



Montana Department of  
**ENVIRONMENTAL QUALITY**

Brian Schweitzer, Governor

P. O. Box 200901

Helena, MT 59620-0901

(406) 444-2544

Website: [www.deq.mt.gov](http://www.deq.mt.gov)

May 30, 2012

Mike Howerton  
Hebron Compressor Station  
P.O. Box 5103  
Enid, OK 73702

Dear Mr. Howerton:

Montana Air Quality Permit #4693-01 is deemed final as of May 30, 2012, 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

Craig Henrikson, P.E.  
Environmental Engineer  
Air Resources Management Bureau  
(406) 444-6711

VW:CH  
Enclosure

Montana Department of Environmental Quality  
Permitting and Compliance Division

Montana Air Quality Permit #4693-01

Hiland Partners, LP  
Hebron Compressor Station  
P.O. Box 5103  
Enid, OK 73702

May 30, 2012



## MONTANA AIR QUALITY PERMIT

Issued To:	Hiland Partners, LP	MAQP: #4693-01
	Hebron Compressor Station	Application Complete: 04/03/2012
	P.O. Box 5103	Preliminary Determination Issued: 04/26/2012
	Enid, OK 73702	Department's Decision Issued: 05/14/2012
		Permit Final: 05/30/2012
		AFS #: 085-0103

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Hiland Partners, LP (HPL), 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. Plant Location

The Hebron Compressor Station is located approximately four miles southeast of Bainville, Montana. The legal description of the facility is the NE $\frac{1}{4}$  NW $\frac{1}{4}$  of Section 18, Township 27 North, Range 59 East, Roosevelt County, Montana.

#### B. Current Permit Action

On April 3, 2012, the Department of Environmental Quality – Air Resources Management Bureau (Department) received a request from HPL to modify MAQP #4693-00 by adding a new 1,380 brake horsepower (bhp) compressor engine. The new compressor engine is identical in size and model to the single compressor engine currently operating at the site. The existing compressor engine will be referred to as Compressor Engine #1 and the new compressor engine shall be referred to as Compressor Engine #2.

### Section II: Conditions and Limitations

#### A. Emission Limitations

1. HPL shall not operate more than two natural gas compressor engines at any given time at the Hebron Compressor Station and the maximum rated design capacity of each engine shall not exceed 1,380 brake horsepower (bhp). The engines shall be of a rich burn four-stroke engine class (ARM 17.8.749).
2. Emissions from Compressor Engine #1 shall be controlled with a dual non-selective catalytic reduction (NSCR) unit and an air-to-fuel (AFR) controller (ARM 17.8.752).
3. Emissions from Compressor Engine #2 shall be controlled with a dual NSCR unit and an AFR capable of maintaining the required emission limits in Section II.A.4 and Section II A.5 through all load and speed changes at which the engine may be operated (17.8.752).
4. The following gram per brake horsepower-hour (g/bhp-hr) emission limit for the Compressor Engines #1 and #2 shall be met at all operating load conditions. (ARM 17.8.752):

Emission Factors (rich-burn engine)

Oxides of Nitrogen (NO <sub>x</sub> )	1.0 g/bhp-hr
Carbon monoxide (CO)	2.0 g/bhp-hr
Volatile Organic Compounds (VOC)	0.7 g/bhp-hr

5. The pound per hour (lb/hr) emission limits for the Compressor Engine #1 and #2 shall be determined using the following equation and pollutant specific g/bhp-hr emission factors from Section II.A.4 (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

lb/hr Limit

Oxides of Nitrogen (NO <sub>x</sub> )	3.04 lbs/hr
Carbon monoxide (CO)	6.08 lbs/hr
Volatile Organic Compounds (VOC)	2.13 lbs/hr

6. Compressed gas will flow from the compressor unit to a triethylene glycol (TEG) dehydration unit for treatment prior to entering the transmission pipeline. HPL shall direct emissions from the TEG dehydration still vent to a flash tank condenser and route the non-condensable gasses to a reboiler firebox (ARM 17.8.749).
7. HPL 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).
8. HPL 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).
9. HPL 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.8 (ARM 17.8.749).
10. HPL shall operate their control equipment to provide the maximum air pollution control for which it was designed (ARM 17.8.752).
11. HPL 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 Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines* (ARM 17.8.340; 40 CFR 60, Subpart JJJJ; ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).
12. HPL shall submit to the department within 180 days of initial start up of Compressor Engine #2, the “maintenance plan” as called out in 40 CFR 60 Subpart JJJJ (a)(2) (iii) as required for stationary spark ignition engines greater than 500 hp (ARM 17.8.749).

## B. Testing Requirements

1. Compressor Engine #2 shall initially be tested for NO<sub>x</sub>, CO, and VOC concurrently, within 180 days of the initial start-up date of the compressor engine, and the results submitted to the Department in order to demonstrate compliance with the emission limitations contained in Section II.A.4 and Section II.A.5 (ARM 17.8.105, ARM 17.8.749, and 40 CFR 60, Subpart JJJJ).
2. After the initial source test, HPL shall test each compressor engine for NO<sub>x</sub> and CO concurrently, every 8,760 hours or 3 years, whichever comes first or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749, 40 CFR 60, Subpart JJJJ).
3. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
4. The Department may require further testing (ARM 17.8.105).

## C. Operational Reporting Requirements

1. HPL 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. HPL 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 startup 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 HPL 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

HPL shall provide the Department with written notification of the actual start-up date of the Compressor Engine #2 within 15 days after the actual start-up date. The notification shall include the engine model and maximum rated design capacity (ARM 17.8.749).

### SECTION III: General Conditions

- A. Inspection – HPL 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) or continuous emissions 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 the terms, conditions, and matters stated herein shall be deemed accepted if HPL fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving HPL 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 therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by HPL 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  
Hiland Partners, LP  
Hebron Compressor Station  
MAQP #4693-01

I. Introduction/Process Description

Hiland Partners, LP (HPL) owns and operates a natural gas compressor station. The facility is located approximately four miles southeast of Bainville, Montana and is known as the Hebron Compressor Station. The legal description of the facility is the NE¼ NW¼ of Section 18, Township 27 North, Range 59 East, Roosevelt County, Montana.

A. Permitted Equipment

The facility consists of two four-stroke rich-burn compressor engines each with a maximum rated design capacity of 1,380 brake horsepower (bhp). Emissions from the rich-burn engines are each controlled with dual non-selective catalytic reduction (NSCR) unit and an air-to-fuel ratio (AFR) controller. The facility also has a triethylene glycol (TEG) dehydrator with an associated 0.50 million british thermal units per hour (MMBtu/hr) reboiler and still vent, one, 400 barrel (bbl) atmospheric water tank, and two, 30,000 gallon pressurized natural gas liquids (NGL) tanks.

B. Source Description

The HPL Hebron Compressor Station compresses and transports natural gas from the nearby Bakken gas fields. The two compressor engines, TEG Dehydrator reboiler, still vent, and the atmospheric water tank are the only emitting units at the facility.

C. Permit History

On January 14, 2012, HPL was issued **MAQP #4693-00** to operate a natural gas compressor station which included a 1,380 bhp compressor engine, TEG Dehydrator reboiler, and atmospheric water tank.

D. Current Permit Action

On April 3, 2012, the Department of Environmental Quality – Air Resources Management Bureau (Department) received a request from HPL to modify MAQP #4693-00 by adding a new 1,380 brake horsepower (bhp) compressor engine. The new compressor engine is identical in size and model to the single compressor engine currently operating at the site. The existing compressor engine will be referred to as Compressor Engine #1 and the new compressor engine shall be referred to as Compressor Engine #2.

E. Response to Public Comments

Person/Group Commenting	Permit Reference	Comment	Department Response
Bison Engineering on behalf of HPL	II.A.12	Bison requests removal of condition II.A.12 since it “essentially duplicates” the NSPS requirement from Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (60.4243) (a)(2)(iii).	The Department agrees the condition essentially duplicates the referenced condition. The Department will revise the condition to have HPL submit the “maintenance plan” referenced in 60.4243(a)(2)(iii).

## 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).

HPL 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<sub>10</sub>

HPL 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. (2) Under this rule, HPL 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 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. HPL will utilize pipeline quality 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 Part 60, Standards of Performance for New Stationary Sources (NSPS). HPL is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.
  - a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
  - b. 40 CFR 60, Subpart KKK - Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants does not apply to the Hebron Compressor Station because the Hebron Compressor Station only gathers and compresses natural gas and is not a natural gas processing plant that either engages in the extraction of natural gas liquids or processes sour gas; therefore, the Hebron Compressor Station does not meet the definition of a natural gas processing plant as defined in 40 CFR 60, Subpart KKK.
  - c. 40 CFR 60, Subpart LLL – Standards of Performance for Onshore Natural Gas Processing: SO<sub>2</sub> Emissions does not apply to the Hebron Compressor Station because the Hebron Compressor Station does not utilize a sweetening unit to process sour gas and is not a natural gas processing plant.

- d. 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines contains NSPS requirements that apply to owners or operators of stationary spark ignition (SI) internal combustion engine (ICE) that commence construction, modification, or reconstruction after June 12, 2006, where the stationary ICE is manufactured after July 1, 2007, for engines greater than 500 bhp, or after January 1, 2008, for engines less than 500 bhp. This NSPS will apply if the engine remains, or will remain, at the permitted location for more than 12 months, or a shorter period of time for an engine located at a seasonal source. A seasonal source remains at a single location on a permanent basis (at least 2 years) and operates three months or more each year. Because the natural gas SI ICE engines were both manufactured after July 1, 2007, this NSPS does apply.
8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 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 National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart as listed below:
  - b. 40 CFR 63, Subpart HH – National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities. Owners or operators of oil and natural gas production facilities, as defined and applied in 40 CFR Part 63 shall comply with the applicable provisions of 40 CFR 63, Subpart HH. In order for a natural gas production facility to be subject to 40 CFR 63, Subpart HH requirements, certain criteria must be met. First, a facility must either process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user. Second, the facility must also contain an affected source as specified in paragraphs (b)(1) or (b)(2) of 40 CFR 63, Subpart HH. Finally if the criteria are met, and the exemptions contained in paragraphs (e)(1) and (e)(2) of 40 CFR 63, Subpart HH do not apply, the facility is subject to the applicable provisions of 40 CFR 63, Subpart HH. The facility can be either a major or area source of HAPs.

Based on information provided by HPL and in accordance with the definition of natural gas processing found in the preamble to 40 CFR 63, Subpart HH, the Hebron Compressor Station does process natural gas and as such, does meet the definition of a natural gas production facility as defined in 40 CFR Part 63. The TEG unit meets the definition of an affected source at an area source of HAPs as defined in paragraph (b)(2) of 40 CFR 63, Subpart HH. After including the benzene, toluene, ethylbenzene, and xylenes (BTEX) from the condenser, and requiring the routing of the emissions back to the reboiler firebox; the condenser becomes a federally enforceable control device. Since the benzene emissions are less than 0.90 megagram per year with the federally enforceable control device in place, and in accordance with the exemptions of 40 CFR §63.764(e)(ii), the facility is not subject to the provisions of 40 CFR 63, Subpart HH.

- c. Subpart HHH – National Emission Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities. This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of

hazardous air pollutants (HAP) emissions as defined in §63.1271. Because the Hebron compressor station is not a major source of HAPs, the facility is not subject to the provisions of 40 CFR 63, Subpart HHH.

- d. Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines. This rule establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. Affected sources include any existing, new or reconstructed stationary RICE located at a major or area source of HAP emissions. A stationary RICE is new if construction of the RICE commenced on or after June 12, 2006.

Since the natural gas 4 stroke rich burn RICE (both engines) at the Hebron compressor station were constructed after June 12, 2006, the engines are considered a new stationary RICE located at an area source of HAP emissions, and must meet the requirements specified by 40 CFR 63.6590(b)(3)(c) by meeting the requirements of 40 CFR 60 subpart JJJJ.

- 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. HPL must demonstrate compliance with the ambient air quality standards with a stack height that does not exceed Good Engineering Practices (GEP). The proposed height of the new or modified stack for HPL is below the allowable 65-meter GEP stack height.

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

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. HPL 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.

- 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 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. HPL has a PTE greater than 25 tons per year of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO); 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. HPL 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. HPL submitted an affidavit of publication of public notice for the April 4, 2012 issue of the *Williston Herald*, a newspaper of general circulation in the town of Williston in Williams County, North Dakota, 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 HPL 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. (1) This rule states that an MAQP may be transferred from one location to another if the Department receives a complete notice of intent to transfer location, the facility will operate in the new location for less than 1 year, the facility will comply with the FCAA and the Clean Air Act of Montana, and the facility complies with other applicable rules. (2) 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 because 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 hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
  - c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) in a serious PM<sub>10</sub> nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program. (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 #4693-01 for HPL, 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<sub>10</sub> nonattainment area.
  - d. This facility is subject to a current NSPS (40 CFR Subpart JJJJ).

This facility is subject to area source provisions of current NESHAP standards (40 CFR 63, Subpart ZZZZ).

- e. This source is not a Title IV affected source, or a solid waste combustion unit.
- f. This source is not an EPA designated Title V source.

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

### III. BACT Determination

A BACT determination is required for each new or modified source. HPL 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.

A BACT analysis was submitted by HPL in the permit application for MAQP #4693-01 addressing available methods of controlling emissions from the proposed compressor engine located at the Hebron Compressor Station. The Department reviewed these methods, as well as previous BACT determinations in order to make the following BACT determination.

#### A. Compressor Engine

The primary criteria pollutants from natural gas-fired reciprocating engines are NO<sub>x</sub>, CO, and VOCs. The formation of nitrogen oxides is exponentially related to combustion temperature in the engine cylinder. The other pollutants, 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 volatilized lubricating oil, engine wear, or from products of incomplete combustion. Sulfur oxides (SO<sub>x</sub>) 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 control techniques have been identified for reciprocating engines: parametric controls (timing and operating at a leaner air-to-fuel ratio); combustion modifications such as advanced engine design for new sources or major modification to existing sources (clean-burn cylinder head designs and pre-stratified 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) units for lean-burn engines, NSCR for rich-burn engines, and CO oxidation catalysts for lean-burn engines.

The proposed compressor engine is of a four-stroke rich-burn engine class. HPL currently already has an existing rich burn engine at the site, so a lean burn engine was not considered in this BACT analysis. 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).

## 1. NO<sub>x</sub> and CO BACT

As part of the NO<sub>x</sub> and CO BACT analysis, the following control technologies were reviewed:

- Rich-burn engine with a catalytic oxidation unit and an AFR controller
- Rich-burn engine with an NSCR unit and an AFR controller
- Rich-burn engine with no additional controls

Catalytic oxidation applied to a rich-burn engine is technically infeasible because the oxygen concentration from a rich-burn engine is not high enough for a catalytic oxidizer to operate properly. The remaining engine control technologies are considered technically feasible.

A rich-burn engine is designed to operate with low excess oxygen which gives it a rich gas mixture. Typically, rich-burn engines have relatively high CO emission rates. CO emissions are typically reduced by a NSCR unit, otherwise known in the industry as a “three-way catalyst.” Air-to-fuel ratio controllers are also typically installed to maintain the proper oxygen content for maximum efficiency of the NSCR catalyst.

An NSCR unit uses the residual hydrocarbons and CO in the rich-burn engine exhaust as a reducing agent for NO<sub>x</sub>. In an NSCR, hydrocarbons and CO are oxidized by oxygen (O<sub>2</sub>) and NO<sub>x</sub>. As the excess hydrocarbons, CO, and NO<sub>x</sub> 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 nitrogen (N<sub>2</sub>), water (H<sub>2</sub>O) and CO<sub>2</sub>. NO<sub>x</sub> reduction efficiencies are usually greater than 90 percent, while CO reduction efficiencies are approximately 90 percent.

In order to provide 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. This maximizes NO<sub>x</sub> and CO emission reductions and limits technical difficulties causing engine downtime. AFR controllers are now capable of very complex controls to manage the combustion process over the varying ambient and process load conditions. AFR controllers only achieve BACT combustion conditions if they are properly designed and maintained in conjunction with the NSCR unit. The AFR provides for a correct exhaust mixture within the catalyst bed to achieve the desired chemical reaction for the target species. These controls often include oxygen sensor

feedback from out of the engine and out of the catalyst bed. Proper maintenance of the AFR and the NSCR are also achieved by establishing maintenance programs to routinely inspect, replace and calibrate equipment which can impede the performance for pollutant removal for equipment supporting the AFR and NSCR operation.

The use of a rich burn engine with an NSCR unit and an advanced AFR controller is the highest ranking control alternative; is frequently used and consistent with other recently permitted similar sources in the natural gas compression industry; and, is the control option proposed by HPL. Therefore, the top control option is selected as BACT for NO<sub>x</sub> and CO emissions and no further analysis is necessary. The Department determined that a properly operated and maintained 1,380-bhp rich-burn engine with an NSCR unit and AFR controller constitutes BACT for NO<sub>x</sub> and CO. The resulting BACT limit will be 1.0 g/bhp-hr and 2.0 g/bhp-hr for NO<sub>x</sub> and CO respectively. A rich-burn engine equipped with an NSCR unit and an AFR controller is frequently used in the natural gas compression industry and the BACT determination is consistent with other recently permitted similar sources.

## 2. VOC BACT

The Department is not aware of any BACT determinations that have required controls for VOC emissions from compressor engines. HPL proposed the use of an NSCR unit and an AFR controller to meet a g/bhp-hr emission limit equivalent to 0.7 g/bhp-hr. However, the Department does not consider the NSCR unit and the AFR controller to be BACT for VOC because the cost per ton of VOC reduced would be above industry norm. The Department previously determined that no additional controls and burning pipeline quality natural gas to meet a lb/hr emission limit constitute BACT for previously permitted compressor engines. The Department determined the same requirement should apply to the 1,380 bhp engine with an associated emission limitation of 0.7 g/bhp-hr.

## 3. PM<sub>10</sub> and SO<sub>2</sub> BACT

All PM emitted is considered to be particulate matter with an aerodynamic diameter of 10 microns and less (PM<sub>2.5</sub>) (AP-42 Table 3.2-3). The Department is not aware of any BACT determinations that have required controls for PM<sub>10</sub>/PM<sub>2.5</sub>, or SO<sub>2</sub> emissions from natural gas fired compressor engines. HPL proposed no additional controls, and burning pipeline quality natural gas as BACT for PM<sub>10</sub>/PM<sub>2.5</sub> and SO<sub>2</sub> emissions from the proposed compressor engine. Due to the relatively small amount of PM<sub>10</sub>/PM<sub>2.5</sub>, and SO<sub>2</sub> emissions from the proposed engine, and the cost of adding additional control, any add-on controls would be cost prohibitive. Therefore, the Department determined no additional controls and burning pipeline quality natural gas would constitute BACT for PM<sub>10</sub>/PM<sub>2.5</sub> and SO<sub>2</sub> emissions for the proposed compressor engine. The proposed PM<sub>10</sub>/PM<sub>2.5</sub> and SO<sub>2</sub> BACT conforms to previous BACT determinations made by the Department for rich-burn, natural gas-fired compressor engines.

The 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

Unit	PM (TPY)	PM10 (TPY)	PM2.5 (TPY)	NOx (TPY)	CO (TPY)	SOx (TPY)	VOC (TPY)	HAPs (TPY)	Formaldehyde (TPY)	CH4 (TPY)	N2O (TPY)	CO2 (TPY)	CO2e (TPY)	GHG (TPY)
Existing Compressor Engine - 1380 bhp	0.88	0.88	0.88	13.33	26.66	0.03	9.33	1.88	1.33	0.10	0.01	5,310.38		
New Compressor Engine 1380 bhp	0.88	0.88	0.88	13.33	26.66	0.03	9.33	1.88	1.33	0.10	0.01	5,310.38		
TEG Glycol Reboiler <sup>a</sup> - 0.50 MMBtu/hr	0.014	0.014	0.014	0.18	0.15	0.00	0.01	--	--	0.0042	0.004	219.0	67,890	67,890
Dehydrator Still Vent <sup>b</sup>	--			--	--	--	1.18	0.07	--	--	--	--	--	--
Atmospheric Tank Fugitive Emissions <sup>c</sup>							1.99							
Atmospheric Tank Flash Emissions <sup>d</sup>							< 1.00							
Fugitive VOCs <sup>e</sup>							2.01							
<b>TOTAL</b>	<b>1.781</b>	<b>1.781</b>	<b>1.781</b>	<b>26.84</b>	<b>53.46</b>	<b>0.05</b>	<b>24.85</b>	<b>3.82</b>	<b>2.67</b>	<b>0.2045</b>	<b>0.024</b>	<b>10839.8</b>	<b>67890</b>	<b>67890</b>

- a. Emissions of VOC's do not include emissions of formaldehyde.
- b. Calculated with GRI GLYCalc (submitted by applicant). A JATCO - Condenser is used to reduce the VOC emissions by 90% and HAP emissions by 95% from the regenerator. The non-condensable gas from the condenser will be routed to the reboiler firebox. It is estimated the efficiency of the firebox will be 98% which is similar to a flare
- c. Calculated with TANKS 4.0.9d (submitted by applicant).
- d. Flashing emissions, working and breathing losses are expected to be negligible (i.e. less than one ton per year) because of the liquid composition in the atmospheric tank.
- e. Calculated based on estimated component count, weight percent of VOC, and application of leak factors from Protocol for Equipment Emissions Estimates, EPA-453/R-95-017, 11/95.

#### **1,380 bhp four-stroke Rich Burn Compressor Engine with NSCR and AFR (Same for both the existing and the new Compressor Engine)**

Brake Horsepower: 1380 bhp  
 Fuel Consumption: 10.394 MMBtu/hr (manufacturer's data)  
 Hours of operation: 8,760 hr/yr

#### PM/PM<sub>10</sub>/PM<sub>2.5</sub> Emissions (Filterable & Condensable)

Emission Factor: 1.941E-02 lb/MMBtu (filterable + condensable; AP-42, Chapter 3, Table 3.2-3, 7/00)  
 Fuel Consumption: 10.394 MMBtu/hr (manufacturer's data)  
 Calculations: 10.394 MMBtu/hr \* 1.941E-02 lb/MMBtu = 0.202 lb/hr  
 0.202 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.88 ton/yr

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

Emission factor: 1.0 gram/bhp-hour (BACT Determination)  
 Calculations: 1.0 gram/bhp-hour \* 1380 hp \* 0.002205 lb/gram = 3.04 lb/hr  
 3.04 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 13.33 ton/yr

#### VOC Emissions

Emission factor: 0.7 gram/bhp-hour (BACT Determination)  
 Calculations: 0.7 gram/bhp-hour \* 1380 hp \* 0.002205 lb/gram = 2.13 lb/hr  
 2.13 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 9.33 ton/yr

#### CO Emissions

Emission factor: 2.0 gram/bhp-hour (BACT Determination)  
 Calculations: 2.0 gram/bhp-hour \* 1380 hp \* 0.002205 lb/gram = 6.09 lb/hr  
 6.09 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 26.66 ton/yr

#### SO<sub>2</sub> Emission

Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
 Fuel Consumption: 10.394 MMBtu/hr (Maximum Design)  
 Calculations: 10.394 MMBtu/hr \* 5.88E-04 lb/MMBtu = 0.0061 lb/hr  
 0.0061 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.027 ton/yr

#### HCOH (Formaldehyde) Emissions

Emission factor: 2.05E-02 gram/bhp-hour (manuf. information)  
 Calculations: 2.05E-02 gram/bhp-hour \* 1380 hp \* 0.002205 lb/gram = 0.304 lb/hr  
 0.304 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 1.33 ton/yr

HAPs Emission

Emission factor: 1.192E-02 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
 Fuel Consumption: 10.394 MMBtu/hr (Maximum Design)  
 Calculations: 10.394 MMBtu/hr \* 1.192E-02 lb/MMBtu = 0.124 lb/hr  
 0.124 lb/hr \* 8,760 hr/yr \* 0.0005 ton/lb = 0.543 ton/yr  
 Formaldehyde: 1.33 tpy (manufacturer's information)  
 Total HAPs: 1.33 tpy + 0.543 tpy = 1.88 tpy

CO<sub>2</sub> Emissions

Emission factor: 53.02 kg/MMBtu = (40 CFR 98, Subpart C Table C-1)  
 Fuel Consumption: 10.394 MMBtu/hr (Maximum Design)  
 Calculations: 10.394 MMBtu/hr \* 53.02 kg/MMBtu = 551.09 kg/hr  
 551.09 kg/hr \* 8,760 hr/yr \* 0.001 kg/metric ton = 4,827.62 metric ton/yr  
 4,827.62 metric ton/yr \* 1.10 ton/metric ton = 5310.39 ton/yr

CH<sub>4</sub> Emissions

Emission factor: 1.00E-03 kg/MMBtu = (40 CFR 98, Subpart C Table C-2)  
 Fuel Consumption: 10.394 MMBtu/hr (Maximum Design)  
 Calculations: 10.394 MMBtu/hr \* 1.00E-03 kg/MMBtu = 0.010 kg/hr  
 0.010 kg/hr \* 8,760 hr/yr \* 0.001 kg/metric ton = 0.09 metric ton/yr  
 0.09 metric ton/yr \* 1.10 ton/metric ton = 0.10 ton/yr

N<sub>2</sub>O Emissions

Emission factor: 1.00E-04 kg/MMBtu = (40 CFR 98, Subpart C Table C-2)  
 Fuel Consumption: 10.394 MMBtu/hr (Maximum Design)  
 Calculations: 10.394 MMBtu/hr \* 1.00E-04 kg/MMBtu = 0.001 kg/hr  
 0.001 kg/hr \* 8,760 hr/yr \* 0.001 kg/metric ton = 0.009 metric ton/yr  
 0.009 metric ton/yr \* 1.10 ton/metric ton = 0.01 ton/yr

HAPS (AP42 Table 3.2-3, 7/00)	(lb/MMBtu)	(g/bhp-hr)	tpy	
1,1,2,2-Tetrachloroethane	0.0000253		1.15E-03	
1,1,2-Trichloroethane	0.0000153		6.97E-04	
1,3-Butadiene	0.000663		3.02E-02	
1,3-Dichloropropene	0.0000127		5.78E-04	
Acetaldehyde,m	0.00279		1.27E-01	
Acrolein,m	0.00263		1.20E-01	
Benzene	0.00158		7.19E-02	
Carbon Tetrachloride	0.0000177		8.06E-04	
Chlorobenzene	0.0000129		5.87E-04	
Chloroform	0.0000137		6.24E-04	
Ethylbenzene	0.0000248		1.13E-03	
Ethylene Dibromide	0.0000213		9.70E-04	
Formaldehyde,m		0.1	1.3325621	manufacturer's info
Methanol	0.00306		1.39E-01	
Methylene Chloride	0.0000412		1.88E-03	
Naphthalene	0.0000971		4.42E-03	
PAH	0.000141		6.42E-03	
Styrene	0.0000119		5.42E-04	
Toluene	0.000558		2.54E-02	
Vinyl Chloride	7.18E-06		3.27E-04	
Xylene	0.000195		8.88E-03	
<b>Sub-TOTAL</b>	<b>0.0119181</b>	<b>lb/MMBtu</b>	<b>1.88</b>	<b>tpy</b>

<b>HAPS (AP42 Table 3.2-3, 7/00)</b>		<b>(lb/MMBtu)</b>	<b>(g/bhp-hr)</b>	<b>tpy</b>	
<b>Pollutant</b>		<b>lb/10<sup>6</sup> scf</b>		<b>tpy</b>	
Arsenic		0.000204		1.0315E-05	
Beryllium		0.000012		6.0678E-07	
Cadmium		0.0011		5.5621E-05	
Chromium		0.0014		7.0791E-05	
Cobalt		0.000084		4.2474E-06	
Manganese		0.00038		1.9215E-05	
Mercury		0.00026		1.3147E-05	
Nickel		0.0021		0.00010619	
Selenium		0.000024		1.2136E-06	
	<b>Sub-TOTAL</b>	<b>0.005564</b>	<b>lb/10<sup>6</sup> scf</b>	<b>0.00028134</b>	<b>tpy</b>
	<b>TOTAL HAPS</b>	<b>0.0175</b>		<b>1.88</b>	<b>tpy</b>

### Dehydration Unit – 0.50 MMBtu/hr – Reboiler

Hours of operation: 8760 hr/yr

Maximum Fuel Usage: 3.65 MMscf/yr (based on fuel heating value of 1200 MMBtu/MMscf)

Fuel Combustion Rate	0.5	MMBtu/hr
Fuel Heating Value (applicant info)	1200	MMBtu/MMscf
Hours of Operation	8760	hours/yr
Fuel Usage:	3.65	MMscf/yr

#### PM/PM<sub>10</sub>/PM<sub>2.5</sub> Emissions:

Emission Factor =	7.6	lbs/MMscf	(AP-42, Table 1.4-2, 7/98)
Calculation: (7.60 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) =	0.014	ton/yr	
Calculation: (7.60 lbs/MMscf) * (3.65 MMscf/yr) =	27.74	lbs/yr	

#### NOx Emissions:

Emission Factor =	100	lbs/MMscf	(AP-42, Table 1.4-1, 7/98)
Calculation: (100 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) =	0.183	ton/yr	
Calculation: (100 lbs/MMscf) * (3.65 MMscf/yr) =	365	lbs/yr	

#### CO Emissions:

Emission Factor =	84	lbs/MMscf	(AP-42, Table 1.4-1, 7/98)
Calculation: (84 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) =	0.153	ton/yr	
Calculation: (84 lbs/MMscf) * (3.65 MMscf/yr) =	306.6	lbs/yr	

#### SOx Emissions:

Emission Factor =	0.6	lbs/MMscf	(AP-42, Table 1.4-2, 7/98)
Calculation: (1 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) =	0.0011	ton/yr	
Calculation: (1 lbs/MMscf) * (3.65 MMscf/yr) =	2.19	lbs/yr	

#### VOC Emissions:

Emission Factor =	5.5	lbs/MMscf	(AP-42, Table 1.4-2, 7/98)
Calculation: (5.5 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) =	0.010	ton/yr	
Calculation: (5.5 lbs/MMscf) * (3.65 MMscf/yr) =	20.08	lbs/yr	

HAPs Emissions:

Emission Factor =	1.88 lbs/MMscf	(AP-42, Table 1.4-3, 7/98 - see below)
Calculation: (1.9 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) =	0.003 ton/yr	
Calculation: (1.9 lbs/MMscf) * (3.65 MMscf/yr) =	6.87 lbs/yr	

CH4 Emissions (mass):

Emission Factor =	2.3 lbs/MMscf	(AP-42, Table 1.4-2, 7/98)
Calculation: (2.3 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) =	0.0042 ton/yr	
Calculation: (2.3 lbs/MMscf) * (3.65 MMscf/yr) =	8.40 lbs/yr	

CO2 Emissions (mass):

Emission Factor =	120000 lbs/MMscf	(AP-42, Table 1.4-2, 7/98)
Calculation: (120,000 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) = ton/yr	219.0 ton/yr	
Calculation: (120,000.0 lbs/MMscf) * (3.65 MMscf/yr) =	438000 lbs/yr	

N2O Emissions (mass):

Emission Factor =	2.2 lbs/MMscf	(AP-42, Table 1.4-2, 7/98)
Calculation: (2.2 lbs/MMscf) * (3.65 MMscf/yr) * (ton/2000 lb) =	0.0040 ton/yr	
Calculation: (2.2 lbs/MMscf) * (3.65 MMscf/yr) =	8.03 lbs/yr	

HAPs	Emissions Factors (AP-42, Table 1.4-3, 7/98)
2-Methylnaphthalene,	2.40E-05 lbs/MMscf
3-Methylchloranthrene	1.80E-06 lbs/MMscf
7,12-Dimethylbenz(a)anthracene	1.60E-05 lbs/MMscf
Acenaphthene	1.80E-06 lbs/MMscf
Acenaphthylene	1.80E-06 lbs/MMscf
Anthracene	2.40E-06 lbs/MMscf
Benz(a)anthracene	1.80E-06 lbs/MMscf
Benzene	2.10E-03 lbs/MMscf
Benzo(a)pyrene	1.20E-06 lbs/MMscf
Benzo(b)fluoranthene	1.80E-06 lbs/MMscf
Benzo(g,h,i)perylene	1.20E-06 lbs/MMscf
Benzo(k)fluoranthene	1.80E-06 lbs/MMscf
Chrysene	1.80E-06 lbs/MMscf
Dibenzo(a,h)anthracene	1.20E-06 lbs/MMscf
Dichlorobenzene	1.20E-03 lbs/MMscf
Fluoranthene	3.00E-06 lbs/MMscf
Fluorene	2.80E-06 lbs/MMscf
Formaldehyde	7.50E-02 lbs/MMscf
Hexane	1.80E+00 lbs/MMscf
Indeno(1,2,3-cd)pyrene	1.80E-06 lbs/MMscf
Naphthalene	6.10E-04 lbs/MMscf
Phenanathrene	1.70E-05 lbs/MMscf
Pyrene	5.00E-06 lbs/MMscf
Toluene	3.40E-03 lbs/MMscf
<b>TOTAL =</b>	<b>1.88E+00 lbs/MMscf</b>

V. Existing Air Quality

The Hebron Compressor Station is located in the NE¼ NW¼ of Section 18, Township 27 North, Range 59 East, Roosevelt County. Roosevelt 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 amount of controlled emissions from this facility 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:* Hiland Partners, LP  
Hebron Compressor Station  
P.O. Box 5103  
Enid, OK 73701

*Montana Air Quality Permit Number (MAQP):* 4693-01

*Preliminary Determination Issued:* April 26, 2011

*Department Decision Issued:* May 14, 2012

*Permit Final:* May 30, 2012

1. *Legal Description of Site:* The Hebron Compressor Station is located in the NE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> of Section 18, Township 27 North, Range 59 East, Roosevelt County, Montana.
2. *Description of Project:* Hiland Partners, LP (HPL) proposes to add a new 1,380 brake horsepower (bhp) compressor engine to the existing Hebron Compressor Station site.
3. *Objectives of Project:* The objective of the modification is to expand the facility capacity to gather and compress natural gas using the existing dehydrator to remove the moisture and send it to a pipeline for sales.
4. *Alternatives Considered:* In addition to the proposed action, the Department of Environmental Quality (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 HPL 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 Best available control technology (BACT) analysis, is included in MAQP #4693-01.
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			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

The site is within a general use range for antelope, but not in the winter range. Additionally the site is in an area potentially used by pheasant and other terrestrials. The proposed facility expansion would have a minor impact on terrestrial and aquatic life and habitats in the project area. The additional compressor 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 #4693-01.

B. Water Quality, Quantity and Distribution

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

C. Geology and Soil Quality, Stability and Moisture

The proposed facility expansion would have a minor impact on geology and soil quality, stability, and moisture because minor construction would be required to add the additional compressor engine. In addition, no discharges other than a minor increase in 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 addition of the second compressor engine.

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 additional pollutant dispersion characteristics of the pollutants, the atmosphere, and the conditions that would be placed in MAQP #4693-01.

E. Aesthetics

The proposed project would not have any affect on the local aesthetics. Since the facility is existing, adding a single new compressor engine would not be expected to have an impact.

F. Air Quality

The area surrounding the proposed project is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria air pollutants. Emissions of air pollutants would occur as a result of the permit action; however, MAQP #4693-01 contain conditions limiting opacity and compressor engine emissions and require HPL to minimize airborne dust through the use of water or chemical dust suppressants and to operate pollution control equipment to minimize engine emissions of oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (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 particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>), NO<sub>x</sub>, CO, VOC, and sulphur oxides (SO<sub>x</sub>) 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 #4693-01, including, but not limited to, BACT requirements discussed in Section III of the permit analysis for this permit.

The Montana Natural Heritage Program (MNHP) earlier identified occurrences of three animal species of concern within the vicinity of the proposed project location that are classified either as sensitive (Bobolink), special status (Whooping Crane) or without classification (Great Blue Heron) by the U.S. Bureau of Land Management.

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 continue to control dust from the access roads and overall plant area. The compressor 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 #4693-01.

I. Historical and Archaeological Sites

The Department contacted the Montana Historical Society, State Historical Preservation Office (SHPO) at initial permit issuance 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 a new compressor engine at this facility.

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 additional compressor engine. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #4693-01.

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

The proposed project would cause minor, if any, impacts disruptions to native or traditional lifestyles or communities (social structures or mores) in the area because the proposed project would take place in a relatively remote location. Further, the continued operation of the natural gas compressor station with a second compressor engine would require no permanent employees on site, and would 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 social and economic resources of the area.

Additional activity (vehicle traffic, construction equipment, etc.) may be noticeable during addition of the second compressor engine. Once the facility expansion is complete, activities associated with the operation of the facility would be minor. Overall, any impacts to the social structures and mores in the area would be minor.

B. Cultural Uniqueness and Diversity

The proposed project would cause minor, if any, impacts disruptions to native or traditional lifestyles or communities (cultural uniqueness and diversity) in the area because the proposed project would take place in a relatively remote location. Further, the continued operation of

the natural gas compressor station with a second compressor would require no permanent employees on site, and would 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 social and economic resources of the area.

Additional activity (vehicle traffic, construction equipment, etc.) would be noticeable during the addition of the second compressor engine. Once the facility is constructed, activities associated with the operation of the facility would be minor. Overall, any impacts to the cultural uniqueness and diversity in the area would be minor.

C. Local and State Tax Base and Tax Revenue

The proposed project would result in only minor impacts to the local and state tax base and tax revenue because the small scope of the proposed project. In addition, only minor amounts of construction would be needed to complete the project; therefore, any construction related jobs would be temporary and the impacts from the construction jobs would be temporary.

D. Agricultural or Industrial Production

The land surrounding the existing facility location is rural agricultural farming land. However, because the facility expansion would be relatively small and within the existing site, the proposed project would result in no impacts to agricultural production. The proposed project would have minor impacts to industrial production because the proposed project would be a slightly expanded industrial source locating in the area. There are existing oil and gas industrial activities located in the area.

While emissions of air pollutants and corresponding deposition of pollutants would occur, the Department determined that the chance of deposition of pollutants impacting agricultural or industrial production in the area surrounding the site 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 proposed project. The project would have minor impacts on the quality of recreational and wilderness activities in the area because the addition of a second compressor engine is a minor change but would be visible and produce more 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

The proposed project would have minor, if any, impacts on the quantity and distribution of employment because no employees would be hired for the proposed project. In addition, temporary construction-related positions may result from this project but 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 corresponding relatively short time period that would be associated with constructing the facility.

#### H. Distribution of Population

The proposed project would have minor, if any, impacts on the distribution of population in the area because the addition of a second compressor engine would be located in a relatively remote location and the proposed project would not require a permanent employee to operate the facility. Therefore, no people would be moving to the area for employment opportunities.

#### 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 MAQP #4693-01 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 the addition of a second compressor engine. The increase in vehicle traffic would be primarily during facility expansion because compressor stations typically do not require day-to-day employees. Vehicle traffic during construction would be minor due to the relatively short time period that would be required to add the additional compressor engine. 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 expansion.

#### 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. 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 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 expansion, the industrial production, employment, and tax revenue (etc.) changes 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 MAQP #4693-01.

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

The current permitting action is for the addition of a second compressor engine station at the existing Hebron Compressor Station site. MAQP #4693-01 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: Craig Henrikson  
Date: 04/11/2012