assure compliance with applicable rules, standards, and conditions that would be contained in those permits. In addition, there would be minor impacts on the demands for government services to regulate the increase in vehicle traffic that would be associated with constructing and operating the facility. The increase in vehicle traffic would be primarily during facility construction but the gas gathering plant typically does require day-to-day attention. Therefore, vehicle traffic would be relatively minor due to the relatively short time period that would be required to construct the facility and the day-to-day over-site of the plant by permanent employees. Overall, any demands for government services to regulate the facility or activities associated with the facility would be minor due to the relatively small size of the facility.

J. Industrial and Commercial Activity

Only minor impacts would be expected on the local industrial and commercial activity because the proposed project would represent only a minor increase in the industrial and commercial activity in the area. The proposed project would be relatively small and would take place at a relatively remote location.

Additional facilities (compressor stations, gas plants, etc.) could locate in the area to withdraw natural gas from the nearby area and/or to separate the components of natural gas. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate regulating authority. Environmental impacts from any future facilities would be assessed through the appropriate permitting process. Overall, any impacts to the local industrial and commercial activity of the area would be minor.

K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans or goals. The permit would ensure compliance with state standards and goals. The state standards would protect the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from this project would result in minor impacts to the economic and social aspects of the human environment in the immediate area. Due to the relatively small size of the project, the industrial production, employment, and tax revenue (etc.) impacts resulting from the proposed project would be minor. In addition, the Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in Permit #3869-00.

Additional facilities (compressor stations, gas plants, etc.) could locate in the area to withdraw natural gas from the nearby area and/or to separate the components of natural gas. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate regulating authority. Environmental impacts from any future facilities would be assessed through the appropriate permitting process.

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 permit action is for the construction and operation of a natural gas gathering plant. Permit #3869-00 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, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: M. Eric Merchant, MPH
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