Montana Department of
ENVIRONMENTAL QUALITY
Brian Schweitzer, Governor
P. O. Box 200901 Helena, MT 59620-0901 (406) 444-2544 Website: www.deq.mt.gov

PRELIMINARY DETERMINATION
ON PERMIT APPLICATION

Date of Mailing: February 12, 2010

Name of Applicant: Hiland Partners, LP

Source: Bakken Gathering Plant

Proposed Action: The Department of Environmental Quality (Department) proposes to issue a permit, with conditions, to the above-named applicant. The application was assigned Montana Air Quality Permit Application Number 3331-07.

Proposed Conditions: See attached.

Public Comment: Any member of the public desiring to comment must submit such comments in writing to the Air Resources Management Bureau (Bureau) of the Department at the above address. Comments may address the Department's analysis and determination, or the information submitted in the application. In order to be considered, comments on this Preliminary Determination are due by March 1, 2010. Copies of the application and the Department's analysis may be inspected at the Bureau's office in Helena. For more information, you may contact the Department.

Departmental Action: The Department intends to make a decision on the application after expiration of the Public Comment period described above. A copy of the decision may be obtained at the above address. The permit shall become final on the date stated in the Department's Decision on this permit, unless an appeal is filed with the Board of Environmental Review (Board).

Procedures for Appeal: Any person jointly or severally adversely affected by the final action may request a hearing before the Board. Any appeal must be filed by the date stated in the Department's Decision on this permit. The request for a hearing shall contain an affidavit setting forth the grounds for the request. Any hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing in triplicate to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, MT 59620.

For the Department,

Vickie Walsh

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

Kathleen Doran

Kathleen Doran, P.E.
Environmental Engineer
Air Resources Management Bureau
(406) 247-4443

VW:KD
Enclosure

MONTANA AIR QUALITY PERMIT

Issued To:	Hiland Partners, LP Bakken Gathering Plant P.O. Box 5103 Enid, OK 73702	Montana Air Quality Permit: #3331-07 Application Complete: 02/04/10 Preliminary Determination Issued: 02/12/10 Department Decision Issued: Permit Final: 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

HPL owns and operates a natural gas processing plant 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 extracts natural gas liquids from field gas and is known as the Bakken Gathering Plant.

B. Current Permit Action

On October 8, 2009, the Department of Environmental Quality (Department) received an application from Bison Engineering, Inc.(Bison), on behalf of HPL, for a permit modification to install one four-stroke, rich-burn design compressor engine with a rating equal to or less than 265 brake-horsepower (bhp), and to install an additional 33,600 gallon pressurized bullet tank for fractionated product. The additional tank would be for storage purposes and the truck loading capabilities would not increase.

On January 15, 2010, the Department received a revised application from Bison, on behalf of HPL, for a permit modification to install one four-stroke, rich-burn design compressor engine with a rating equal to or less than 265 bhp, to install an additional 84,000 gallon (instead of the previously proposed 33,600 gallon) pressurized bullet tank for fractionated product, and to increase the truck loading capabilities at the facility by 1,000 barrels (bbl) per day.

On January 18, 2010, the Department received notification (via email) from Bison, on behalf of HPL. The notification was to request that the installation of the 84,000 gallon pressurized bullet tank for fractionated product be considered de minimis. According to the submitted potential to emit (PTE) calculations, the PTE for this project is estimated to be approximately 0.5 tons per year (tpy). Based on the emission information provided, the proposed change associated with the installation of the pressurized tank meets the definition of de minimis change under ARM 17.8.745. On January 20, 2010, HPL and Bison were notified that the Department determined the installation of this proposed tank is excluded from requiring a permit as described in ARM 17.8.745(1) because the tank's potential emissions are less than 15 tpy and the proposal would not violate any conditions of HPL's current MAQP #3331-06. In addition, the Department agrees that the installation of the 84,000 gallon pressurized bullet tank does not warrant an administrative amendment and accepts this as a courtesy notice on the part of HPL. The 84,000 gallon pressurized

bullet tank was not a requirement for the installation of the 265 bhp engine, nor the increased truck loading capability, and would not require an operating permit revision under ARM 17.8.1224(5).

SECTION II: Conditions and Limitations

A. Emission Limitations

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

Unit 1	912 bhp
Unit 2	912 bhp
Unit 3	912 bhp
Unit 4	185 bhp
Unit 5	550 bhp
Unit 6	185 bhp
Unit 7	740 bhp
Unit 8	265 bhp

2. The compressor engine Units 1 – 4 shall each be a rich-burn natural gas-fired 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 brake horsepower-hour (g/bhp-hr) emission factors (ARM 17.8.752):

Equation:

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

Emission Factors	Units 1 – 4
Nitrogen Oxides (NO_x)	1.0 g/bhp-hr
Carbon Monoxide (CO)	2.0 g/bhp-hr
Volatile Organic Compounds (VOC)	1.0 g/bhp-hr

3. The compressor engine Units 5 – 7 shall be four-stroke rich-burn natural gas-fired 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/bhp-hr emission factors (ARM 17.8.752):

Equation

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

Emission Factors	Units 5 – 7
NO_x	1.0 g/bhp-hr
CO	1.0 g/bhp-hr
VOC	1.0 g/bhp-hr

4. The compressor engine Unit 8 shall be a four-stroke rich-burn natural gas-fired engine controlled with an NSCR unit and an AFR controller. The lb/hr emission limits for this engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

   Equation

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

Emission Factors	Unit 8
NO_x	1.0 g/bhp-hr
CO	1.0 g/bhp-hr
VOC	0.5 g/bhp-hr

5. The natural gas-fired Hot Oil Heater shall be limited to a maximum heat input capacity of 44.82 million Btu per hour (MMBtu/hr) (ARM 17.8.749).

6. The natural gas-fired Hot Oil Heater shall comply with the following emission limits (ARM 17.8.752):

NO_x	0.112 lb/MMBtu
CO	0.045 lb/MMBtu

7. HPL shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

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

9. HPL shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.8 (ARM 17.8.749).

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

11. HPL shall control VOCs emitted from tank trucks during loading through use of a vapor return line (ARM 17.8.749 and 17.8.752).

12. HPL shall not operate the 1,135 bhp diesel-fired emergency/backup engine/generator more than 500 hours per rolling 12-month time period. HPL shall not operate this engine/generator as a part of routine operations (ARM 17.8.749).

13. HPL shall only burn diesel fuel with a sulfur content less than 0.5% in the 1,135 bhp emergency/backup engine/generator (ARM 17.8.752).

14. 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 Environmental Protection Agency (EPA) AP-42 factors, unless otherwise allowed by the Department (ARM 17.8.749 and ARM 17.8.1204).

15. 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, *General Provisions*, and Subpart KKK, *Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants* (ARM 17.8.340 and 40 CFR 60, Subpart A and Subpart KKK).

16. HPL shall comply with all applicable standards, limitations, reporting, record keeping, and notification requirements contained in 40 CFR 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Plants* (ARM 17.8.340 and 40 CFR 60, Subpart Dc).

17. 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, etc.) 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. Each compressor engine shall be initially tested for NO_X and CO (the pollutants to be tested concurrently). The initial source testing shall be conducted within 180 days of the initial start-up date of the compressor engine(s). After the initial source test, additional testing shall continue on an every 4-year basis, or according to another testing/monitoring schedule as may be approved by the Department in writing, to demonstrate compliance with NO_x and CO lb/hr emission limits as calculated in Sections II.A.2, II.A.3, and II.A.4 (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 bhp emergency/backup engine/generator. By the 25th day of each month, HPL shall calculate the total hours of operation of the 1,135 bhp emergency/backup engine/generator for the previous month. The monthly information shall be used to verify compliance with the rolling 12-month limitation in Section II.A.12. 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 25th 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.14. 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).

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 bhp emergency/backup engine/generator, for use in verifying compliance with the limitation in Section II.A.13 (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 a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

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

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

MONTANA AIR QUALITY PERMIT (MAQP) ANALYSIS
Hiland Partners, LP
Bakken Gathering Plant
MAQP #3331-07

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:

ID	Equipment
Unit 1	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 912 brake-horsepower (bhp)
Unit 2	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 912 bhp
Unit 3	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 912 bhp
Unit 4	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 185 bhp
Unit 5	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 550 bhp
Unit 6	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 185 bhp
Unit 7	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 740 hp
Unit 8	Natural gas-fired, rich-burn compressor engine with a maximum rated design capacity equal to or less than 265 bhp
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 @ 4775 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 emergency/backup engine/generator with a maximum rated design capacity equal to or less than 1,135 bhp.
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 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 #3331-00. Specifically, HPLLC requested the following: 1) to add a natural gas compressor engine with a maximum capacity equal to or less than 500 bhp; 2) to add a 1,135 bhp emergency/backup diesel-fired 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 (including the emission inventory) with the new equipment. **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 bhp and 930 bhp, as well as other process improvements. The application included an administrative amendment request to reduce the maximum rating for Unit #1 from 1,478 bhp to 912 bhp. HPL submitted further information on April 17, 2006, including a request to reduce the maximum rating for Unit #2 from 1,478 bhp to 912 bhp, 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 bhp to 740 bhp. **MAQP #3331-05** became final on July 7, 2007, and replaced MAQP #3331-04.

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 bhp to 550 bhp. The application was in response to a compliance inspection in October 2008 that noted the capacity of Unit #5 was 550 bhp rather than the permitted 500 bhp. 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 updated permit conditions and language, and incorporates new and recently modified Federal New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, as applicable. **MAQP #3331-06** replaced MAQP #3331-05.

D. Current Permit Action

On October 8, 2009, the Department received an application from Bison Engineering, Inc. (Bison), on behalf of HPL, for a permit modification to install one four-stroke, rich-burn design compressor engine with a rating equal to or less than 265 bhp, and to install an additional 33,600 gallon pressurized bullet tank for fractionated product. The additional tank would be for storage purposes and the truck loading capabilities would not increase.

On January 15, 2010, the Department received a revised application from Bison, on behalf of HPL, for a permit modification to install one four-stroke, rich-burn design compressor engine with a rating equal to or less than 265 bhp, to install an additional 84,000 gallon (instead of the previously proposed 33,600 gallon) pressurized bullet tank for fractionated product, and to increase the truck loading capabilities at the facility by 1,000 barrels (bbl) per day.

On January 18, 2010, the Department received notification (via email) from Bison, on behalf of HPL. The notification was to request that the installation of the 84,000 gallon pressurized bullet tank for fractionated product be considered de minimis. According to the submitted potential to emit (PTE) calculations, the PTE for this project is estimated to be approximately 0.5 tpy. Based on the emission information provided, the proposed change associated with the installation of the pressurized tank meets the definition of de minimis change under the Administrative Rules of Montana (ARM) 17.8.745. On January 20, 2010, HPL and Bison were notified that the Department determined the installation of this proposed tank is excluded from requiring a permit as described in ARM 17.8.745(1) because the tank's potential emissions are less than 15 tpy and the proposal would not violate any conditions of HPL's current MAQP #3331-06. In addition, the Department agrees that the installation of the 84,000 gallon pressurized bullet tank does not warrant an administrative amendment and accepts this as a courtesy notice on the part of HPL. The 84,000 gallon pressurized tank was not a requirement for the installation of the 265 bhp engine, nor the increased truck loading capability, and would not require an operating permit revision under ARM 17.8.1224(5). **MAQP #3331-07** replaces MAQP #3331-06.

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 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_{10}.
11. ARM 17.8.230 Fluoride in Forage

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 pipeline-quality natural gas for operating its fuel burning equipment, which meets 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 Plants: 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 XX – Standards of Performance for Bulk Gasoline Terminals. Owners and operators are subject to 40 CFR 60, Subpart XX if the bulk gasoline terminal has loading racks that deliver liquid product into gasoline tank trucks. Under 40 CFR 60, Subpart XX, gasoline is defined as any petroleum distillate or petroleum distillate/ alcohol blend having a Reid vapor pressure of 27.6 kilopascals or greater that is used as a fuel for internal combustion engines. The product loaded at the facility is Y-grade fractionated natural gas liquids and does not fit the definition of gasoline; therefore 40 CFR 60, Subpart XX is not applicable to the Bakken Gathering Plant.

e. 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 are not compression ignition engines. However, because this permit is written in a de minimis-friendly manner, this regulation may apply to future engines at the facility.

f. Subpart JJJJ - Standards of Performance for Spark Ignition Internal Combustion Engines contains NSPS requirements that apply to owners or operators of stationary spark ignition (SI) internal combustion engines (ICE) that commence construction, modification, or reconstruction after June 12, 2006, where the stationary ICE is manufactured after July 1, 2007, for engines greater than 500 bhp, or after July 1, 2008, for engines less than 500 bhp. NSPS-affected engines at the HPL facility include any new or reconstructed stationary spark ignition (SI) internal combustion engines (ICE). Construction commenced on compressor engine Unit 8 (265 bhp) after June 12, 2006. However, Unit 8 has a maximum engine bhp less than 500 bhp and was manufactured before July 1, 2008 and has not been modified or reconstructed after that date. Therefore, compressor engine Unit 8 is not subject to 40 CFR 60, Subpart JJJJ. Compressor engines Units 1 through 7 are not subject to 40 CFR 60, Subpart JJJJ because they have not been manufactured or reconstructed after June 12, 2006. 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. First, the facility must be a major or area source of hazardous air pollutants (HAPs) as determined according to paragraphs (a)(1)(i) through (a)(1)(iii) of 40 CFR 63, Subpart HH. Second, a facility that is determined to be major for HAPs must also either process, upgrade, or store hydrocarbon liquids prior to the point of custody transfer, or process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user. Third, the facility must also contain an affected source as specified in paragraphs (b)(1) through (b)(4) of 40 CFR 63, Subpart HH. Finally, if the first three criteria are met, and the exemptions contained in paragraphs (e)(1) and (e)(2) of 40 CFR 63, Subpart HH do not apply, the facility is subject to the applicable provisions of 40 CFR 63, Subpart HH. Based on the information submitted by Bison, on behalf of HPL, the Bakken Gathering Plant is not a major source of HAPs. 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 and therefore 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 Bison, on behalf of 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 Stationary 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, compressor engines Units 1 through 7 are considered ***existing*** four-stroke rich-burn (4SRB)compressor engines located at an area source of HAPs and qualify for an exemption within Subpart ZZZZ. Compressor engines Units 1 through 7 are excluded from the maximum achievable control technology (MACT) standards and reporting requirements in 40 CFR Part 63. Compressor engine Unit 8 is a 4SRB and is considered to be a new stationary RICE because construction commenced after June 12, 2006. Per 40 CFR 63.6590(c), an affected source that is a new stationary RICE located at an area source must meet the requirements of this part by meeting the NSPS requirements of 40 CFR Subpart JJJJ for spark ignition engines. There are no applicable requirements for Unit 8 in 40 CFR Subpart JJJ because Unit 8 was manufactured before January 8, 2008. Therefore, the requirements at 40 CFR 63, Subpart ZZZZ do not apply.

e. 40 CFR 63, Subpart BBBBBB National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities. This rule establishes national emission limitations and management practices for HAPs emitted from area source gasoline distribution bulk terminals, bulk plants, and pipeline facilities. 40 CFR 63, Subpart CC defines gasoline as any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals or greater that is used as a fuel for internal combustion engines. The product loaded at HPL's Bakken Gathering Plant is Y-grade fractionated natural gas liquids and does not fit under the definition of gasoline; therefore, 40 CFR 63, Subpart BBBBBB does not apply to the Bakken Gathering Plant.

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

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

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

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

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the PTE greater than 25 tpy of any pollutant. The Bakken Gathering Plant has a PTE greater than 25 tpy of nitrogen oxides (NO_X), 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 January 17, 2010 and January 31, 2010, issues 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 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.

12. 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.

13. 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).

14. 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.

15. 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.

16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, MCA.

G. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this Subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this Subchapter would otherwise allow.

This facility is not a major stationary source because this facility is not a listed source and the facility's PTE is below 250 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 greater than 100 tpy of any pollutant;

b. PTE greater than 10 tpy of any one HAP, PTE greater than 25 tpy of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

c. PTE greater than 70 tpy of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #3331-07 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_{10} nonattainment area.

d. This facility is subject to current NSPS (40 CFR 60, Subpart A, Subpart Dc, and Subpart KKK)

e. This facility is not subject to current NESHAP standards.

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.

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.

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.

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 #3331-07, addressing some available methods of controlling CO, NO_x, VOC, sulfur dioxide (SO_2), and particulate emissions from the 265 bhp Unit 8, as well as BACT for truck loading VOC emissions. 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. 265 bhp Compressor Engine

1. NO_x BACT

As part of the NO_x BACT analysis, the following control technology was reviewed:

- Rich burn engine with a non-selective catalytic reduction (NSCR) unit and an air-to-fuel (AFR) controller; with a NO_x emission limit of 1.0 gram per brake horsepower-hour (g/bhp-hr).

Because the use of a rich burn engine with an NSCR unit and an AFR controller offers the highest ranking efficiency of the feasible control technology options, further analysis was not necessary. A rich-burn engine equipped with NSCR and an AFR is used frequently in the natural gas compression industry in Montana and at the Bakken Gathering Plant. These proposed BACT control devices and emission limits conform to BACT determinations made recently by the Department for rich-burn, natural gas-fired compressor engines. Emission limits are established on the 265 bhp compressor engine in accordance with the equation established in Section II.A.4 of the permit (1.0 g/bhp-hr), which is equivalent to 0.58 pounds per hour (lb/hr) or 2.56 tpy.

2. CO BACT

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

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

Because the 265 bhp compressor engine is a rich burn type, only rich burn types were examined for the CO BACT analysis. CO emissions from rich-burn four-stroke compressor engines are typically controlled using NSCR units and/or AFR controllers to control CO and NO_x emission rates. Oxidation catalysts are typically used for CO control on lean-burn engines. AFR controllers are assumed to be required as part of all add-on pollution control options. Engines with only AFR controllers were not analyzed as control options. 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	CO Emission Rate (g/bhp-hr)	CO Emission Rate (tpy)
Rich burn Engine with NSCR and AFR	1.0[a]	2.56
Rich Burn Engine with No Additional Controls	10.7[b]	27.38

a. Manufacturer information (provided in permit application) and current generally accepted BACT
b. Per vendor specifications (provided in permit application)

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. Emission limits are established on the 265 bhp compressor engine in accordance with the equation established in Section II.A.4 of the permit (1.0 g/bhp-hr), which is equivalent to 0.58 lb/hr or 2.56 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 0.5 g/bhp-hr. However, the Department does not consider the NSCR unit and the AFR controller to be BACT for VOC because the cost per ton of VOC reduced would be above industry norm. The Department previously determined that no additional controls and burning pipeline

quality natural gas to meet a lb/hr emission limit constitute BACT for each of the previously permitted compressor engines (Section II.A of MAQP #3331-01 and MAQP #3331-06). The Department determined the same requirement should apply to the 265 bhp engine with an associated emission limitation of 0.5 g/bhp-hr.

4. $PM_{10}/PM_{2.5}$ and SO_2 BACT

All PM emitted is considered to be $PM_{2.5}$ (AP-42 Table 3.2-3). The Department is not aware of any BACT determinations that have required controls for $PM_{10}/PM_{2.5}$ or SO_2 emissions from natural gas-fired compressor engines. HPL proposed no additional controls and burning pipeline quality natural gas as BACT for $PM_{10}/PM_{2.5}$ and SO_2 emissions from the proposed compressor engine. Due to the relatively small amount of $PM_{10}/PM_{2.5}$ and SO_2 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 $PM_{10}/PM_{2.5}$ and SO_2 emissions from the 265 bhp 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

Tons/year						
Source	**PM_{10}**	**$PM_{2.5}$ (1)**	**NO_X**	**VOC**	**CO**	**SO_X**
912 bhp Waukesha 7042GU Compressor Engine Unit 1	0.60	0.60	8.81	8.81	17.62	0.02
912 bhp Waukesha 7042GU Compressor Engine Unit 2	0.60	0.60	8.81	8.81	17.62	0.02
912 bhp Waukesha 7042GU Compressor Engine Unit 3	0.60	0.60	8.81	8.81	17.62	0.02
185 bhp Waukesha 1197GU Compressor Engine Unit 4	0.13	0.13	1.79	1.79	3.57	0.004
550 bhp Caterpillar G398 TA LCR Compressor Engine Unit 5	0.37	0.37	5.31	5.31	5.31	0.01
185 bhp Waukesha 1197 Compressor Engine Unit 6	0.13	0.13	1.79	1.79	1.79	0.004
740 bhp Waukesha F3514 GSI Compressor Engine Unit 7	0.48	0.48	7.15	7.15	7.15	0.01
265 bhp Caterpillar G342 TA LCR Compressor Engine Unit 8	0.19	0.19	2.56	2.56	1.28	0.01
44.82-MMBtu/hr Natural Gas-fired Hot Oil Heater (2)	1.24	1.24	21.99	0.90	8.83	0.10
Dehydration Unit #1--Still Vent (9 MMSCF/d)	---	---	---	26.70	---	---
Dehydration Unit #2--Still Vent (11 MMSCF/d)	---	---	---	8.30	---	---
Fractionation Unit (included in fugitives)						
Fugitive Leaks (valves, flanges, etc.)	---	---	---	9.27	---	---
Truck Loading (4775 bbl/day) – *fugitive* (controlled by submerged filling and VRU)	---	---	---	79.72	---	---
400-bbl Condensate Storage Tank #1						
--Working & Breathing Loss	---	---	---	0.86	---	---
--Flashing Loss	---	---	---	6.70	---	---
400-bbl Condensate Storage Tank #2						
--Working & Breathing Loss	---	---	---	0.86	---	---
--Flashing Loss	---	---	---	6.70	---	---
500-Gallon Diesel Storage Tank				0.0002		
1135 bhp Cummins VTA28-G7 Emergency/Backup Generator	0.19	0.10	7.95	0.31	3.07	0.08
Emergency Flare (RESTRICTED to 35 MMSCF/yr)	0.13	0.13	1.43	2.94	7.77	0.01
Emergency Flare Pilot (0.5MMBtu/hr)	0.01	0.01	0.18	0.01	0.15	0.001
Total	**4.67**	**4.58**	**76.58**	**188.30**	**91.78**	**0.29**
Total Title V (non-Fugitive)	**4.67**	**4.58**	**76.58**	**99.31**	**91.78**	**0.29**

(1) All PM emissions from sources of natural gas combustion are assumed to be in the $PM_{2.5}$ size fraction in accordance with AP-42 Table 3.2-3 and Table 1.4-2. Ninety seven percent of PM_{10} emissions from the emergency back-up generator are estimated to be in the $PM_{2.5}$ size fraction based on AP-42 Table 3.4-2.

(2) Emission inventory summary is based on the 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

$PM_{10}/PM_{2.5}$ Emissions (filterable & condensable)
Emission Factor: 1.94E-02 lb/MMBtu (AP-42, Table 3.2-3, 7/00)
Fuel Consumption: 7.1 MMBtu/hr (Maximum Design)
Calculations: 7.1 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_X Emissions
Emission factor: 1.00 gram/bhp-hr (BACT Determination / Permit Limit)
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 / Permit Limit)
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 / Permit Limit)
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_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Table 3.2-3, 7/00)
Fuel Consumption: 7.1 MMBtu/hr (Maximum Design)
Calculations: 7.1 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

$PM_{10}/PM_{2.5}$ Emissions (filterable & condensable)
Emission Factor: 1.94E-02 lb/MMBtu (AP-42, 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_X Emissions
Emission factor: 1.00 gram/bhp-hr (BACT Determination / Permit Limit)
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 / Permit Limit)
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 / Permit Limit)
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 / Permit Limit)
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_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, 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

$PM_{10}/PM_{2.5}$ Emissions (filterable & condensable)
Emission Factor: 1.94E-02 lb/MMBtu (AP-42, 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_X Emissions
Emission factor: 1.00 gram/bhp-hr (BACT Determination / Permit Limit)
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 / Permit Limit)
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 / Permit Limit)
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_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, 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

$PM_{10}/PM_{2.5}$ Emissions (filterable & condensable)
Emission Factor: 1.94E-02 lb/MMBtu (AP-42, 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_X Emissions
Emission factor: 1.00 gram/bhp-hr (BACT Determination / Permit Limit)
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 / Permit Limit)
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 / Permit Limit)
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_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, 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

Unit 8: 265 bhp Compressor Engine

Brake Horsepower: 265 bhp
Hours of operation: 8760 hr/yr

$PM_{10}/PM_{2.5}$ Emissions (filterable & condensable)
Emission Factor: 1.94E-02 lb/MMBtu (AP-42, Table 3.2-3, 7/00)
Fuel Consumption: 2.2 MMBtu/hr (Maximum Design)
Calculations: 2.2 MMBtu/hr * 1.94E-02 lb/MMBtu = 0.0.043 lb/hr
0.043 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.19 ton/yr

NO_X Emissions
Emission factor: 1.00 gram/bhp-hr (BACT Determination / Manufacturer)
Calculations: 1.00 gram/bhp-hr * 265 bhp * 0.002205 lb/gram = 0.58 lb/hr
0.58 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 2.56 ton/yr

VOC Emissions
Emission factor: 1.00 gram/bhp-hr (BACT Determination / Manufacturer)
Calculations: 1.00 gram/bhp-hr * 265 bhp * 0.002205 lb/gram = 0.58 lb/hr
0.58 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 2.56 ton/yr

CO Emissions
Emission factor: 0.5 gram/bhp-hr (BACT Determination / Manufacturer)
Calculations: 0.5 gram/bhp-hr * 265 bhp * 0.002205 lb/gram = 0.29 lb/hr
0.29 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 1.28 ton/yr

SO_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Table 3.2-3, 7/00)
Fuel Consumption: 2.2 MMBtu/hr (Maximum Design)
Calculations: 2.2 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.001 lb/hr
0.001 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)

$PM_{10}/PM_{2.5}$ Emissions (front and back half)
Emission Factor: 7.6 lb/MMSCF (AP-42, 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_X Emissions
Emission factor: 0.112 lb/MMBtu (BACT Limit / Permit 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, 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 / Permit 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_2 Emissions
Emission Factor: 0.6 lb/MMSCF (AP-42, 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

OR:

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

$PM_{10}/PM_{2.5}$ Emissions
Emission Factor: 7.6 lb/MMSCF (AP-42, 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_X Emissions
Emission factor: 0.112 lb/MMBtu (BACT Limit / Permit 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, 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 / Permit 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_2 Emissions
Emission Factor: 0.6 lb/MMSCF (AP-42, 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 MMSCFD)
Hours of operation: 8760 hr/yr

Dehydrator Still Vent

VOC Emissions

Emission Factor: 1.8939 lb/hr (GRI GlyCalc, Version 4.0 analysis by Bison, on behalf of HPL – gas sample dated 02/19/2009)
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 Bison, on behalf of HPL – gas sample dated 02/19/2009)
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: 43.25% for (a) and (b) – VOC weight percent is C3+
VOC Fraction: 100.0% for (c) - VOC weight percent is C3+

(a) Plant fugitives:
Valves (30), Relief valves (16), Flanges (50), and Connectors (45) = 2.94 ton/yr

(b) New piping around fractionation area, stabilizer area, and Scon area:
Valves (334), Relief valves (7), Flanges (347), and Connectors (0) = 16.41 ton/yr

(c) New piping for new 84,000 gallon tank area:
Valves (11), Relief valves (0), Flanges (18), and Connectors (0) = 0.55 ton/yr

Subtotal: 2.94 ton/yr + 16.41 ton/yr = 19.35 ton/yr hydrocarbons (HC)
(19.35 ton/yr * 0.4325) + (0.55 ton/yr * 1.00) = 8.37 + 0.55 = 8.92 ton/yr VOC

Condensate Stream
Hours of operation: 8760 hr/yr
VOC Fraction: 0.98 – VOC weight percent is C3+

Plant fugitives:
Valves (5), Relief valves (2), Flanges (10), and Connectors (10) = 0.36 ton/yr

Subtotal: 0.36 ton/yr * 0.98 = 0.35 ton/yr

Total: 8.92 tpy + 0.35 tpy = 9.27 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_L = loading loss; pounds per 1000 gallons loaded
S= saturation factor = 0.60 (AP-42, Table 5-2.1)
P = true vapor pressure of liquid loaded; pounds per square inch absolute (AP-42, Table 7.1-2)
M_V = molecular weight of vapors; pound per pound-mole (AP-42, Table 7.1-2)
T = temperature of bulk liquid loaded; degrees Rankin (degrees Fahrenheit + 460)

Inputs
T = 70 degrees Fahrenheit = 530 degrees Rankin
S= Submerged loading dedicated normal service
P = Gasoline RVP 13 (=8.31 psia @ 70^0F)

$L_L = 12.46 * ((0.60 * 8.31 * 62)/530) = 7.27$ lb/10^3 gal
VRU - Controlled loading efficiency 70% (based on least efficient truck – Permit Application)

$L_{Lcor} = (1-70/100) * 7.26/10^3 = 2.178$ lb/10^3 gal
4,775 bbl/day x 42 gal/bbl x 365 days/yr = 73.20 MM gal/yr
73.20 MM gal/yr x 2.178 lb/10^3 gal = 159,431 lb/yr
159,431 lb/yr x 0.0005 ton/lb = 79.72 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 - Permit Application)
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 – Permit Application)

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 - Permit Application)
Calculations: 0.32 lb/yr * 0.0005 ton/lb = 0.000160 ton/yr

1135 bhp Emergency/Backup Diesel Generator (1 Generator)

Brake Horsepower: 1135 bhp
Max. Fuel Combustion Rate: 58.50 gal/hr (Permit Application)
Hours of operation: 500 hr/yr (Permit Limit)

PM_{10} Emissions
Emission factor: 0.30 gram/bhp-hr (BACT Determination / Manufacturer's Data / Permit Limit)
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

$PM_{2.5}$ Emissions
Fuel Heating Value: 0.137 MMBtu/gal (AP-42, Appendix A, pg. A-5, 9/85 (reformatted 1/95)
Emission factor: 0.0479 lb/MMBtu (AP-42, Table 3.4-2, 10/96)
Calculations: 0.137 MMBtu/gal * 58.50 gal/hr * 0.0479 lb/MMBtu * 500 hr/yr * 0.0005 ton/lb = 0.10 ton/yr

NO_X Emissions
Emission factor: 12.7 gram/bhp-hr (BACT Determination / Manufacturer's Data / Permit Limit)
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 / Manufacturer's Data / Permit Limit)
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 / Manufacturer's Data / Permit Limit)
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_2 Emission
Emission factor: 0.13 gram/bhp-hour (BACT Determination / Manufacturer's Data / Permit Limit)
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 (Maximum fuel combustion rate – Permit Application)
Fuel Heating Value: 1200 MMBtu/MMSCF (Company Information)
Hours of Operation: 8760 hr/yr

$PM_{10}/PM_{2.5}$ Emissions
Emission Factor: 7.6 lb/MMSCF (AP-42, Table 1.4-2, 7/98)
Calculations: 7.6 lb/MMSCF * 0.50 MMBtu/hr / 1200 MMBtu/MMSCF = 0.003 lb/hr
0.003 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.014 ton/yr

NO_X Emissions
Emission factor: 100 lb/MMSCF (AP-42, Table 1.4-1, 7/98)
Calculations: 100 lb/MMSCF * 0.50 MMBtu/hr / 1200 MMBtu/MMSCF = 0.042 lb/hr
0.042 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.18 ton/yr

VOC Emissions
Emission Factor: 5.5 lb/MMSCF (AP-42, Table 1.4-2, 7/98)
Calculations: 5.5 lb/MMSCF * 0.50 MMBtu/hr / 1200 MMBtu/MMSCF = 0.002 lb/hr
0.002 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

CO Emissions
Emission factor: 84 lb/MMSCF (AP-42, Table 1.4-1, 7/98)
Calculations: 84 lb/MMSCF * 0.50 MMBtu/hr / 1200 MMBtu/MMSCF = 0.035 lb/hr
0.035 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.15 ton/yr

SO_2 Emissions
Emission Factor: 0.6 lb/MMSCF (AP-42, Table 1.4-2, 7/98)
Calculations: 0.6 lb/MMSCF * 0.50 MMBtu/hr / 1200 MMBtu/MMSCF = 0.0003 lb/hr
0.0003 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.001 ton/yr

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

$PM_{10}/PM_{2.5}$ Emissions
Emission Factor: 7.6 lb/MMSCF (AP-42, Table 1.4-2, 7/98)
Calculations: 7.6 lb/MMSCF * 35 MMSCF/yr / 2000 lb/ton = 0.133

NO_X Emissions
Emission factor: 0.068 lb/MMBtu (AP-42, Table 13.5-1, 1/95)
Calculations: 0.068 lb/MMBtu * 1200 MMBtu/MMSCF * 35 MMSCF/yr / 2000 lb/ton = 1.43 ton/yr

VOC Emissions - as total hydrocarbons (HC)
Emission Factor: 0.14 lb HC/MMBtu (AP-42, Table 13.5-1, 1/95)
Calculations: 0.14 lb HC/MMBtu * 1200 MMBtu/MMSCF * 35 MMSCF/yr / 2000 lb/ton = 2.94 ton/yr

CO Emissions
Emission factor: 0.37 lb/MMBtu (AP-42, Table 13.5-1, 1/95)
Calculations: 0.37 lb/MMBtu * 1200 MMBtu/MMSCF * 35 MMSCF/yr / 2000 lb/ton = 7.77 ton/yr

SO_2 Emissions
Emission Factor: 0.6 lb/MMSCF (AP-42, Table 1.4-2, 7/98)
Calculations: 0.6 lb/MMSCF * 35 MMSCF/yr / 2000 lb/ton = 0.01 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 amount of controlled emissions generated by this project will not cause or contribute to a violation of any set 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

DRAFT ENVIRONMENTAL ASSESSMENT (EA)

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

Air Quality Permit Number: 3331-07

Preliminary Determination Issued: February 12, 2010
Department Decision Issued:
Permit Final:

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 and fractionates natural gas liquids from field gas. Under the current permit action, HPL proposed the addition of a natural gas fired compressor engine with a 265 bhp rated engine, and to increase the truck loading capabilities at the facility by 1,000 bbl per day. HPL also requested to install an additional 84, 000 gallon pressurized bullet tank for fractionated product as a de minimis action.

3. *Objectives of Project*: HPL submitted the current permit modification to allow for the installation of a 265 bhp natural gas-fired compressor engine. This compressor engine would be used in conjunction with other previously permitted equipment at the 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 #3331-07.

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

Although additional emissions would be expected in this project area, the emissions would be considered minimal and have only a minor impact on existing terrestrial, aquatic life, and habitats of the area. The proposed project is located in a remote area where the land use is primarily used for agricultural and livestock grazing. Emissions or deposition of pollutants would be minor due to dispersion characteristics of the pollutants, the atmosphere, and the conditions that would be placed in MAQP #3331-07.

B. Water Quality, Quantity, and Distribution

The proposed action would have little or no effect on the water quality, water quantity, and distribution, as there would be no discharge to groundwater or surface water associated with this project. The proposed project would not require surface or groundwater use and there would be no change in drainage patterns. However, minor amounts of water may be required to control fugitive dust emissions from the access roads and the general facility property. In addition there could be minor pollutant deposition on surface waters near the project area. Therefore, the project would have minor, if any, impacts to water quality, quantity, or distribution in the area.

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.

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 of water is required as part of this project. An increase in emissions for this project may have a minor effect on the surrounding vegetation; however the air quality permit associated with this project would contain conditions and limitations to minimize the effect of the emissions on the surrounding environment. Overall, this project would have minor effects on the vegetation cover, quantity, and quality

E. Aesthetics

The proposed action would include a modification at an existing industrial facility and would not substantively 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

The air quality of the area would realize minor impacts from the proposed project because the project would emit increased amounts of particulates, NO_x, CO, VOC, including HAPs; and very small amounts of SO_x. Air emissions from the additional compressor engine and the increased truck loading capability would be minimized by conditions that would be placed in MAQP #3331-07. Conditions would include, but would not be limited to, BACT emission limitations and reasonable precautions to control fugitive dust emissions.

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 impacts 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 project would have minor impacts on the demands for the environmental resources of air because the facility would be a source of air pollutants, and water because the facility may use water for dust suppression. Deposition of pollutants would occur as a result of operating the facility; however, as explained in Section 7.F of this EA, the Department determined that any impacts from deposition of pollutants would be minor.

The proposed project would be expected to have any minor impacts on the demand for the environmental resource of energy because power would be required at the site. However, overall, impacts on the demands for the environmental resources of water, air, and energy would be minor.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites near the proposed project area, the Department contacted the Montana Historical Society (SHPO). According to SHPO records, there have not been any previously recorded historic or archaeological sites within the proposed area. In addition, SHPO records indicated that, although no previous cultural resource inventories have been conducted in the area, it is SHPO's recommendation that a cultural resource inventory is not warranted at this time. Therefore, the Department determined that the proposed project would be located in an existing facility and that no additional disturbance is proposed, 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 #3331-07.

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

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

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

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

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

The proposed project would not be expected to cause any impact to the social and cultural resources in the area because the proposed project is a modification that would take place at an existing facility that is located in a relatively remote location. Further, the predominant use of the surrounding area would not change as a result of implementing the proposed project.

C. Local and State Tax Base and Tax Revenue

The proposed project 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 project would not require significant land use changes on the facility or surrounding properties. Therefore, the proposed project is not expected to impact industrial production in the area because the proposed project would add new equipment to an existing industrial source locating in an existing industrial facility. The proposed project would not likely result in additional industrial sources (not directly associated with operations) moving to a given area. Overall, any impacts to agricultural or industrial production from the project would be minor.

Additional associated facilities (production field facilities) could locate in the area. However, any future facility would 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.

E. Human Health

The proposed project would result in minor, if any, 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. Overall, any impacts to human health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would not impact any access to recreational and wilderness activities because the proposed facility modification would be contained in 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 the facility would be likely to execute any physical site changes required. No new jobs, immigration, 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 #3331-07 and to assure compliance with applicable rules, standards, and conditions contained in MAQP #3331-07. Overall, any demands for government services to regulate the facility or activities associated with the facility would be minor and consistent with current demands due to the existing industrial nature of the facility.

J. Industrial and Commercial Activity

Only minor impacts would be expected on the local industrial and commercial activity because the proposed project would represent only a minor increase in the industrial and commercial activity in the area. The proposed project would take place at an existing facility that is located in a relatively remote location. Overall, any impacts to the local industrial and commercial activity of the area would be minor.

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

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

Overall, cumulative and secondary impacts from this project would result in minor impacts to the economic and social aspects of the human environment in the immediate area. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #3331-07 and that industrial production, employment, and tax revenue (etc.) impacts resulting from the proposed project would be minor.

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

Recommendation: 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); 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), Montana Natural Heritage Program, and State Historic Preservation Office (Montana Historical Society).

EA prepared by: K. Doran
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