



Montana Department of  
**E**NVIRONMENTAL **Q**UALITY

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June 24, 2009

Mr. Kent Sales  
Hiland Partners, LP  
Bakken Gathering Plant  
P.O. Box 5103  
Enid, Oklahoma 73702

Dear Mr. Sales:

Montana Air Quality Permit #3331-06 is deemed final as of June 24, 2009, by the Department of Environmental Quality (Department). This permit is for the Hiland Partners, LP - Bakken Gathering Plant. 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

Paul Skubinna  
Environmental Engineer  
Air Resources Management Bureau  
(406) 444-6711

VW:PS  
Enclosure

Montana Department of Environmental Quality  
Permitting and Compliance Division

Montana Air Quality Permit #3331-06

Hiland Partners, LP  
Bakken Gathering Plant  
P.O. Box 5103  
Enid, Oklahoma 73702

June 24, 2009



## MONTANA AIR QUALITY PERMIT

Issued To: Hiland Partners, LP  
Bakken Gathering Plant  
P.O. Box 5103  
Enid, Oklahoma 73702

MAQP: #3331-06  
Application Complete: 4/9/09  
Preliminary Determination Issued: 5/18/09  
Department Decision Issued: 6/8/09  
Permit Final: 6/24/09  
AFS: #083-0038

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 facility is located approximately 8 miles northwest of Sidney, Montana, in the NE ¼ of the NW ¼ of Section 3, Township 23 North, Range 58 East, in Richland County, Montana. The facility is known as the Bakken Gathering Plant.

#### B. Current Permit Action

On April 9, 2009, the Department of Environmental Quality (Department) received a complete application from HPL for a permit modification to increase the listed maximum power rating for Compressor Engine Unit #5 from 500 horsepower (hp) to 550 hp. The application was in response to a compliance inspection in October 2008 that noted the capacity of Unit #5 was 550 hp rather than the permitted 500 hp. Also, this permit modification incorporates a de minimis request received by the Department on February 5, 2009 to add a second fuel line/fuel source for the Hot Oil Heater. The second source of fuel will be the de-ethanizer tower. Gas from this source has a heat content of 1400 million British thermal units per million cubic feet (MMBtu/MMCF). The Hot Oil Heater at the Bakken plant is now capable of burning fuel from either source.

Finally, this permit modification updates permit conditions and language for Duration of Permit, and incorporates new and recently modified Federal New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, as applicable.

### SECTION II: Conditions and Limitations

#### A. Emission Limitations

1. HPL shall not operate more than seven natural gas compressor engines at any given time. The maximum rated design capacities shall not exceed (ARM 17.8.749):

Unit 1	912 hp
Unit 2	912 hp
Unit 3	912 hp
Unit 4	185 hp
Unit 5	550 hp
Unit 6	185 hp
Unit 7	740 hp

2. The compressor engine Units 1 – 4 shall each be a rich-burn engine controlled with non-selective catalytic reduction (NSCR) units and air-to-fuel ratio (AFR) controllers. The pound per hour (lb/hr) emission limits for each of the engines shall be determined using the following equation and pollutant specific grams per horsepower-hour (g/hp-hr) emission factors (ARM 17.8.752):

Equation

Emission Limit (lb/hr) = Emission Factor (g/hp-hr) \* maximum rated design capacity of engine (hp) \* 0.002205 pounds per gram (lb/g)

<u>Emission Factors</u>	<u>Units 1 – 4</u>
Nitrogen Oxides (NO <sub>x</sub> )	1.0 g/hp-hr
Carbon Monoxide (CO)	2.0 g/hp-hr
Volatile Organic Compounds (VOC)	1.0 g/hp-hr

3. The compressor engine Units 5 – 7 shall both be four-stroke rich-burn engines controlled with NSCR units and AFR controllers. The lb/hr emission limits for each of the engines shall be determined using the following equation and pollutant specific g/hp-hr emission factors (ARM 17.8.752):

Equation

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

<u>Emission Factors</u>	<u>Units 5 – 7</u>
NO <sub>x</sub>	1.0 g/hp-hr
CO	1.0 g/hp-hr
VOC	1.0 g/hp-hr

4. The natural gas-fired Hot Oil Heater shall be limited to a maximum heat input capacity of 44.82 MMBtu/hr (ARM 17.8.749).
5. The natural gas-fired Hot Oil Heater shall comply with the following emission limits (ARM 17.8.752):

NO <sub>x</sub>	0.112 lb/MMBtu
CO	0.045 lb/MMBtu

6. 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).
7. 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).
8. 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.7 (ARM 17.8.749).
9. Loading tank trucks shall be restricted to the use of submerged fill and dedicated normal service (ARM 17.8.749).

10. HPL shall control VOC emitted from tank trucks during loading through use of a vapor return line (ARM 17.8.749 and 17.8.752).
11. The 1,135 hp emergency/backup generator shall be limited to 500 hours of operation during any rolling 12-month time period (ARM 17.8.749).
12. HPL shall only burn diesel fuel with a sulfur content less than 0.5% in the 1,135 hp emergency/backup generator (ARM 17.8.752).
13. HPL shall limit the use of the emergency flare to 35 million standard cubic feet per year (MMSCF/yr) of gas, on a 12-month rolling basis. Any calculations used to establish emissions shall be based on the most recent AP-42 factors, unless otherwise allowed by the Department (ARM 17.8.749 and ARM 17.8.1204).
14. HPL shall comply with all applicable standards, limitations, reporting, record keeping, and notification requirements contained in 40 Code of Federal Regulations (CFR) 60, Subpart A and Subpart KKK (ARM 17.8.340 and 40 CFR 60, Subpart A and Subpart KKK).
15. HPL shall comply with all applicable standards, limitations, reporting, record keeping, and notification requirements contained in 40 CFR 60, Subpart Dc (ARM 17.8.340 and 40 CFR 60, Subpart Dc).
16. HPL shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, and 40 CFR 60, Subpart JJJJ, *Standards of Performance for Stationary Spark Ignition Internal Combustion Engine* (ARM 17.8.340; 40 CFR 60, Subpart IIII and Subpart JJJJ).

B. Inspection and Repair Requirements

1. Each calendar month, all fugitive piping components (valves, flanges, pump seals, open-ended lines) shall be inspected for leaks. For purposes of this requirement, detection methods incorporating sight, sound, or smell are acceptable (ARM 17.8.105 and ARM 17.8.752).
2. HPL shall (ARM 17.8.105 and ARM 17.8.752):
  - a. Make a first attempt at repair for any leak not later than 5 calendar days after the leak is detected; and
  - b. Repair any leak as soon as practicable, but no later than 15 calendar days after it is detected, except as provided in Section II.B.3.
3. Delay of repair of equipment for which a leak has been detected will be allowed if repair is technically infeasible without a source shutdown. Such equipment shall be repaired before the end of the first source shutdown after detection of the leak (ARM 17.8.752).

C. Testing Requirements

1. HPL shall test compressor engine Units 1 – 7 for NO<sub>x</sub> and CO, concurrently, to demonstrate compliance with the emission limits as calculated in Sections II.A.2 and II.A.3. The testing shall be conducted on every 4-year basis or according to another testing/monitoring schedule as may be approved by the 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 additional testing (ARM 17.8.105).

D. 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 document, by month, the hours of operation of the 1,135 hp emergency/backup generator. By the 25<sup>th</sup> day of each month, HPL shall calculate the total hours of operation of the 1,135 hp emergency/backup generator for the previous month. The monthly information shall be used to verify compliance with the rolling 12-month limitation in Section II.A.11. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
3. HPL shall document, by month, the amount of natural gas controlled by the emergency flare, in MMSCF. By the 25<sup>th</sup> day of each month, HPL shall calculate the total amount of gas combusted by the flare for the previous month. The monthly information shall be used to verify compliance with the rolling 12-month limitation in Section II.A.13. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
4. 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 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).
5. 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).

6. HPL shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit as required by ARM 17.8.1204(3)(b). The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emission inventory information (ARM 17.8.749 and ARM 17.8.1204).

E. Notification

1. Prior to installation, HPL shall provide the Department with written notification of the maximum rated design capacities of each compressor engine identified in Section II.A.1 (ARM 17.8.749).
2. HPL shall provide the Department with written notification of the actual start-up date of each compressor engine identified in Section II.A.1 within 15 days after the actual start-up date of the affected unit (ARM 17.8.749).
3. Within 30 days of commencement of construction of the 44.82 MMBtu/hr heat input capacity natural gas-fired Hot Oil Heater identified in Section II.A.4, HPL shall provide the Department with written notification of commencement of construction of the affected unit (ARM 17.8.749 and 40 CFR 60, Subpart Dc).
4. Within 15 days after the actual start-up date of the 44.82 MMBtu/hr heat input capacity natural gas-fired Hot Oil Heater identified in Section II.A.4, HPL shall provide the Department with written notification of the actual start-up date of the affected unit (ARM 17.8.749 and 40 CFR 60, Subpart Dc).

F. Recordkeeping Requirements

1. HPL shall maintain a record that only diesel fuel with a sulfur content less than 0.5% was burned in the 1,135 hp emergency/backup generator, for use in verifying compliance with the limitation in Section II.A.12 (ARM 17.8.749).
2. A record of each monthly leak inspection required by Section II.B.1 of this permit shall be kept on file with HPL. Inspection records shall include, at a minimum, the following information (ARM 17.8.749):
  - a. Date of inspection;
  - b. Findings (may indicate no leaks discovered or location, nature, and severity of each leak);
  - c. Leak determination method;
  - d. Corrective action (date each leak repaired and reasons for any repair interval in excess of 15 calendar days); and
  - e. Inspector's name and signature.
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).

### 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 (e.g., Continuous Emission Monitoring System (CEMS), Compliance Emission Rate Monitoring System (CERMS)) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and 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 therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If the Board does not issue a stay, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by 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).

PERMIT ANALYSIS  
Hiland Partners, LP  
Bakken Gathering Plant  
Montana Air Quality Permit (MAQP) #3331-06

I. Introduction/Process Description

Hiland Partners, LP (HPL), is permitted for the construction and operation of the Bakken Gathering Plant. The facility will extract natural gas liquids from field gas and is located in the NE ¼ of the NW ¼ of Section 3, Township 23 North, Range 58 East, in Richland County, Montana.

A. Permitted Equipment

The facility consists of the following permitted equipment:

<b>ID</b>	<b>Equipment</b>
Unit 1	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 912 horsepower (hp)
Unit 2	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 912 hp
Unit 3	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 912 hp
Unit 4	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 185 hp
Unit 5	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 550 hp
Unit 6	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 185 hp
Unit 7	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 740 hp
Hot Oil Heater	40 CFR 60, Subpart Dc, affected Natural gas-fired Hot Oil Heater with a maximum rated heat input capacity of 44.82 million British thermal units per hour (MMBtu/hr)
Fugitive	Fractionation Unit, including new debutanizer and other plant-wide leaks
Dehy Unit #1	Ethylene Glycol (EG) dehydrator and associated still vent (11 million standard cubic feet per day (MMSCF/d))
Dehy Unit #2	EG dehydrator and associated still vent (9 MMSCF/d)
Truck Loading	Truck loading @ 3,375 barrels per day (bbl/day); submerged fill and vapor return lines
Tanks #1 & 2	2-400 barrel (bbl) condensate storage tanks
Tank #3	1-500 gallon diesel storage tank
Emergency Generator	Diesel-fired backup/emergency generator with a maximum rated design capacity equal to or less than 1,135 hp.
Emergency Flare	Emergency Flare with 0.5 MMBtu/hr pilot

B. Source Description

The Bakken Gathering Plant extracts natural gas liquids from field gas. The fractionation unit (including a depropanizer and a debutanizer) consists of a Hot Oil Heater, several reboilers, multiple holding tanks, an electric refrigeration compressor, and a truck loading station. The ethylene glycol (EG) dehydration units remove moisture from the gas prior to transmission.

### C. Permit History

On May 4, 2004, the Department of Environmental Quality (Department) received a complete MAQP Application from Hiland Partners, LLC (HPLLC) for the construction and operation of the Bakken Gathering Plant. **MAQP #3331-00** became final and effective on July 3, 2004.

On August 17, 2004, the Department received a complete MAQP Application from HPLLC for the modification of MAQP #3133-00. Specifically, HPLLC requested the following: 1) to add a natural gas compressor engine with a maximum capacity equal to or less than 500 hp; 2) to add a 1,135 hp backup/emergency diesel generator and an associated 500-gallon diesel storage tank; and 3) to remove the 10 MMBtu/hr Hot Oil Heater. **MAQP #3331-01** replaced MAQP #3331-00.

On June 14, 2005, the Department received a letter from HPLLC for an administrative amendment to MAQP #3331-01. Specifically, HPLLC requested to add an 11 MMSCF/d refrigeration unit, a standby electric compressor, and a dehydrator reboiler and still vent. The potential emissions from the proposed equipment were less than the de minimis threshold of 15 tons per year (tpy). The permit action updated the permit analysis with the new equipment. An emission inventory for HPLLC is contained in Section IV of the permit analysis. **MAQP #3331-02** replaced MAQP #3331-01.

On November 10, 2005, the Department received a letter from HPL for an administrative amendment to MAQP #3331-02. Specifically, HPL requested to change the corporate name on MAQP #3331-02 from HPLLC to HPL and update the permit to reflect the current permit language and rule references used by the Department. **MAQP #3331-03** replaced MAQP #3331-02.

On March 17, 2006, the Department received an application from HPL for a number of process changes to eliminate production bottlenecks and ensure processing capability for 20 MMSCF/d of natural gas. The project included installation of two natural gas-fired compressor engines up to 185 hp and 930 hp, as well as other process improvements. The application included an administrative amendment request to reduce the maximum rating for Unit #1 from 1,478 hp to 912 hp. HPL submitted further information on April 17, 2006, including a request to reduce the maximum rating for Unit #2 from 1,478 hp to 912 hp, and permit the use of an emergency flare for up to 35 million standard cubic feet per year (MMSCF/yr). **MAQP #3331-04** replaced MAQP #3331-03.

On May 25, 2007, the Department received a complete application from HPL for the installation and operation of a 44.82 MMBtu/hr capacity natural gas-fired Hot Oil Heater and the removal of an existing 25 MMBtu/hr capacity Hot Oil Heater from permitted operations. The proposed natural gas-fired Hot Oil Heater is an affected facility as defined in 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Further, HPL requested an administrative permit amendment to reduce the permitted maximum rated design capacity of the Unit #7 natural gas-fired compressor engine from 930 hp to 740 hp. **MAQP #3331-05** became final on July 7, 2007, and replaced MAQP #3331-04.

### D. Current Permit Action

On April 9, 2009, the Department received a complete application from HPL for a permit modification to increase the listed maximum power rating for Compressor Engine Unit #5 from 500 hp to 550 hp. The application was in response to a compliance inspection in October 2008 that noted the capacity of Unit #5 was 550 hp rather than the permitted 500 hp. Also, this permit modification incorporates a de minimis request received by the Department on February

5, 2009, to add a second fuel line/fuel source for the Hot Oil Heater. The second source of fuel will be the de-ethanizer tower. Gas from this source has a heat content of 1400 million British thermal units per million cubic feet (MMBtu/MMCF). The Hot Oil Heater at the Bakken plant is now capable of burning fuel from either source.

Finally, this permit modification updates permit conditions and language for Duration of Permit, and incorporates new and recently modified Federal New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, as applicable. **MAQP #3331-06** replaces MAQP #3331-05.

E. Additional Information

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

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the 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; and
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 MMBtu 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 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 Code of Federal Regulations (CFR) Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is considered an NSPS-affected facility under 40 CFR Part 60 and is subject to the requirements of the following Subparts:

- a. Subpart A - General Provisions. This subpart applies to all equipment or facilities subject to an NSPS Subpart as listed below.
  - b. Subpart KKK - Standards of Performance for Onshore Natural Gas Processing: HPL is an NSPS-affected source because it meets the definition of a natural gas processing plant as defined in 40 CFR 60, Subpart KKK.
  - c. Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. HPL is an NSPS-affected source because the natural gas-fired Hot Oil Heater with a maximum rated heat input capacity of 44.82 MMBtu/hr meets the definition of an affected source as defined in 40 CFR 60, Subpart Dc.
  - d. Subpart IIII - Standards of Performance for Compression Ignition Internal Combustion Engines. NSPS-affected engines at the HPL facility include any new or reconstructed stationary compression ignition (CI) internal combustion engines (ICE) that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines, and stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005 (40 CFR 60, Subpart IIII). None of the current engines are subject to 40 CFR 60, Subpart IIII because they have not been manufactured or reconstructed after April 1, 2006, or July 11, 2005, respectively. However, because this permit is written in a de minimis-friendly manner, this regulation may apply to future engines at the facility.
  - e. Subpart JJJJ - Standards of Performance for Spark Ignition Internal Combustion Engines. The provisions of this subpart are applicable to owners and operators of stationary spark ignition (SI) internal combustion engines (ICE) that commence construction or reconstruction after June 12, 2006. NSPS-affected engines at the HPL facility include any new or reconstructed stationary spark ignition (SI) internal combustion engines (ICE). None of the current engines are subject to 40 CFR 60, Subpart JJJJ because they have not been manufactured or reconstructed after June 12, 2006. However, because this permit is written in a de minimis-friendly manner, this regulation may apply to future engines at the facility.
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 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. Both area source facilities and major sources of hazardous air pollutants (HAPs) that process, upgrade, or store hydrocarbon liquids prior to the point of custody transfer, or process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user are subject to of 40 CFR 63, Subpart HH. Information submitted by HPL indicates the Bakken Gathering Plant is not a major source of hazardous air pollutants (HAPs) as determined according to paragraphs (a)(1)(i) through (a)(1)(iii). For area sources under 40 CFR 63, Subpart HH, the affected sources include each TEG glycol dehydration unit. The Bakken Gathering Plant

operates dehydration units; however, they are EG dehydration units not TEG units. Therefore, based on the information submitted by HPL, the Bakken Gathering Plant facility is not subject to the provisions of 40 CFR 63, Subpart HH, because the facility is not a major source of HAPs and does not operate an affected source under the area source provisions.

- c. 40 CFR 63, Subpart HHH National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities. Owners or operators of natural gas transmission or storage facilities, as defined and applied in 40 CFR Part 63, shall comply with the standards and provisions of 40 CFR 63, Subpart HHH. In order for a natural gas transmission and storage facility to be subject to 40 CFR 63, Subpart HHH requirements, certain criteria must be met. First, the facility must transport or store natural gas prior to the gas entering the pipeline to a local distribution company or to a final end user if there is no local distribution company. In addition, the facility must be a major source of HAPs as determined using the maximum natural gas throughput as calculated in either paragraphs (a)(1) and (a)(2) or paragraphs (a)(2) and (a)(3) of 40 CFR 63, Subpart HHH. Second, a facility must contain an affected source (glycol dehydration unit) as defined in paragraph (b) of 40 CFR 63, Subpart HHH. Finally, if the first two criteria are met, and the exemptions contained in paragraph (f) of 40 CFR 63, Subpart HHH, do not apply, the facility is subject to the applicable provisions of 40 CFR 63, Subpart HHH. Based on the information submitted by HPL, the Bakken Gathering Plant facility is not subject to the provisions of 40 CFR 63, Subpart HHH because the facility is not a major source of HAPs.
- d. 40 CFR 63, Subpart ZZZZ National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines. This rule incorporates, by reference, 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAP). The proposed facility contains compressor engines which are affected sources under 40 CFR 63 Subpart ZZZZ; however, because the compressor engines are existing 4 stroke rich burn engines located at an area source of HAPs they qualify for an exemption within Subpart ZZZZ that excludes it from the maximum achievable control technology standards and reporting requirements in 40 CFR Part 63. If the engines were replaced by a new or reconstructed via a de minimis change, they would qualify for another separate exemption under Subpart ZZZZ that states the operation of the engines must comply with the NSPS requirement at 40 CFR 60, Subpart JJJJ. Similarly, the emergency generator is an existing compression ignition engine, which also qualifies it for an exemption under Subpart ZZZZ. If the emergency generator engine were replace by a new or reconstructed engine via a de minimis change it would qualify for another separate exemption under Subpart ZZZZ that states the operation of the engines must comply with the NSPS requirement at 40 CFR 60, Subpart IIII. Therefore, the requirements at 40 CFR 63, Subpart ZZZZ do not apply.

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).

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 and fee for the current permit action.
2. ARM 17.8.505 When Permit Required--Exclusions. 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 tpy of any pollutant. The Bakken Gathering Plant has a PTE greater than 25 tpy of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC); therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, 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 December 28, 2008, issue of the *Sidney Herald*, a newspaper of general circulation in the Town of Sidney in Richland County, as proof of compliance with the public notice requirements.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this

Subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis and determination 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. 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 tpy 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 tpy of any pollutant;
  - b. PTE > 10 tpy of any one HAP, PTE > 25 tpy of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
  - c. PTE > 70 tpy 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 #3331-06 for HPL, the following conclusions were made:
  - a. The facility's allowable PTE is less than 100 tpy for any pollutant.
  - b. The facility's PTE is less than 10 tpy for any individual HAP and less than 25 tpy for all HAPs.
  - c. This source is not located in a serious PM<sub>10</sub> nonattainment area.
  - d. This facility is subject to current NSPS (40 CFR 60, Subpart A, Subpart Dc, and Subpart KKK)
  - e. This facility is subject to current NESHAP at 40 CFR 63, Subparts ZZZZ; however, in accordance with 40 CFR 6585(d), it is not subject to the Title V Operating Permit program solely on that basis.
  - f. This source is not a Title IV affected source, or a solid waste combustion unit.
  - g. This source is not an Environmental Protection Agency (EPA) designated Title V source.
  - h. As allowed by ARM 17.8.1204(3), the Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's potential to emit.
    - i. In applying for an exemption under this section, the owner or operator of the source shall certify to the Department that the source's potential to emit does not require the source to obtain an air quality operating permit.

- ii. Any source that obtains a federally enforceable limit on potential to emit shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.

HPL has taken federally enforceable permit limits to keep potential emissions below major source permitting thresholds. Therefore, the facility is not a major source and, thus a Title V operating permit is not required. However, if minor sources subject to NSPS are required to obtain a Title V Operating Permit, HPL will be required to obtain a Title V Operating Permit.

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness.

HPL shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit as required by ARM 17.8.1204 (3)(b). The annual certification shall comply with requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emission inventory information.

The Department determined that the annual reporting requirements contained in the permit are sufficient to satisfy this requirement

### 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 MAQP Application #3331-06, addressing some available methods of controlling CO, NO<sub>x</sub>, VOC and particulate emissions from the 550 hp Unit #5. The Department reviewed these methods, as well as previous BACT determinations. The following control options have been reviewed by the Department in order to make the following BACT determination.

#### A. 550 hp Compressor Engine

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

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

- Lean burn engine with a selective catalytic reduction (SCR) unit and an air-to-fuel ratio (AFR) controller;
- Lean burn engine with an SCR unit;
- Lean burn engine with a non selective catalytic reduction (NSCR) unit and AFR controller;
- Lean burn engine with an NSCR unit;
- Lean burn engine with an AFR controller;
- Lean burn engine with no additional controls;
- Prestratified charge combustion (PCC) (i.e. lean burn retrofit) with an SCR unit and an AFR controller;
- PCC with an SCR unit;
- PCC with an NSCR unit and an AFR controller;
- PCC with an NSCR unit;
- PCC with an AFR controller;
- PCC with no additional controls;

- Rich burn engine with an SCR unit and an AFR controller;
- Rich burn engine with an SCR unit;
- Rich burn engine with an NSCR unit and an AFR controller;
- Rich burn engine with an NSCR unit;
- Rich burn engine with an AFR controller;
- Rich burn engine with no additional controls;
- Crossover engine with an SCR unit;
- Crossover engine with an NSCR unit;
- Crossover engine with no additional controls;

Lean burn and/or PCC engines are technically infeasible for the project because the Btu content of the fuel gas (1,480 Btu/SCF) is too high. HPL provided information from Caterpillar that stated that lean burn engines of around the hp rating that HPL's project requires would not operate properly given the higher Btu content of the fuel gas. Therefore, the Department determined that all of the control options associated with lean burn engines are technically infeasible and will not constitute BACT for the proposed compressor engine. In addition, SCR applied to rich burn engines is technically infeasible because the oxygen concentration from rich burn engines is not high enough for an SCR to operate properly; therefore, the Department determined that all of the control options involving SCR will not constitute BACT for the proposed compressor engine.

Technically feasible control options, in order of the highest control efficiency to the lowest control efficiency, are demonstrated in the following table:

**Table 1 – Technically Feasible Control Options**

Control Technology	% Control	NO <sub>x</sub> Emission Rate (g/hp-hr)	NO <sub>x</sub> Emission Rate (ton/yr)
Rich Burn Engine with NSCR and AFR	92%	1.0	5.31
Rich Burn Engine with NSCR	92%	1.0	5.31
Crossover Engine with NSCR	90%	1.25	6.63
Crossover Engine with No Additional Controls	0.00	3.0	15.93
Rich Burn Engine with AFR	0.00	12.7	67.44
Rich Burn Engine with No Additional Controls	0.00	12.7	67.44

The control methods listed in Table 1 are widely used; these control options cannot be ruled out based on environmental or energy impacts.

The use of a rich burn engine with an NSCR unit and an 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> emissions and no further analysis is necessary. Thus, emission limits on the 550 hp engine are established in accordance with the equation established in Section II.A.3 of the permit, which are equivalent to 1.21 pounds per hour (lb/hr) or 5.31 tpy.

## 2. CO BACT

As part of the CO BACT analysis, the following control technologies were reviewed:

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

- PCC engine with a catalytic oxidation unit;
- PCC with an NSCR unit and an AFR controller;
- PCC with an NSCR unit;
- PCC engine with an AFR controller;
- PCC engine with no additional controls;
- Rich burn engine with a catalytic oxidation unit and an AFR controller;
- Rich burn engine with a catalytic oxidation unit;
- Rich burn engine with an NSCR unit and an AFR controller;
- Rich burn engine with an NSCR unit;
- Rich burn engine with an AFR controller;
- Rich burn engine with no additional controls;
- Crossover engine with an oxidation catalyst;
- Crossover engine with an NSCR unit; and
- Crossover engine with no additional controls.

Lean burn and/or PCC engines are technically infeasible for the project because the Btu content of the fuel gas (1,480 Btu/SCF) is too high. HPL provided information from Caterpillar that stated that lean burn engines of around the hp rating that HPL’s project requires would not operate properly given the higher Btu content of the fuel gas. Therefore, the Department determined that all of the control options associated with lean burn engines are technically infeasible and will not constitute BACT for the proposed compressor engine. In addition, catalytic oxidation units cannot be utilized on rich burn engines because the oxygen concentration from rich burn engines is not high enough for a catalytic oxidizer to operate properly. Therefore, the Department determined that all control technologies for rich burn engines utilizing a catalytic oxidation unit is technically infeasible and will not constitute BACT for the proposed compressor engine.

Technically feasible control options, in order of the highest control efficiency to the lowest control efficiency, are demonstrated in the following table:

**Table 2 - Technically Feasible Control Options**

Control Technology	% Control	CO Emission Rate (g/hp-hr)	CO Emission Rate (ton/yr)
Rich burn Engine with NSCR and AFR	92%	1.0	5.31
Crossover Engine with Oxidation Catalyst	87%	1.75	8.45
Crossover Engine with NSCR	87%	1.75	8.45
Crossover Engine with No Additional Controls	0.00	3.0	14.49
Rich Burn Engine with AFR	0.00	13.7	66.16
Rich Burn Engine with No Additional Controls	0.00	13.7	66.16

The control methods listed in Table 2 are widely used; these control options cannot be ruled out based on environmental or energy impacts.

The use of a rich burn engine with an NSCR unit and an 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 CO emissions and no further analysis is necessary. Thus, emission limits on the 550 hp engine are established in accordance with the equation established in Section II.A.3 of the permit, which are equivalent to 1.21 lb/hr or 5.31 tpy.

### 3. VOC BACT

The Department is not aware of any BACT determinations that have required controls for VOC emissions from natural gas fired compressor engines. HPL proposed the use of an NSCR unit and an AFR controller to meet a lb/hr emission limit equivalent to 1.0 gram

VOC per horsepower-hour (g/hp-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 equivalent to 1.0 g/hp-hr constitutes BACT for each of the proposed compressor engines (Section II.A of MAQP #3331-01). The Department determined the same requirement should apply to the 550 hp engine.

4. PM<sub>10</sub>/PM<sub>2.5</sub> and SO<sub>2</sub> BACT

All PM emitted is considered to be PM<sub>2.5</sub> (AP42 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 engine. 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 each of 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, any add-on controls would be cost prohibitive. Therefore, the Department concurred with HPL's BACT proposal and determined that no additional controls and burning pipeline quality natural gas will constitute BACT for PM<sub>10</sub>/PM<sub>2.5</sub> and SO<sub>2</sub> emissions from the 550 hp compressor engine.

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

Source	Tons/year					
	PM <sub>10</sub>	PM <sub>2.5</sub> <sup>(1)</sup>	NO <sub>x</sub>	VOC	CO	SO <sub>x</sub>
912 hp Waukesha Compressor Engine Unit 1	0.60	0.60	8.81	8.81	17.62	0.02
912 hp Waukesha Compressor Engine Unit 2	0.60	0.60	8.81	8.81	17.62	0.02
912 hp Waukesha Compressor Engine Unit 3	0.60	0.60	8.81	8.81	17.62	0.02
185 hp Caterpillar Compressor Engine Unit 4	0.13	0.13	1.79	1.79	3.57	0.004
550 hp Caterpillar Compressor Engine Unit 5	0.37	0.37	5.31	5.31	5.31	0.011
185 hp Caterpillar Compressor Engine Unit 6	0.13	0.13	1.79	1.79	1.79	0.004
740 hp Waukesha Compressor Engine Unit 7	0.48	0.48	7.15	7.15	7.15	0.01
44.82-MMBtu/hr Natural Gas-fired Hot Oil Heater <sup>(2)</sup>	1.24	1.24	21.99	0.90	8.83	0.10
Dehydration Unit #1--Still Vent (9 MMSCF/d)				26.70	0.00	0.00
Dehydration Unit #2--Still Vent (11 MMSCF/d)				8.30	0.00	0.00
Fractionation Unit (included in fugitives)						
<i>Fugitive Leaks (valves, flanges, etc.)</i>				8.72	0.00	0.00
Truck Loading (3775 bbl/day) – <i>fugitive</i> (controlled by submerged filling and VRU)				21.00	0.00	0.00
400-bbl Condensate Storage Tank #1						
--Working & Breathing Loss				0.86	0.00	0.00
--Flashing Loss				6.70	0.00	0.00
400-bbl Condensate Storage Tank #2						
--Working & Breathing Loss				0.86	0.00	0.00
--Flashing Loss				6.70	0.00	0.00
500-Gallon Diesel Storage Tank				0.0002		
Emergency/Backup Generator @ 1135 hp	0.19	0.18	7.95	0.31	3.07	0.08
Emergency Flare (restricted to 35 MMSCF/yr) including 0.5MMBtu/hr pilot	0.15	0.15	1.61	1.28	7.92	0.01
<b>Total</b>	<b>4.51</b>	<b>4.50</b>	<b>74.18</b>	<b>124.80</b>	<b>90.64</b>	<b>0.28</b>
<b>Total Title V (non-Fugitive)</b>	<b>4.51</b>	<b>4.50</b>	<b>74.18</b>	<b>95.08</b>	<b>90.64</b>	<b>0.28</b>

- (1) All PM emissions from sources of natural gas combustion are assumed to be in the PM<sub>2.5</sub> size fraction in accordance with AP 42 Table 3.2-3 and Table 1.4-2. Ninety seven percent of PM<sub>10</sub> emissions from the emergency back-up generator are estimated to be in the PM<sub>2.5</sub> size fraction based on AP 42 Table 3.4-2.
- (2) Emission inventory summary is based on greater of two calculations below, using either the 1200 MMBtu/MMSCF or 1400 MMBtu/MMSCF fuel source.

### Units #1-3: 912-bhp Compressor Engines (3 Engines)

Brake Horsepower: 912 bhp  
Hours of operation: 8760 hr/yr

#### PM<sub>10</sub>/PM<sub>2.5</sub> Emissions (filterable & condensable)

Emission Factor: 1.94E-02 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 7.11 MMBtu/hr (Maximum Design)  
Calculations: 7.11 MMBtu/hr \* 1.94E-02 lb/MMBtu = 0.138 lb/hr  
0.138 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.60 ton/yr

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

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 912 bhp \* 0.002205 lb/gram = 2.011 lb/hr  
2.011 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 8.81 ton/yr

#### VOC Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 912 bhp \* 0.002205 lb/gram = 2.011 lb/hr  
2.011 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 8.81 ton/yr

#### CO Emissions

Emission factor: 2.00 gram/bhp-hr (BACT Determination)  
Calculations: 2.00 gram/bhp-hr \* 912 bhp \* 0.002205 lb/gram = 4.022 lb/hr  
4.022 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 17.62 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: 7.11 MMBtu/hr (Maximum Design)  
Calculations: 7.11 MMBtu/hr \* 5.88E-04 lb/MMBtu = 0.004 lb/hr  
0.004 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.02 ton/yr

### Units #4 and 6: 185-bhp Compressor Engines (2 Engines)

Brake Horsepower: 185 bhp  
Hours of operation: 8760 hr/yr

#### PM<sub>10</sub>/PM<sub>2.5</sub> Emissions (filterable & condensable)

Emission Factor: 1.94E-02 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 1.48 MMBtu/hr (Maximum Design)  
Calculations: 1.48 MMBtu/hr \* 1.94E-02 lb/MMBtu = 0.029 lb/hr  
0.029 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.13 ton/yr

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

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 185 bhp \* 0.002205 lb/gram = 0.41 lb/hr  
0.41 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 1.79 ton/yr

#### VOC Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 185 bhp \* 0.002205 lb/gram = 0.41 lb/hr  
0.41 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 1.79 ton/yr

#### CO Emissions (Unit #4)

Emission factor: 2.00 gram/bhp-hr (BACT Determination)  
Calculations: 2.00 gram/bhp-hr \* 185 bhp \* 0.002205 lb/gram = 0.82 lb/hr  
0.82 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 3.57 ton/yr

CO Emissions (Unit #6)

Emission factor: 1.00 gram/bhp-hr (BACT Determination - 2006)  
Calculations: 1.00 gram/bhp-hr \* 185 bhp \* 0.002205 lb/gram = 0.41 lb/hr  
0.41 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 1.79 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: 1.48 MMBtu/hr (Maximum Design)  
Calculations: 1.48 MMBtu/hr \* 5.88E-04 lb/MMBtu = 0.0009 lb/hr  
0.0009 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.004 ton/yr

**Unit #5: 550-bhp Compressor Engine**

Brake Horsepower: 550 bhp  
Hours of operation: 8760 hr/yr

PM<sub>10</sub>/PM<sub>2.5</sub> Emissions (filterable & condensable)

Emission Factor: 1.94E-02 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 4.40 MMBtu/hr (Maximum Design)  
Calculations: 4.40 MMBtu/hr \* 1.94E-02 lb/MMBtu = 0.085 lb/hr  
0.085 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.374 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 550 bhp \* 0.002205 lb/gram = 1.21 lb/hr  
1.21 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 5.31 ton/yr

VOC Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 550 bhp \* 0.002205 lb/gram = 1.21 lb/hr  
1.21 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 5.31 ton/yr

CO Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 550 bhp \* 0.002205 lb/gram = 1.21 lb/hr  
1.21 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 5.31 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: 4.40 MMBtu/hr (Maximum Design)  
Calculations: 4.40 MMBtu/hr \* 5.88E-04 lb/MMBtu = 0.0026 lb/hr  
0.0026 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.0113 ton/yr

**Unit #7: 740-bhp Compressor Engine**

Brake Horsepower: 740 bhp  
Hours of operation: 8760 hr/yr

PM<sub>10</sub>/PM<sub>2.5</sub> Emissions (filterable & condensable)

Emission Factor: 1.94E-02 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)  
Fuel Consumption: 5.62 MMBtu/hr (Maximum Design)  
Calculations: 5.62 MMBtu/hr \* 1.94E-02 lb/MMBtu = 0.109 lb/hr  
0.109 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.48 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 740 bhp \* 0.002205 lb/gram = 1.63 lb/hr  
1.63 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 7.15 ton/yr

VOC Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 740 bhp \* 0.002205 lb/gram = 1.63 lb/hr  
1.63 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 7.15 ton/yr

CO Emissions

Emission factor: 1.00 gram/bhp-hr (BACT Determination)  
Calculations: 1.00 gram/bhp-hr \* 740 bhp \* 0.002205 lb/gram = 1.63 lb/hr  
1.63 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 7.15 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: 5.62 MMBtu/hr (Maximum Design)  
Calculations: 5.62 MMBtu/hr \* 5.88E-04 lb/MMBtu = 0.003 lb/hr  
0.003 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.01 ton/yr

**44.82-MMBtu/hr Hot Oil Heater H-1**

Hours of operation: 8760 hr/yr

Fuel Heating Value: 1200 MMBtu/MMSCF (Company Information)  
Fuel Consumption: 44.82 MMBtu/hr (Maximum Design)

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

Emission Factor: 7.6 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations: 7.6 lb/MMSCF \* 44.82 MMBtu/hr / 1200 MMBtu/MMSCF = 0.28 lb/hr  
0.28 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 1.24 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 0.112 lb/MMBtu (BACT Limit)  
Calculations: 0.112 lb/MMBtu \* 44.82 MMBtu/hr = 5.02 lb/hr  
5.02 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 21.99 ton/yr

VOC Emissions

Emission Factor: 5.5 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations: 5.5 lb/MMSCF \* 44.82 MMBtu/hr / 1200 MMBtu/MMSCF = 0.21 lb/hr  
0.21 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.90 ton/yr

CO Emissions

Emission factor: 0.045 lb/MMBtu (BACT Limit)  
Calculations: 0.045 lb/MMBtu \* 44.82 MMBtu/hr = 2.02 lb/hr  
2.02 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 8.83 ton/yr

SO<sub>2</sub> Emissions

Emission Factor: 0.6 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations: 0.6 lb/MMSCF \* 44.82 MMBtu/hr / 1200 MMBtu/MMSCF = 0.02 lb/hr  
0.02 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.10 ton/yr

Fuel Heating Value: 1400 MMBtu/MMSCF (Company Information)  
Fuel Consumption: 44.82 MMBtu/hr (Maximum Design)

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

Emission Factor: 7.6 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations: 7.6 lb/MMSCF \* 44.82 MMBtu/hr / 1400 MMBtu/MMSCF = 0.24 lb/hr  
0.24 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 1.07 ton/yr

NO<sub>x</sub> Emissions

Emission factor: 0.112 lb/MMBtu (BACT Limit)  
Calculations: 0.112 lb/MMBtu \* 44.82 MMBtu/hr = 5.02 lb/hr  
5.02 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 21.99 ton/yr

VOC Emissions

Emission Factor: 5.5 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations: 5.5 lb/MMSCF \* 44.82 MMBtu/hr / 1400 MMBtu/MMSCF = 0.18 lb/hr  
0.18 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.77 ton/yr

CO Emissions

Emission factor: 0.045 lb/MMBtu (BACT Limit)  
Calculations: 0.045 lb/MMBtu \* 44.82 MMBtu/hr = 2.02 lb/hr  
2.02 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 8.83 ton/yr

SO<sub>2</sub> Emissions

Emission Factor: 0.6 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations: 0.6 lb/MMSCF \* 44.82 MMBtu/hr / 1400 MMBtu/MMSCF = 0.02 lb/hr  
0.02 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.084 ton/yr

**Dehydration Unit #1 (11 MMSCF/d)**

Hours of operation: 8760 hr/yr

Dehydrator Still Vent

VOC Emissions

Emission Factor: 1.8939 lb/hr (GRI GlyCalc, Version 4.0 analysis by HPL; February 19, 2009)  
Calculations: 1.89 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 8.30 ton/yr

**Dehydration Unit #2 (9 MMSCFD)**

Hours of operation: 8760 hr/yr

Dehydrator Still Vent

VOC Emissions

Emission Factor: 6.0948 lb/hr (GRI GlyCalc, Version 4.0 analysis by HPL; February 19, 2009)  
Calculations: 6.0948 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 26.70 ton/yr

**Fugitive Emissions**

VOC Emissions

Basis for Emission Factors: EPA Protocol for Equipment Leak Emission Estimates, November 1995 (EPA-453/R-95-017)

Inlet/Fuel Gas Stream

Hours of operation: 8760 hr/yr

VOC Fraction: 0.4325

Valves, Relief valves, Flanges, and Connectors

Subtotal: 2.94 ton/yr previous + 16.41 ton/yr new = 19.35 ton/yr HC  
19.35 ton/yr \* 0.4325 = 8.37 ton/yr VOC

Condensate Stream

Hours of operation: 8760 hr/yr

VOC Fraction: 0.98

Valves, Relief valves, Flanges, and Connectors

Subtotals: 0.36 ton/yr \* 0.98 = 0.35 ton/yr

Total: 8.37 tpy + 0.35 tpy = 8.72 tpy

**Truck Loading: Submerged Fill: (Dedicated Normal Service) with VRU Control**

Formula 1 of Section 5.2 of EPA's "Compilation of Air Pollutant Emission Factors – AP-42 (1/95)"

$L_L = 12.46(SPM_v/T)$

L<sub>L</sub> = loading loss; pounds per 1000 gallons loaded

S = saturation factor = 0.60 (Table 5-2.1)

P = true vapor pressure of liquid loaded; pounds per square inch absolute

M<sub>v</sub> = molecular weight of vapors; pound per pound-mole (Table 7.1-2)

T = temperature of bulk liquid loaded; degrees Rankin (degrees Fahrenheit + 460)

Inputs

T = 70 degrees Fahrenheit

S = Submerged loading dedicated normal service

P = Gasoline RVP 13

$$L_L = 7.26 \text{ lb}/10^3 \text{ gal}$$

VRU - Controlled loading efficiency 90% (based on annual truck leak testing)

$$L_{L\text{cor}} = (1-90/100) * 7.26/10^3 = 0.726 \text{ lb}/10^3 \text{ gal}$$

$$3,775 \text{ Bbl/day} \times 42 \text{ gal/bbl} \times 365 \text{ days/yr} = 57.87 \text{ MM gal/yr}$$

$$57.87 \text{ MM gal/yr} \times 0.726 \text{ lb}/10^3 \text{ gal} = 42,007 \text{ lb/yr}$$

$$42,007 \text{ lb/yr} \times 0.0005 \text{ ton/lb} = 21.00 \text{ ton/yr (fugitive emissions)}$$

#### **400-bbl Condensate Storage Tanks (2 Tanks)**

Hours of operation: 8760 hr/yr

##### VOC Emissions

###### *Working & Breathing Loss:*

Emission Factor: 1714.34 lb/yr (EPA Tanks, Version 4.0)

Calculations: 1714.34 lb/yr \* 0.0005 ton/lb = 0.86 ton/yr

###### *Flashing Loss:*

Emissions: 6.70 ton/yr (Vasquez-Beggs Solution Gas/Oil Ration Correlation Method)

#### **500-Gallon Diesel Storage Tank (1 Tank)**

Hours of operation: 8760 hr/yr

##### VOC - Working and Breathing Losses

Emission Factor: 0.32 lb/yr (EPA Tanks, Version 4.0)

Calculations: 0.32 lb/yr \* 0.0005 ton/lb = 0.000160 ton/yr

#### **1135 hp Emergency/Backup Diesel Generator (1 Generator)**

Brake Horsepower: 1135 bhp

Hours of operation: 500 hr/yr

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

Emission factor: 0.30 gram/bhp-hr (BACT Determination)

Calculations: 0.30 gram/bhp-hr \* 1135 bhp \* 0.002205 lb/gram = 0.75 lb/hr

0.75 lb/hr \* 500 hr/yr \* 0.0005 ton/lb = 0.19 ton/yr

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

Calculations: 0.19 ton/yr PM<sub>10</sub> \* 0.97 = 0.18 ton/yr (AP 42 Table 3.4-2)

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

Emission factor: 12.7 gram/bhp-hr (BACT Determination)

Calculations: 12.7 gram/bhp-hr \* 1135 bhp \* 0.002205 lb/gram = 31.78 lb/hr

31.78 lb/hr \* 500 hr/yr \* 0.0005 ton/lb = 7.95 ton/yr

##### VOC Emissions

Emission factor: 0.5 gram/bhp-hr (BACT Determination)

Calculations: 0.5 gram/bhp-hr \* 1135 bhp \* 0.002205 lb/gram = 1.25 lb/hr

1.25 lb/hr \* 500 hr/yr \* 0.0005 ton/lb = 0.31 ton/yr

##### CO Emissions

Emission factor: 4.9 gram/bhp-hour (BACT Determination)

Calculations: 4.9 gram/bhp-hour \* 1135 bhp \* 0.002205 lb/gram = 12.26 lb/hr

12.26 lb/hr \* 500 hr/yr \* 0.0005 ton/lb = 3.07 ton/yr

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

Emission factor: 0.13 gram/bhp-hour (BACT Determination)

Calculations: 0.13 gram/bhp-hour \* 1135 bhp \* 0.002205 lb/gram = 0.33 lb/hr

0.33 lb/hr \* 500 hr/yr \* 0.0005 ton/lb = 0.08 ton/yr

## Emergency Flare

### Pilot

Pilot: 0.5 MMBTU/hr  
Fuel Heating Value: 1200 MMBtu/MMSCF (Company Information)

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

Emission Factor: 7.6 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations:  $7.6 \text{ lb/MMSCF} * 0.50 \text{ MMBtu/hr} / 1200 \text{ MMBtu/MMSCF} = 0.003 \text{ lb/hr}$   
 $0.003 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.014 \text{ ton/yr}$

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

Emission factor: 100 lb/MMSCF (AP-42, Chapter 1, Table 1.4-1, 7/98)  
Calculations:  $100 \text{ lb/MMSCF} * 0.50 \text{ MMBtu/hr} / 1200 \text{ MMBtu/MMSCF} = 0.042 \text{ lb/hr}$   
 $0.042 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.18 \text{ ton/yr}$

### VOC Emissions

Emission Factor: 5.5 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations:  $5.5 \text{ lb/MMSCF} * 0.50 \text{ MMBtu/hr} / 1200 \text{ MMBtu/MMSCF} = 0.002 \text{ lb/hr}$   
 $0.002 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.01 \text{ ton/yr}$

### CO Emissions

Emission factor: 84 lb/MMSCF (AP-42, Chapter 1, Table 1.4-1, 7/98)  
Calculations:  $84 \text{ lb/MMSCF} * 0.50 \text{ MMBtu/hr} / 1200 \text{ MMBtu/MMSCF} = 0.035 \text{ lb/hr}$   
 $0.035 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.15 \text{ ton/yr}$

### SO<sub>2</sub> Emissions

Emission Factor: 0.6 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations:  $0.6 \text{ lb/MMSCF} * 0.50 \text{ MMBtu/hr} / 1200 \text{ MMBtu/MMSCF} = 0.0003 \text{ lb/hr}$   
 $0.0003 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.001 \text{ ton/yr}$

### Emergency Gas Combustion

Plant Gas: 35 MMSCF/year – RESTRICTION  
Fuel Heating Value: 1200 MMBtu/MMSCF (Company Information)

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

Emission Factor: 7.6 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations:  $7.6 \text{ lb/MMSCF} * 35 \text{ MMSCF/yr} / 2000 \text{ lb/ton} = 0.133$

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

Emission factor: 0.068 lb/MMBtu (AP-42, Chapter 13, Table 13.5-1, 1/95)  
Calculations:  $0.068 \text{ lb/MMBtu} * 1200 \text{ MMBtu/MMSCF} * 35 \text{ MMSCF/yr} / 2000 \text{ lb/ton} = 1.43 \text{ ton/yr}$

### VOC Emissions

Emission Factor: 0.14 lb HC/MMBtu \* 43.25% VOC = 0.06055 (AP-42, Chapter 13, Table 13.5-1, 1/95)  
Calculations:  $0.06055 \text{ lb/MMSCF} * 1200 \text{ MMBtu/MMSCF} * 35 \text{ MMSCF/yr} / 2000 \text{ lb/ton} = 1.27 \text{ ton/yr}$

### CO Emissions

Emission factor: 0.37 lb/MMBtu (AP-42, Chapter 13, Table 13.5-1, 1/95)  
Calculations:  $0.37 \text{ lb/MMBtu} * 1200 \text{ MMBtu/MMSCF} * 35 \text{ MMSCF/yr} / 2000 \text{ lb/ton} = 7.77 \text{ ton/yr}$

### SO<sub>2</sub> Emissions

Emission Factor: 0.6 lb/MMSCF (AP-42, Chapter 1, Table 1.4-2, 7/98)  
Calculations:  $0.6 \text{ lb/MMSCF} * 35 \text{ MMSCF/yr} / 2000 \text{ lb/ton} = 0.01 \text{ ton/yr}$

## V. Existing Air Quality

The facility is located in the NE ¼ of the NW ¼ of Section 3, Township 23 North, Range 58 East in Richland County, Montana. The air quality of this area is classified as either 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 that the impact from this permitting action will be minor. Based on the relatively low level of allowable emissions added to the facility under the current permit action, the Department believes that the 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?
		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  
Bakken Gathering Plant  
P.O. Box 5103  
Enid, Oklahoma 73702-5103

*Air Quality Permit Number:* 3331-06

*Preliminary Determination Issued:* May 18, 2009

*Department Decision Issued:* June 8, 2009

*Permit Final:* June 24, 2009

1. *Legal Description of Site:* The facility is located approximately 8 miles northwest of Sidney, Montana, in the NE ¼ of the NW ¼ of Section 3, Township 23 North, Range 58 East, in Richland County, Montana. The facility is known as the Bakken Gathering Plant.
2. *Description of Project:* The HPL Bakken Gathering Plant is an existing natural gas processing plant that extracts natural gas liquids from field gas. Under the current permit action, HPL proposed the addition of a fuel source to the 40 CFR 60, Subpart Dc, affected 44.82 MMBtu/hr heat input capacity natural gas-fired Hot Oil Heater, the replacement of the 500 hp rated natural gas fired compressor engine with a 550 hp rated engine.
3. *Objectives of Project:* The proposed project would increase business, revenue, and operational flexibility for the company and the permitted facility.
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 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 BACT analysis, is included in MAQP #3331-06.
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 Department has prepared the following comments.

- A. Terrestrial and Aquatic Life and Habitats
- B. Water Quality, Quantity, and Distribution

The proposed action would not directly impact water quantity or distribution, or terrestrial or aquatic life or habitats in the proposed project area, because it would not result in new construction or ground disturbance and no discharge or use water would be required as part of normal operations.

Emissions from the proposed project may have a minor impact on water quality in the proposed project area. As stated in Section 7.F of this EA, changes in emissions and resulting impacts from those changes are expected to be minor due the net negative change in total emission from the facility and minor increase of pollutant emissions that may result in local deposition. Therefore, overall impacts to the water quality, quantity and distribution, and terrestrial and aquatic life and habitats near the project area would be minor.

- C. Geology and Soil Quality, Stability, and Moisture

The proposed project would not impact the geology, soil quality, stability, and moisture of the proposed project area. The proposed project would be within an existing facility and no new construction or ground disturbance to the area would be required.

As stated in Section 7.F of this EA, changes in emissions and resulting impacts from those changes are expected to be minor due the net negative change in total emission from the facility and minor increase of pollutant emissions that may result in local deposition. However, deposition resulting from the proposed action is not expected to impact the geology, or the quality, stability or moisture content of local soil. Overall, no impacts to the geology and soil quality, stability, and moisture of the project area would be expected.

D. Vegetation Cover, Quantity, and Quality

The proposed action would not directly impact vegetative cover, quantity or quality, because it will not result in new construction or ground disturbance and no discharge or use water is required as part of normal operations.

As stated in Section 7.F of this EA, changes in emissions and resulting impacts from those changes are expected to be minor due the net negative change in total emission from the facility and minor increase of pollutant emissions that may result in local deposition. Therefore, overall impacts to vegetative cover, quantity and quality near the project area would be minor.

E. Aesthetics

The proposed action would include a modification at an existing industrial facility and would not significantly change the nature or character of the facility. Therefore, the proposed action would not result in net change in the aesthetics of the area.

F. Air Quality

Particulate, NO<sub>x</sub> and VOC emissions would increase from the proposed action a cumulative amount of 1.0 tpy; however, CO emission would decrease by 4.36 tpy, resulting in a net decrease of 3.36 tpy in total emissions from the site. Therefore, the aggregate air quality of the area may improve from the proposed action. However, the minor increases in particulate emissions and VOC may result in additional near or far field deposition, or additional formation of ozone locally. Nonetheless, Department believes that increase in VOC emissions would result in immeasurable changes to air quality and impacts from increases in local deposition of pollutants would be minor due to dispersion characteristics of pollutants (stack height, stack temperature, etc.) and atmosphere (wind speed, wind direction, ambient temperature, etc.).

The Department determined that controlled emissions from the proposed action would not cause or contribute to a violation of any ambient air quality standard. Therefore, any impacts to air quality from the proposed project would 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 area, the Department contacted the Montana Natural Heritage Program, Natural Resource Information System (NRIS). The NRIS search did not identify any known species of special concern located within the proposed project area. In this case, the project area was defined by the section, township, and range of the proposed location with an additional 1-mile buffer zone.

The proposed action would be located an existing facility, would not require additional ground disturbance or significant construction, would not be likely to result in measurable to local ecosystems, and no endangered or fragile or limited environmental resource occurrences were identified in the study area. Therefore, the Department has determined that the proposed action would not impact species of special concern or fragile or limited environmental resources.

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

The proposed action could result in a net decrease of 4,610 CF in operational consumption of natural gas and may result in an aggregate decrease in actual pollutant emissions. Therefore, it may have a minor positive impact on the demands for energy and environmental resources. No increases in demand for water resources are expected. Overall, impacts on the demands for the environmental resources of water, air, and energy would be minor.

I. Historical and Archaeological Sites

The Department contacted the Montana Historical Society (SHPO) in an effort to identify any historical and archaeological sites near the proposed project area. According to SHPO records, there have not been any recorded historic or archaeological sites identified within the proposed area. Additionally the proposed action would not require additional ground disturbance. Therefore, SHPO recommended that a cultural resource inventory is not warranted and the Department has determined that there would be no potential to impact historical or archaeological sites.

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 from the proposed action due to the scope and nature of the proposed facility modifications. The Department believes that the facility can be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #3331-06.

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 may 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 Department has prepared the following comments.

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

The proposed action would not be expected to cause impacts to the social structure and customs, because the proposed permit modification from the 500 hp to 550 hp compressor engine would not directly impact the physical or intellectual arrangement of the community, its parts or elements, nor does it affect any known public interest in the area. Similarly the proposed action would not be expected to affect cultural uniqueness or diversity because the proposed facility modification would not require additional employees that could result in a potential influx of immigrants with different cultural attributes. Therefore, the proposed project would have no impact on the social structures and mores and cultural uniqueness and diversity in the area.

- C. Local and State Tax Base and Tax Revenue

The proposed action would not result in impacts to the local and state tax base and tax revenue because relatively few or no new employees would be needed as a result of the proposed project and the net change in the potential amount of natural gas that can be processed is negligible. Further, the proposed modification would not require significant construction activities. Overall, any impacts to the local and state tax base and tax revenue would be minor.

- D. Agricultural or Industrial Production

The land surrounding the proposed location is rural agricultural grazing land; however, the proposed action would not require significant land use changes on the subject or surrounding properties. Therefore, the proposed action is not expected to in impacts to industrial production in the area because the proposed project would add new equipment to an existing industrial source locating in an existing industrial area. However, because the proposed project would be relatively small by industrial standards, the project would likely not result in additional industrial sources (not directly associated with operations) moving to a given area.

Increased additional associated facilities (production field facilities) may locate in the area. However, any future facility may be required to apply for and receive the appropriate permits from the appropriate regulating authority. Impacts from any future facilities would be assessed through the appropriate permitting process. Overall, any impacts to agricultural or industrial production of the area would be minor.

- E. Human Health

The proposed action would not result in impacts to human health. As explained in Section 7.F of this EA, minor changes may occur in local air quality and additional deposition of pollutants may occur; however, pollutant emissions are not expected to cause or contribute to a violation of any air quality standard and the proposed facility modification has been determined to comply with all applicable air quality rules and regulations. These rules, regulations, and standards are designed to be protective of human health. Therefore no impacts to human health are expected.

- F. Access to and Quality of Recreational and Wilderness Activities

The proposed action would not impact any access to recreational and wilderness activities because the proposed facility modification would be contained on an existing industrial facility already used for collection, processing and transmission of natural gas.

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

The proposed action is not expected to have impacts on the quantity and distribution of employment or the distribution of population in the area because the modifications proposed at the facility would likely not require additional employees. Current employees in the area associated with facility would be likely to execute any required physical site changes required. No new jobs, or immigration into or emigration is expected.

- I. Demands for Government Services

The project would result in minor impacts on the demands for government services because time is required by government agencies to issue MAQP #3331-06 and to assure compliance with applicable rules, standards, and conditions contained in MAQP #3331-06. 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 and existing industrial nature of the facility.

- J. Industrial and Commercial Activity

No impacts are expected on the local industrial and commercial activity because the proposed action would not modify the ability of this, or similar facilities to produce a product.

- K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans or goals in the area. The permit requires compliance with state standards and goals. The state standards would be protective of the proposed site and the environment surrounding the site.

- L. Cumulative and Secondary Impacts

The Department has not identified cumulative and secondary impacts to the economic and social aspects of the human environment in the immediate area due to the proposed permitting action or facility modifications. The proposed permit modification is not expected to change in the industrial production, employment, and tax revenue (etc.) associated with the facility.

*Recommendation:* An Environmental Impact Statement (EIS) is not required.

*If an EIS is not required, explain why the EA is an appropriate level of analysis:* There are no significant impacts resulting from the project; therefore, an EIS is not required.

*Other groups or agencies contacted or which may have overlapping jurisdiction:* Department of Environmental Quality - Permitting and Compliance Division (Air Resources Management Bureau and Industrial and Energy Minerals Bureau); Montana Natural Heritage Program; and the State Historic Preservation Office (Montana Historical Society).

*Individuals or groups contributing to this EA:* Department of Environmental Quality (Air Resources Management Bureau and Industrial and Energy Minerals Bureau), Montana Natural Heritage Program, and State Historic Preservation Office (Montana Historical Society).

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