



Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

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February 23, 2010

Mr. Ross Whelchel
NorthWestern Energy
40 East Broadway
Butte, MT 59701

Dear Mr. Whelchel:

Montana Air Quality Permit #2428-11 is deemed final as of February 23, 2010, by the Department of Environmental Quality (Department). This permit is for NorthWestern Energy's Mainline #1 facility. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

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

Shawn Juers
Environmental Engineer
Air Resources Management Bureau
(406) 444-2049

VW:SJ
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #2428-11

NorthWestern Energy
Mainline #1 Facility
40 East Broadway
Butte, MT 59701

February 23, 2010



MONTANA AIR QUALITY PERMIT

Issued To: NorthWestern Energy
40 East Broadway
Butte, MT 59701

MAQP #2428-11
Administrative Amendment (AA) Request
Received: 1/15/2010
Department Decision on AA: 2/5/2010
Permit Final: 2/23/2010
AFS# 035-0004

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to NorthWestern Energy (NWE), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

The NWE natural gas compressor station is located approximately 4.5 miles southeast of Cut Bank in the South ½ of Section 22, Township 33 North, Range 5 West in Glacier County, Montana. The compressor station is referred to as Mainline #1. A listing of the permitted equipment is contained in Section I.A. of the permit analysis.

B. Current Permit Action

On January 15, 2010, the Department of Environmental Quality – Air Resources Management Bureau (Department) received a letter from NWE, in conjunction with Bison Engineering Inc., requesting that the applicant-accepted permit conditions for the Silver Bow Generation Project and associated pipeline construction activities, located in Section II Limitations and Conditions, D.1 through D.15 of MAQP #2428-10, be removed. Through the Montana Environmental Policy Act (MEPA) process, the applicant proposed mitigation measures, and conditions were accepted on March 12, 2002. The Department incorporated a portion of those mitigation measures in the MAQP for Mainline #1.

In reviewing NWE's request to remove these conditions, the following information was evaluated by the Department:

- The MAQP for the Continental Energy Services, Inc. - Silver Bow Generation Plant, MAQP #3165 (last issued as MAQP #3165-02), was revoked on December 18, 2007. Continental Energy Services, Inc., or any other entity, would be required to obtain a MAQP to construct a similar facility.
- The Natural Gas Pipeline to support the generation project was never installed. In addition, depending on the size of the pipeline, a similar pipeline may be subject to the permitting requirements under the Major Facility Siting Act (ARM 17, Chapter 20).
- On April 11, 2005, the Department received notice from NWE that the 2,370 horsepower (hp) compressor engine permitted in MAQP #2428-07, required for the additional compression needed for the Silver Bow Generation Project, was not going to be installed. Upon NWE's request, the Department removed that compressor engine from the permit in MAQP #2428-09. NWE, or any other entity, would be required to obtain a MAQP to install a similar compressor engine.

- If NWE or any other entity were to re-propose construction or installation of any of the above-described facilities or equipment in the future, applicable MEPA requirements would be required to be met at that time.

In consideration of the information above, the Department grants NWE’s request to remove these requirements. This action removes these conditions as an administrative amendment pursuant to ARM 17.8.764(1)(b) – “changes in operation that do not result in an increase in emissions.”

Section II: Limitations and Conditions

A. Operational Requirements

1. Emissions from each of the three 660-hp Ingersoll-Rand compressor engines shall not exceed the following (ARM 17.8.752):

Oxides of Nitrogen (NO _x):	2.91 pounds/hour (lb/hr)
Carbon Monoxide (CO):	4.37 lb/hr
Volatile Organic Compounds (VOC):	1.09 lb/hr

2. Emissions from each of the four 1100-hp Cooper-Superior compressor engines shall not exceed the following (ARM 17.8.752):

NO _x :	4.85 lb/hr
CO:	7.28 lb/hr
VOC:	1.82 lb/hr

3. Emissions from each of the two 2000-hp Cooper-Superior Lean Burn compressor engines shall not exceed the following (ARM 17.8.752):

NO _x :	6.61 lb/hr
CO:	7.05 lb/hr
VOC:	2.65 lb/hr

4. The combined total hours of operation of the three 660-hp Ingersoll-Rand compressor engines shall be limited to a maximum of 24,495 hours during any rolling 12-month period (ARM 17.8.749).
5. The total hours of operation of the auxiliary generator shall be limited to a maximum of 720 hours during any rolling 12-month period (ARM 17.8.749).
6. NWE shall operate and maintain catalytic DeNO_x silencers on the three 660-hp Ingersoll-Rand compressor engines (ARM 17.8.749).
7. NWE shall not cause or authorize emissions to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
8. NWE shall treat all unpaved portions of the access roads, parking lots, and general plant area with fresh water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.7 (ARM 17.8.749).
9. NWE shall comply with all applicable standards and limitations, and the reporting,

recordkeeping, and notification requirements contained in 40 CFR 60.630, Subpart KKK, as it applies to equipment leaks of VOC from onshore natural gas processing plants (ARM 17.8.340 and 40 CFR 60, Subpart KKK).

10. NWE shall not incinerate any material other than oil soaked rags, oil adsorbents, and filters in the Smart Ash Burner (ARM 17.8.749).

B. Emission Testing Requirements

1. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. NWE 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. NWE shall document, by month, the hours of operation for each of the three 660-hp Ingersoll-Rand compressor engines. By the 25th day of each month, NWE shall total the hours of operation of the three 660-hp Ingersoll-Rand compressor engines during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.4. The information for each of the previous months shall be submitted along with the annual emissions inventory (ARM 17.8.749).
3. NWE shall document, by month, the hours of operation for each of the auxiliary generator. By the 25th day of each month, NWE shall total the hours of operation of the auxiliary generator during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.5. The information for each of the previous months shall be submitted along with the annual emissions inventory (ARM 17.8.749).
4. NWE 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 emission unit*, a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. 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 NWE 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 - NWE 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 (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if NWE fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving NWE of the responsibility for complying with any applicable federal or Montana statute, rule or standard except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.
- F. Permit Inspection - As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Permit Fee - Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by NWE 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
NorthWestern Energy
Mainline #1 Compressor Station
MAQP #2428-11

I. Introduction/Process Description

NorthWestern Energy (NWE) operates a compressor station and associated equipment, located in the South ½ of Section 22, Township 33 North, Range 5 West in Glacier County near Cut Bank, Montana, known as Mainline #1.

A. Permitted Equipment and Facilities

This facility consists of the following equipment:

1. Three 660-horsepower (hp) Ingersoll-Rand compressor engines (installed pre-1968) with catalytic converters on the engine exhaust (to be installed by July 31, 1992).
2. Four 1100-hp Cooper-Superior compressor engines, model number 8GTLB (installed 1989).
3. Two 2000-hp Cooper-Superior compressor engines, model number 12SGTB (installed 1998).
4. Flare with igniter and monitor for emergency purposes (igniter and monitor to be installed by July 31, 1992).
5. One Smart Ash Burner, model number 100.
6. Building and process heaters including:
 - a. Process gas plant heater
 - b. Compressor heater #1
 - c. Fuel gas heater
 - d. Dehydrator reboiler
 - e. Superior compressor building heater

B. Source Description

NWE provides pressure to the natural gas transmission system, which distributes it to markets in western Montana. In addition, the facility separates water, propane, butane, and gasoline from the incoming field gas before compressing it into the pipeline system. The primary equipment at the facility consists of three 660-hp Ingersoll-Rand compressor engines installed prior to 1968, four 1100-hp Cooper-Superior compressor engines installed in 1989, two 2000-hp Cooper-Superior compressor engines installed in 1998, a 600-hp engine driving a 400-kW generator, a process heater for gas plant #1, a compressor building heater #1, a fuel gas heater, and a glycol dehydrator reboiler. In 1992, NWE also installed DeNO_x catalytic converters to the three 660-hp Ingersoll-Rand compressor engines.

C. Permit History

On March 23, 1988, **MAQP #2428** was approved for Montana Power - Mainline #1 to operate six natural gas compressor engines at the Cut Bank liquid plant. On December 21, 1990, MAQP #2428 was altered for the facility to undergo a Prevention of Significant Deterioration (PSD) review. **MAQP #2428A** replaced MAQP #2428.

On July 18, 1991, Montana Power - Mainline #1 received an alteration to MAQP #2428A. The alteration allowed Montana Power - Mainline #1 to add three 1100-hp compressor engines to the facility. Offsets for control of existing emissions were calculated as part of the permit alteration. **MAQP #2428B** replaced MAQP #2428A.

In November 1991, Montana Power - Mainline #1 applied for a permit modification to delete the three 1100-hp compressor engines previously proposed and extend the time frame for installing the catalytic converters on the 660-hp Ingersoll-Rand compressor engines. **MAQP #2428-03** replaced MAQP #2428B.

On February 22, 1998, Montana Power - Mainline #1 received a modification to MAQP #2428-03. Montana Power - Mainline #1 requested that the total hours of operation of the three 660-hp Ingersoll-Rand compressor engines be limited to 24,495 hours per year and that emissions from minor combustion sources be added to the emission inventory. Montana Power also requested that the auxiliary electrical generator powered by a diesel-fired engine be limited to 720 hours of operation per year. The limitations on the compressor engines and the auxiliary generator ensured that the facility's Potential to Emit (PTE) would remain below 250 tons per year of any pollutant so that Montana Power - Mainline #1 would not be defined as a major source under the New Source Review (NSR) program. **MAQP #2428-04** replaced MAQP #2428-03.

On April 3, 1998, Montana Power - Mainline #1 received an alteration to MAQP #2428-04 to remove two existing 1100-hp Cooper-Superior compressor engines and replace them with two 2000-hp Cooper-Superior engines. Montana Power - Mainline #1 also requested that the Smart Ash Burner, used to incinerate oily rags, be included in the permit alteration. The Montana Power - Mainline #1 facility is not a major source because it is not listed and does not have the potential to emit more than 250 tons per year (excluding fugitive emissions) of any air pollutant. The permit alteration revised the emission limitation units from gram per brake horsepower-hour (g/Bhp-hr) to pound per hour (lb/hr). The hourly emission limitation allowed for operational flexibility. **MAQP #2428-05** replaced MAQP #2428-04.

On February 15, 2001, Montana Power - Mainline #1 received a modification for MAQP #2428-05 to remove testing requirements for the following equipment:

- Unit #022-1 – 660-hp Ingersoll-Rand compressor engine
- Unit #022-2 – 660-hp Ingersoll-Rand compressor engine
- Unit #022-3 – 660-hp Ingersoll-Rand compressor engine
- Unit #022-4 - 1,100-hp Cooper Superior compressor engine
- Unit #022-5 - 2,000-hp Cooper Superior compressor engine
- Unit #022-6 - 1,100-hp Cooper Superior compressor engine
- Unit #022-7 - 1,100-hp Cooper Superior compressor engine
- Unit #022-8 - 2,000-hp Cooper Superior compressor engine
- Unit #022-9 - 1,100-hp Cooper Superior compressor engine

Because Montana Power-Main Line #1 had a final Title V Permit (#OP2428-00) that

required a minimum of semi-annual emission testing for the above described compressor engines, testing requirements of every 4 years were removed from MAQP #2428-05. Emission limitations for the compressor engines as provided in Section II.A of the permit remained applicable. **MAQP #2428-06** replaced MAQP #2428-05.

On August 10, 2001, the Department of Environmental Quality (Department) received a request from Montana Power - Mainline #1 to alter MAQP #2428-06 for the addition of a 2,370-hp Caterpillar Compressor Engine. On October 24, 2001, the application was deemed complete upon submittal of additional information by Montana Power - Mainline #1. The current permit action adds the new compressor engine to the permit. The current permit action does not trigger the NSR program because the potential emissions from the current permit action are less than the NSR threshold level of 250 tons per year. However, the next permit action at this facility with potential emissions above PSD significance levels may trigger the NSR program. **MAQP #2428-07** replaces MAQP #2428-06.

Through the Montana Environmental Policy Act (MEPA) process the applicant proposed mitigation measures, specifically relating to mitigating impacts from a pipeline proposed as a part of the Silver Bow Generation facility (originally permitted under MAQP #3165-00). The Department incorporated a portion of those mitigation measures in this permitting action. The conditions pertaining to the mitigation measures were included in Section II.E of the permit and were intended to remain in the permit for the lifetime of the facility.

November 23, 2001, Montana Power Company (MPC) notified the Department of a pending merger of MPC with and into Montana Power, L.C.C. (MPC LCC). Due to questions regarding the length of time the new company name would be valid, the Department decided to wait on the name change for the permit. On October 18, 2002, the Department received a request to change the permit from MPC LLC to NorthWestern Corporation. The permit action changed the name on this permit from Montana Power Company - Mainline #1 to Northwestern Corporation - Mainline #1. **MAQP #2428-08** replaced MAQP #2428-07.

On April 11, 2005, the Department received an e-mail from NorthWestern Corporation. NorthWestern Corporation notified the Department that the 2,370-hp Caterpillar compressor engine will not be installed at the NorthWestern Corporation - Mainline #1 compressor station. The permit action removed the 2,370-hp Caterpillar compressor engine and updated the permit to reflect current permit language and rule references used by the Department on MAQP #2428-08. **MAQP #2428-09** replaced MAQP #2428-08.

On February 7, 2008, the Department received a request from NWE to change the name on MAQP #2783-07 from NorthWestern Corporation – Mainline #1 to NWE – Mainline #1. The permit action incorporated the requested name change as well as updated the permit format and language to reflect the Department’s current permit format and language. **MAQP #2428-10** replaced MAQP #2428-09.

D. Current Permit Action

On January 15, 2010, the Department of Environmental Quality – Air Resources Management Bureau (Department) received a letter from NWE, in conjunction with Bison Engineering Inc., requesting that the applicant-accepted permit conditions for the Silver Bow Generation Project and associated pipeline construction activities, located in Section II Limitations and Conditions, D.1 through D.15 of MAQP #2428-10, be removed. Through the Montana Environmental Policy Act (MEPA) process, the applicant proposed mitigation measures, and conditions were accepted on March 12, 2002. The Department incorporated a portion of those mitigation measures in the MAQP for Mainline #1.

In reviewing NWE's request to remove these conditions, the following information was evaluated by the Department:

- The MAQP for the Continental Energy Services, Inc. - Silver Bow Generation Plant, MAQP #3165 (last issued as MAQP #3165-02), was revoked on December 18, 2007. Continental Energy Services, Inc., or any other entity, would be required to obtain a MAQP to construct a similar facility.
- The Natural Gas Pipeline to support the generation project was never installed. In addition, depending on the size of the pipeline, a similar pipeline may be subject to the permitting requirements under the Major Facility Siting Act (ARM 17, Chapter 20).
- On April 11, 2005, the Department received notice from NWE that the 2,370 horsepower (hp) compressor engine permitted in MAQP #2428-07, required for the additional compression needed for the Silver Bow Generation Project, was not going to be installed. Upon NWE's request, the Department removed that compressor engine from the permit in MAQP #2428-09. NWE, or any other entity, would be required to obtain a MAQP to install a similar compressor engine.
- If NWE or any other entity were to re-propose construction or installation of any of the above-described facilities or equipment in the future, applicable MEPA requirements would be required to be met at that time.

In consideration of the information above, the Department grants NWE's request to remove these requirements. This action removes these conditions as an administrative amendment pursuant to ARM 17.8.764(1)(b) – “changes in operation that do not result in an increase in emissions.” **MAQP #2428-11** replaces MAQP #2428-10.

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 permit 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 the location of any applicable rule or regulation and provide copies where appropriate.

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

1. 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.

2. 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).

NWE shall comply with all 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.

3. 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.
4. 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 in 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 that a public nuisance is created.

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

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

NWE 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. (1) This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes. (2) This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of 20 % for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate. (2) Under this rule, NWE 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 fourth in this rule.
5. ARM 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used. Further, no person shall cause or authorize to be discharged into the outdoor atmosphere, from any incinerator emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes.
6. ARM 17.8.340 New Source Performance Standards. The owner or operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the standards and provisions of 40 CFR Part 60. 40 CFR 60, Subpart A, General Provisions, and 40 CFR 60 Subpart KKK, Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants, is applicable to this facility.
7. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. A major Hazardous Air Pollutant (HAP) source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as applicable.

Based on the information submitted by NWE, the facility is not subject to the provisions of 40 CFR 63 Subparts HHH and ZZZZ, because the facility is not a major source of HAPs. NWE is, however, considered an area source of HAPs. Regarding 40 CFR 63, Subpart HH, for area sources, the affected source includes each triethylene glycol dehydration unit. Because NWE's glycol dehydration unit emits less than 1 ton per year (TPY) of benzene, however, it is exempt from the control requirements listed in 40 CFR 63, Subpart HH. Furthermore, the dehydration unit is an ethylene glycol unit, not a triethylene glycol unit.

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

1. ARM 17.8.504 Air Quality Permit Application Fees. NWE shall submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. NWE was not required to submit a fee because the current permitting action was administrative.
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. This 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 pro-rate the required fee amount.

- E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:
1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
 2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the PTE greater than 25 tons per year of any pollutant. NWE – Mainline #1 has the potential to emit more than 25 tons per year of NO_x, CO, and VOC; therefore, an MAQP is required for this facility.
 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. NorthWestern Energy – Mainline #1 was not required to submit a permit application for the current permitting action because it is considered an administrative action. (7) This rule requires that NorthWestern Energy – Mainline #1 notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. An affidavit of publication was not required for this permitting action because this permit change is considered an administrative action.
 6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
 7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
 8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
 9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in

the permit shall be construed as relieving NorthWestern Energy – Mainline #1 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, Montana Code Annotated (MCA).
- F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:
1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
 2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--

Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 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 Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

No increase in emissions was associated with this action; therefore, the facility was not subject to the NSR program for this permit action. However, the next permit action at this facility with potential emissions above PSD significance levels may trigger the NSR program.

- G. ARM 17.8, Subchapter 12 - Operating Permit Program Applicability, including, but not limited to:
1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tons/year of PM₁₀ in a serious PM₁₀ nonattainment area.
 2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #2428-11 for NWE, the following conclusions were made:
 - a. The facility's PTE is >100 tons/year for NO_x, CO, and VOC;
 - b. The facility's PTE is < 10 tons/year for any one HAP and < 25 tons/year of all HAPs;
 - c. This source is not located in a serious PM₁₀ nonattainment area;
 - d. This facility is subject to a current NSPS (40 CFR 60, Subpart KKK);
 - e. This facility is not subject to a current NESHAP standard
 - f. This source is not a Title IV affected source nor a solid waste combustion unit; and
 - g. This source is not an EPA designated Title V Source.

Based on these conclusions, the Department determined that NWE is a major source of emissions as defined under Title V. This administrative action will also be reflected in the Title V permit.

H. MCA 75-2-103, Definitions, provides in part as follows:

1. "Incinerator" means any single or multiple-chambered combustion device that burns combustible material, alone or with a supplemental fuel or catalytic combustion assistance, primarily for the purpose of removal, destruction, disposal, or volume reduction of all or any portion of the input material.
2. "Solid waste" means all putrescible and nonputrescible solid, semisolid, liquid, or gaseous wastes including but not limited to...air pollution control facilities...

I. MCA 75-2-215, Solid or hazardous waste incineration - additional permit requirements:

1. MCA 75-2-215 requires air quality permits for all new commercial solid waste incinerators. NWE has incorporated the Smart Ash Burner into their air quality permit.
2. MCA 75-2-215 requires the applicant to provide, to the Department's satisfaction, a characterization and estimate of emissions and ambient concentrations of air pollutants, including HAPs, from the incineration of solid waste. The Department determined that the information submitted in Application #2428-05 fulfilled this requirement for the Smart Ash Burner.
3. MCA 75-2-215 requires that the Department reach a determination that the projected emissions and ambient concentrations constitute a negligible risk to public health, safety and welfare. Bison Engineering, Inc. (Bison) submitted a health risk assessment on behalf of NWE for the Smart Ash Burner. Based on the results of the emission inventory, modeling, and the health risk assessment submitted by Bison, the Department determined that NWE's Smart Ash Burner complied with this requirement.
4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed BACT. The Department determined that the Smart Ash Burner constituted BACT, with no additional "add-on" technology.

III. BACT Determination

A BACT determination is required for each new or modified source. NWE shall install on the new or modified source the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. A BACT analysis was not required for the current permit action because the permit action is considered administrative and no new or modified sources are being added.

IV. Emission Inventory

Source	Equipment Description	Emissions in (tons/year)				
		PM ₁₀	NO _x	CO	VOC	SO _x
#1	660-hp Ingersoll-Rand Compressor Engine	0.23	11.88	17.82	4.46	0.01
#2	660-hp Ingersoll-Rand Compressor Engine	0.23	11.88	17.82	4.46	0.01
#3	660-hp Ingersoll-Rand Compressor Engine	0.23	11.88	17.82	4.46	0.01
#4	1100-hp Cooper-Superior Compressor Engine	0.35	21.25	31.87	7.97	0.04
#5	2000-hp Cooper-Superior Compressor Engine	0.63	28.97	30.91	11.59	0.04
#6	1100-hp Cooper-Superior Compressor Engine	0.35	21.25	31.87	7.97	0.04
#7	1100-hp Cooper-Superior Compressor Engine	0.35	21.25	31.87	7.97	0.04

#8	2000-hp Cooper-Superior Compressor Engine	0.63	28.97	30.91	11.59	0.04
#9	1100-hp Cooper-Superior Compressor Engine	0.35	21.25	31.87	7.97	0.04
#10	Process Gas Plant Heater (Volcano)	0.22	1.84	0.39	0.20	0.01
#11	All Building Heaters. Total Capacity not to exceed 8 MMBtu/hr	0.42	3.50	0.74	0.39	0.02
#12	Glycol Dehydrator Unit	---	---	---	17.98	---
#13	Fuel Gas Heater	0.01	0.06	0.03	0.01	0.00
#14	Auxiliary Generator	0.43	5.97	1.29	0.48	0.40
#15	Emergency Shutdown Flare	0.00	0.01	0.00	0.00	0.00
#16	Propane Truck Venting	---	---	---	2.55	---
#17	Process Valves, Non-NSPS	---	---	---	0.04	---
#18	Process Valves, NSPS	---	---	---	0.04	---
#19	Gas Blow Down	---	---	---	0.73	---
#20	Road Dust	19.22	---	---	---	---
#21	Natural Gasoline Storage Tank Vent	---	---	---	5.17	---
#22	Smart Ash Burner – 100	0.03	0.33	0.04	0.00	0.97
Total		23.68	190.29	245.25	96.03	1.67

(SOURCE #01)

660-hp Ingersoll-Rand Compressor Engine

Brake Horsepower: 660 Bhp
Hours of Operation: 8,165 hr/yr
Max Fuel Combustion Rate: 0.0085 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (2-02-002-02, AFSSCC page 32)
Calculations: 10.00 lb/MMScf * 0.001 MMScf/MMBtu * 0.0085 MMBtu/Bhp-hr * 660 Bhp = 0.06 lb/hr
0.06 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 0.23 ton/yr

NO_x Emissions

Emission Factor: 2.00 gram/Bhp-hr (Manufacturers Design)
Calculations: 2.00 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 2.91 lb/hr
2.91 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 11.88 ton/yr

CO Emissions

Emission Factor: 3.00 gram/Bhp-hr (Manufacturers Design)
Calculations: 3.00 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 4.37 lb/hr
4.37 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 17.82 ton/yr

VOC Emissions

Emission Factor: 0.75 gram/Bhp-hr (Manufacturers Design)
Calculations: 0.75 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 1.09 lb/hr
1.09 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 4.46 ton/yr

SO_x Emissions

Emission Factor: 0.002 gram/Bhp-hr (Airs 2-02-002-02, 3/90)
Calculations: 0.002 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 0.00 lb/hr
0.003 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

(SOURCE #02)

660-hp Ingersoll-Rand Compressor Engine

Brake Horsepower: 660 Bhp
Hours of Operation: 8,165 hr/yr
Max Fuel Combustion Rate: 0.0085 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (2-02-002-02, AFSSCC page 32)
Calculations: 10.00 lb/MMScf * 0.001 MMScf/MMBtu * 0.0085 MMBtu/Bhp-hr * 660 Bhp = 0.06 lb/hr
0.06 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 0.23 ton/yr

NO_x Emissions

Emission Factor: 2.00 gram/Bhp-hr (Manufacturers Design)
Calculations: 2.00 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 2.91 lb/hr
2.91 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 11.88 ton/yr

CO Emissions

Emission Factor: 3.00 gram/Bhp-hr (Manufacturers Design)
Calculations: 3.00 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 4.37 lb/hr
4.37 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 17.82 ton/yr

VOC Emissions

Emission Factor: 0.75 gram/Bhp-hr (Manufacturers Design)
Calculations: 0.75 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 1.09 lb/hr
1.09 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 4.46 ton/yr

SO_x Emissions

Emission Factor: 0.002 gram/Bhp-hr (Airs 2-02-002-02, 3/90)
Calculations: 0.002 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 0.003 lb/hr
0.003 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

(SOURCE #03)

660 hp Ingersoll-Rand Compressor Engine

Brake Horsepower: 660 Bhp
Hours of Operation: 8,165 hr/yr
Max Fuel Combustion Rate: 0.0085 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (2-02-002-02, AFSSCC page 32)
Calculations: 10.00 lb/MMScf * 0.001 MMScf/MMBtu * 0.0085 MMBtu/Bhp-hr * 660 Bhp = 0.06 lb/hr
0.06 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 0.23 ton/yr

NO_x Emissions

Emission Factor: 2.00 gram/Bhp-hr (Manufacturers Design)
Calculations: 2.00 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 2.91 lb/hr
2.91 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 11.88 ton/yr

CO Emissions

Emission Factor: 3.00 gram/Bhp-hr (Manufacturers Design)
Calculations: 3.00 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 4.37 lb/hr
4.37 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 17.82 ton/yr

VOC Emissions

Emission Factor: 0.75 gram/Bhp-hr (Manufacturers Design)
Calculations: 0.75 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 1.09 lb/hr
1.09 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 4.46 ton/yr

SO_x Emissions

Emission Factor: 0.002 gram/Bhp-hr (Airs 2-02-002-02, 3/90)
Calculations: 0.002 gram/Bhp-hr * 660 Bhp * 0.002205 lb/gram = 0.003 lb/hr
0.003 lb/hr * 8165 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

(SOURCE #04)

1100-hp Cooper-Superior Compressor Engine

Brake Horsepower: 1,100 Bhp
Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 0.0072 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (2-02-002-02, AFSSCC page 32)
Calculations: $10.00 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 0.0072 \text{ MMBtu/Bhp-hr} * 1100 \text{ Bhp} = 0.08 \text{ lb/hr}$
 $0.08 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.35 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 2.00 gram/Bhp-hr (Manufacturers Design)
Calculations: $2.00 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 4.85 \text{ lb/hr}$
 $4.85 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 21.25 \text{ ton/yr}$

CO Emissions

Emission Factor: 3.00 gram/Bhp-hr (Manufacturers Design)
Calculations: $3.00 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 7.28 \text{ lb/hr}$
 $7.28 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 31.87 \text{ ton/yr}$

VOC Emissions

Emission Factor: 0.75 gram/Bhp-hr (Manufacturers Design)
Calculations: $0.75 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 1.82 \text{ lb/hr}$
 $1.82 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 7.97 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.004 gram/Bhp-hr (Airs 2-02-002-02, 3/90)
Calculations: $0.004 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 0.01 \text{ lb/hr}$
 $0.01 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.04 \text{ ton/yr}$

(SOURCE #05)

2000-hp Cooper-Superior Compressor Engine

Brake Horsepower: 2,000 Bhp
Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 0.00715 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (Airs 2-02-002-02, 3/90)
Calculations: $10.00 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 0.00715 \text{ MMBtu/Bhp-hr} * 2000 \text{ Bhp} = 0.14 \text{ lb/hr}$
 $0.14 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.63 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 1.50 gram/Bhp-hr (Manufacture)
Calculations: $1.50 \text{ gram/Bhp-hr} * 2000 \text{ Bhp} * 0.002205 \text{ lb/gram} = 6.62 \text{ lb/hr}$
 $6.62 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 28.97 \text{ ton/yr}$

CO Emissions

Emission Factor: 1.60 gram/Bhp-hr (Manufacture)
Calculations: $1.60 \text{ gram/Bhp-hr} * 2000 \text{ Bhp} * 0.002205 \text{ lb/gram} = 7.06 \text{ lb/hr}$
 $7.06 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 30.91 \text{ ton/yr}$

VOC Emissions

Emission Factor: 0.60 gram/Bhp-hr (Manufacture)
Calculations: $0.60 \text{ gram/Bhp-hr} * 2000 \text{ Bhp} * 0.002205 \text{ lb/gram} = 2.65 \text{ lb/hr}$
 $2.65 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 11.59 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.60 lb/MMScf (Airs 2-02-002-02, 3/90)

Calculations: $0.60 \text{ lb/MMScf} * 2000 \text{ Bhp} * 0.0010 \text{ MMScf/MMBtu} * 0.00715 \text{ MMBtu/Bhp-hr} = 0.01 \text{ lb/hr}$
 $0.01 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.04 \text{ ton/yr}$

(SOURCE #06)

1100-hp Cooper-Superior Compressor Engine

Brake Horsepower: 2000 Bhp
Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 0.00715 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (Airs 2-02-002-02, 3/90)
Calculations: $10.00 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 0.0072 \text{ MMBtu/Bhp-hr} * 1100 \text{ Bhp} = 0.08 \text{ lb/hr}$
 $0.08 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.35 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 2.00 gram/Bhp-hr (Manufacture)
Calculations: $2.00 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 4.85 \text{ lb/hr}$
 $4.85 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 21.25 \text{ ton/yr}$

CO Emissions

Emission Factor: 3.00 gram/Bhp-hr (Manufacture)
Calculations: $3.00 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 7.28 \text{ lb/hr}$
 $7.28 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 31.87 \text{ ton/yr}$

VOC Emissions

Emission Factor: 0.75 gram/Bhp-hr (Manufacture)
Calculations: $0.75 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 1.82 \text{ lb/hr}$
 $1.82 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 7.97 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.004 gram/Bhp-hr (Airs 2-02-002-02, 3/90)
Calculations: $0.004 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 0.01 \text{ lb/hr}$
 $0.01 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.04 \text{ ton/yr}$

(SOURCE #07)

1100-hp Cooper-Superior Compressor Engine

Brake Horsepower: 1,100 Bhp
Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 0.0072 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (2-02-002-02, AFSSCC page 32)
Calculations: $10.0 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 0.0072 \text{ MMBtu/Bhp-hr} * 1100 \text{ Bhp} = 0.08 \text{ lb/hr}$
 $0.08 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.35 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 2.00 gram/Bhp-hr (Manufacturers Design)
Calculations: $2.00 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 4.85 \text{ lb/hr}$
 $4.85 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 21.25 \text{ ton/yr}$

CO Emissions

Emission Factor: 3.00 gram/Bhp-hr (Manufacturers Design)
Calculations: $3.00 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 7.28 \text{ lb/hr}$
 $7.28 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 31.87 \text{ ton/yr}$

VOC Emissions

Emission Factor: 0.75 gram/Bhp-hr (Manufacturers Design)
Calculations: $0.75 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 1.82 \text{ lb/hr}$

$$1.82 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 7.97 \text{ ton/yr}$$

SO_x Emissions

Emission Factor: 0.004 gram/Bhp-hr (Airs 2-02-002-02, 3/90)
Calculations: 0.004 gram/Bhp-hr * 1100 Bhp * 0.002205 lb/gram = 0.01 lb/hr
0.01 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.04 ton/yr

(SOURCE #08)

2000-hp Cooper-Superior Compressor Engine

Brake Horsepower: 2,000 Bhp
Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 0.00715 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (Airs 2-02-002-02, 3/90)
Calculations: 10.00 lb/MMScf * 0.001 MMScf/MMBtu * 0.00715 MMBtu/Bhp-hr * 2000 Bhp = 0.14 lb/hr
0.14 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.63 ton/yr

NO_x Emissions

Emission Factor: 1.50 gram/Bhp-hr (Manufacture)
Calculations: 1.50 gram/Bhp-hr * 2000 Bhp * 0.002205 lb/gram = 6.62 lb/hr
6.62 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 28.97 ton/yr

CO Emissions

Emission Factor: 1.60 gram/Bhp-hr (Manufacture)
Calculations: 1.60 gram/Bhp-hr * 2000 Bhp * 0.002205 lb/gram = 7.06 lb/hr
7.06 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 30.91 ton/yr

VOC Emissions

Emission Factor: 0.60 gram/Bhp-hr (Manufacture)
Calculations: 0.60 gram/Bhp-hr * 2000 Bhp * 0.002205 lb/gram = 2.65 lb/hr
2.65 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 11.59 ton/yr

SO_x Emissions

Emission Factor: 0.60 lb/MMScf (Airs 2-02-002-02, 3/90)
Calculations: 0.60 lb/MMScf * 2000 Bhp * 0.0010 MMScf/MMBtu * 0.00715 MMBtu/Bhp-hr = 0.01 lb/hr
0.01 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.04 ton/yr

(SOURCE #09)

1100-hp Cooper-Superior Compressor Engine

Brake Horsepower: 1,100 Bhp
Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 0.0072 MMBtu/Bhp-hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 10.00 lb/MMScf (2-02-002-02, AFSSCC page 32)
Calculations: 10.00 lb/MMScf * 0.001 MMScf/MMBtu * 0.0072 MMBtu/Bhp-hr * 1100 Bhp = 0.08 lb/hr
0.08 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.35 ton/yr

NO_x Emissions

Emission Factor: 2.00 gram/Bhp-hr (Manufacturers Design)
Calculations: 2.00 gram/Bhp-hr * 1100 Bhp * 0.002205 lb/gram = 4.85 lb/hr
4.85 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 21.25 ton/yr

CO Emissions

Emission Factor: 3.00 gram/Bhp-hr (Manufacturers Design)
Calculations: 3.00 gram/Bhp-hr * 1100 Bhp * 0.002205 lb/gram = 7.28 lb/hr
7.28 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 31.87 ton/yr

VOC Emissions

Emission Factor: 0.75 gram/Bhp-hr (Manufacturers Design)
Calculations: $0.75 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 1.82 \text{ lb/hr}$
 $1.82 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 7.97 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.004 gram/Bhp-hr (Airs 2-02-002-02, 3/90)
Calculations: $0.004 \text{ gram/Bhp-hr} * 1100 \text{ Bhp} * 0.002205 \text{ lb/gram} = 0.01 \text{ lb/hr}$
 $0.01 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.04 \text{ ton/yr}$

(SOURCE #10)

Process Gas Plant Heater (Volcano)

Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 4.2000 MMBtu/hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 12.00 lb/MMScf (AP-42, Table 1.4-1)
Calculations: $12.0 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 4.2000 \text{ MMBtu/hr} = 0.05 \text{ lb/hr}$
 $0.05 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.22 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 100.00 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $100.00 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 4.2 \text{ MMBtu/hr} = 0.42 \text{ lb/hr}$
 $0.42 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 1.84 \text{ ton/yr}$

CO Emissions

Emission Factor: 21.00 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $21.00 \text{ lb/MMScf} * 4.2 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.09 \text{ lb/hr}$
 $0.09 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.39 \text{ ton/yr}$

VOC Emissions

Emission Factor: 11.00 lb/MMScf (AP-42, Table 1.4-3)
Calculations: $11.00 \text{ lb/MMScf} * 4.2 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.05 \text{ lb/hr}$
 $0.05 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.20 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.600 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $0.600 \text{ lb/MMScf} * 4.2 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.003 \text{ lb/hr}$
 $0.003 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.01 \text{ ton/yr}$

(SOURCE #11)

All Building Heaters

Total Capacity not to Exceed 8.00 MMBtu/hr
Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 8.0000 MMBtu/hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 12.00 lb/MMScf (AP-42, Table 1.4-1)
Calculations: $12.00 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 8.0000 \text{ MMBtu/hr} = 0.10 \text{ lb/hr}$
 $0.10 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.42 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 100.00 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $100.00 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 8.0 \text{ MMBtu/hr} = 0.80 \text{ lb/hr}$
 $0.80 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 3.50 \text{ ton/yr}$

CO Emissions

Emission Factor: 21.00 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $21.00 \text{ lb/MMScf} * 8.0 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.17 \text{ lb/hr}$
 $0.17 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.74 \text{ ton/yr}$

VOC Emissions

Emission Factor: 11.00lb/MMScf (AP-42, Table 1.4-3)
Calculations: $11.00 \text{ lb/MMScf} * 8.0 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.09 \text{ lb/hr}$
 $0.09 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.39 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.600 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $0.600 \text{ lb/MMScf} * 8.0 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.005 \text{ lb/hr}$
 $0.005 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.02 \text{ ton/yr}$

(SOURCE #12)

Glycol Dehydrator Unit

VOC emissions determined using GRI_GLYCalc program - From Title V Application

VOC Emissions

4.11 lb/hr or 17.98 ton/year

(SOURCE #13)

Fuel Gas Heater

Hours of Operation: 8,760 hr/yr
Max Fuel Combustion Rate: 0.1500 MMBtu/hr
Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 11.20 lb/MMScf (AP-42, Table 1.4-1)
Calculations: $11.20 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 0.1500 \text{ MMBtu/hr} = 0.0017 \text{ lb/hr}$
 $0.0017 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.01 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 94.00 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $94.00 \text{ lb/MMScf} * 0.001 \text{ MMScf/MMBtu} * 0.2 \text{ MMBtu/hr} = 0.01 \text{ lb/hr}$
 $0.01 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.06 \text{ ton/yr}$

CO Emissions

Emission Factor: 40.00 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $40.00 \text{ lb/MMScf} * 0.2 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.01 \text{ lb/hr}$
 $0.01 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.03 \text{ ton/yr}$

VOC Emissions

Emission Factor: 11.00 lb/MMScf (AP-42, Table 1.4-3)
Calculations: $11.00 \text{ lb/MMScf} * 0.2 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.002 \text{ lb/hr}$
 $0.002 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.01 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.600 lb/MMScf (AP-42, Table 1.4-2)
Calculations: $0.600 \text{ lb/MMScf} * 0.2 \text{ MMBtu/hr} * 0.001 \text{ MMScf/MMBtu} = 0.0002 \text{ lb/hr}$
 $0.0002 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.0005 \text{ ton/yr}$

(SOURCE #14)

Auxiliary Generator (diesel) – 600 hp engine driving 400 kW generator

Hours of Operation: 720 hr/yr
Heat Input: 4.2 MMBtu/hr
Maximum Heat Capacity: 0.007 mmbTU/Bhp-hr

Horsepower: 600 hp

PM-10 Emissions

Emission Factor: 0.0022 lb/hp-hr (AP-42, Table 3.3-1 (10/96))

Calculations: $0.0022 \text{ lb/hp-hr} * 600 \text{ hp} = 1.32 \text{ lb/hr}$
 $1.32 \text{ lb/hr} * 720 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.48 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 0.031 lb/hp-hr (AP-42, Table 3.3-1 (10/96))

Calculations: $0.031 \text{ lb/hp-hr} * 600 \text{ hp} = 18.6 \text{ lb/hr}$
 $18.6 \text{ lb/hr} * 720 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 6.70 \text{ ton/yr}$

CO Emissions

Emission Factor: 0.00668 lb/hp-hr (AP-42, Table 3.3-1 (10/96))

Calculations: $0.00668 \text{ lb/hp-hr} * 600 \text{ hp} = 4.008 \text{ lb/hr}$
 $4.008 \text{ lb/hr} * 720 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 1.44 \text{ ton/yr}$

VOC Emissions

Emission Factor: 0.00247 lb/hp-hr (AP-42, Table 3.3-1 (10/96))

Calculations: $0.00247 \text{ lb/hp-hr} * 600 \text{ hp} = 1.482 \text{ lb/hr}$
 $1.482 \text{ lb/hr} * 720 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.53 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.00205 lb/hp-hr (AP-42, Table 3.3-1 (10/96))

Calculations: $0.00205 \text{ lb/hp-hr} * 600 \text{ hp} = 1.23 \text{ lb/hr}$
 $1.23 \text{ lb/hr} * 720 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.44 \text{ ton/yr}$

(SOURCE #15)

Emergency Shutdown Flare

Hours of Operation: 8,760 hr/yr

Fuel Consumption 8.508e-06 MMScf/hr

Fuel Heating Value: 1,000 Btu/Scf or 0.0010 MMScf/MMBtu

PM-10 Emissions

Emission Factor: 13.70 lb/MMScf (AP-42, Table 1.4-1)

Calculations: $13.70 \text{ lb/MMScf} * 0.000008508 \text{ MMScf/hr} = 0.00012 \text{ lb/hr}$
 $0.00012 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.0005 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 140.00 lb/MMScf (AP-42, Table 1.4-2)

Calculations: $140.00 \text{ lb/MMScf} * 0.000008508 \text{ MMScf/hr} = 0.00119 \text{ lb/hr}$
 $0.00119 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.0052 \text{ ton/yr}$

CO Emissions

Emission Factor: 35.00 lb/MMScf (AP-42, Table 1.4-2)

Calculations: $35.00 \text{ lb/MMScf} * 0.000008508 \text{ MMScf/hr} = 0.00030 \text{ lb/hr}$
 $0.00030 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.0013 \text{ ton/yr}$

VOC Emissions

Emission Factor: 5.80 lb/MMScf (AP-42, Table 1.4-3)

Calculations: $5.80 \text{ lb/MMScf} * 0.000008508 \text{ MMScf/hr} = 0.00005 \text{ lb/hr}$
 $0.00005 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.0002 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.60 lb/MMScf (AP-42, Table 1.4-2)

Calculations: $0.60 \text{ lb/MMScf} * 0.000008508 \text{ MMScf/hr} = 0.00001 \text{ lb/hr}$
 $0.00001 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.00002 \text{ ton/yr}$

(SOURCE #16)

Propane Truck Venting

VOC Emissions

(From Title V Application)

0.5811 lb/hr or 2.55 ton/yr

(SOURCE #17)

Process Valves, Non-NSPS

Prod. Rate 20.00 MMCF/day

VOC Emissions

Emission Factor: 0.01 lb VOC/MMCF (From Title V Application)

Calculations: 0.01 lb VOC/MMCF * 20.0 MMCF/day * 1 day/24 hr = 0.0083 lb/hr

0.0083 lb/hr * 365 days/year * 0.0005 ton/lb * 24 hr/day = 0.04 ton/yr

(SOURCE #18)

Process Valves, NSPS

Prod. Rate 20.00 MMCF/day

VOC Emissions

Emission Factor: 0.01 lb VOC/MMCF (From Title V Application)

Calculations: 0.01 lb VOC/MMCF * 20.0 MMCF/day * 1 day/24 hr = 0.0083 lb/hr

0.0083 lb/hr * 365 days/year * 0.0005 ton/lb * 24 hr/day = 0.04 ton/yr

(SOURCE #19)

Gas Blow Down

Prod. Rate 200,000.0 cf/yr

VOC Emissions

Emission Factor: 0.0073 lb VOC/cf (From Title V Application)

Calculations: 0.0073 lb VOC/cf * 200000.0 cf/yr * 1 yr/365 days * 1 day/24 hr = 0.16 lb/hr

0.16 lb/hr * 365 days/year * 0.0005 ton/lb * 24 hr/day = 0.73 ton/yr

(SOURCE #20)

Road Dust

Vehicle miles traveled: 78 VMT/day

(Estimated - Unpaved travel listed on Title V Application.)

Control Efficiency is 0.5 (50%)

TSP Emissions:

Emission: 6.00 lb/VMT (TSP Emission Factor (Rated Load Capacity <50 tons))

Calculations: 6.00 lb/VMT * 78 VMT/day * 1 day/24 hr * 0.5 = 9.75 lb/hr

9.75 lb/hr * 0.0005 ton/lb * 365 day/yr * 24 hr/day = 42.71 ton/yr

PM-10 Emissions: (PM-10 Emission Factor is determined by AQD policy dated 4/25/94.)

Emission: 2.70 lb/VMT (PM10 Emission Factor (Rated Load Capacity <50 tons))

Calculation: 2.70 lb/VMT * 78 VMT/day * 1 day/24 hr * 0.5 = 4.38 lb/hr

4.38 lb/hr * 0.0005 ton/lb * 365 day/yr * 24 hr/day = 19.22 ton/yr

(SOURCE #21)

Natural Gasoline Storage Tank Vent

VOC emissions determined using the TANKS2 program. (From Title V Application)

VOC Emissions

1.180 lb/hr or 5.17 tons/year

(SOURCE #22)

Smart Ash Burner - 100

Specific weight oil = 7.208 lb/gal

Oil incinerated = 12153 gal/yr

Process rate = 10 lb/yr

Percent sulfur in oil = 2 %

Manufacture process rate is 50 lb/hr of material

Assume: 20% of the material is oil

PM-10 Emissions

Emission Factor: 1.20 lb/ton (Stack Test)
Calculations: $1.20 \text{ lb/ton} * 10 \text{ lb/hr} * 0.0005 \text{ tons/lb} = 0.006 \text{ lb/hr}$
 $0.006 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.0263 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 55.00 lb/1000 gal (AP-42, Table 1.3-1, 10/96)
Calculations: $55.00 \text{ lb/1000 gal} * 12153 \text{ gal/yr} * 1 \text{ yr}/8760 \text{ hr} = 0.0763 \text{ lb/hr}$
 $0.0763 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.3342 \text{ ton/yr}$

CO Emissions

Emission Factor: 1.64 lb/ton (Stack Test)
Calculations: $1.64 \text{ lb/ton} * 10 \text{ lb/hr} * 0.0005 \text{ tons/lb} = 0.0082 \text{ lb/hr}$
 $0.0082 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.0359 \text{ ton/yr}$

VOC Emissions

Emission Factor: 0.10 lb/1000 gal (AP-42, Table 1.3-1, 10/96)
Calculations: $0.10 \text{ lb/1000 gal} * 12153 \text{ gal/yr} * 1 \text{ yr}/8760 \text{ hr} = 0.00014 \text{ lb/hr}$
 $0.00014 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.00061 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 159.00 lb/1000 gal (AP-42, Table 1.3-1, 10/96)
Calculations: $159.00 \text{ lb/1000 gal} * 12153 \text{ gal/yr} * 1 \text{ yr}/8760 \text{ hr} = 0.22059 \text{ lb/hr}$
 $0.22059 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 0.96616 \text{ ton/yr}$

V. Existing Air Quality

The existing air quality of the Cut Bank area is expected to be in compliance with all state and federal requirements. Current sources in the area include the existing gas plant and the inactive Flying J Refinery.

VI. Ambient Air Impact Analysis

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

Air quality modeling was conducted for the NWE facility in 1991 (MAQP #2428B). The modeling was done to determine compliance with PSD increments and ambient air quality standards. The modeling results demonstrated that there were no significant impacts to the NO_x and CO PSD increments. The modeling also demonstrated that neither the National Ambient Air Quality Standards (NAAQS), nor the Montana Ambient Air Quality Standards (MAAQS) would be violated.

Modeling was also conducted for MAQP #2428-05. The modeling was done to determine the ambient annual concentration of HAPs resulting from the Smart Ash Burner. Upper air and surface air data from the National Weather Service for Great Falls (1991) were used to assist in determining the impacts. The modeling results satisfied the conditions of MCA 75-2-215 and ARM 17.8.706(5) (the predecessor to ARM 17.8.770). Further information can be found in MAQP Application #2428-05.

Air quality modeling was not required for the current permit action because the change reflects an administrative change.

VII. Taking or Damaging Implication Analysis

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

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VIII. Environmental Assessment

The permitting action is considered an administrative action; therefore, an environmental assessment is not required.

Permit Analysis Prepared By: Shawn Juers
Date: 01/29/2010