



Montana Department of
ENVIRONMENTAL **Q**UALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 Helena, MT 59620-0901 (406) 444-2544 Website: www.deq.mt.gov

April 11, 2014

Jerry Devose
Montana Air National Guard, 120 ALW
2800 Airport Avenue B
Great Falls, MT 59404-5570

Dear Mr. Devose:

Montana Air Quality Permit #2930-06 is deemed final as of April 11, 2014, by the Department of Environmental Quality (Department). This permit is for an Air National Guard 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,

Julie A. Merkel
Air Permitting Supervisor
Air Resources Management Bureau
(406) 444-3626

Ed Warner
Lead Engineer – Air Permitting Section
Air Resources Management Bureau
(406) 444-2467

JM:EW
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #2930-06

Montana Air National Guard, 120 ALW
2800 Airport Avenue B
Great Falls, MT 59404-5570

April 11, 2014



MONTANA AIR QUALITY PERMIT

Issued To: Montana Air National Guard
2800 Airport Avenue B
Great Falls, MT 59404-5570

MAQP: #2930-06
Administrative Amendment (AA)
Request Received: 02/27/2014
Department Decision on AA: 03/26/2014
Permit Final: 04/11/2014
AFS #013-0023

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Montana Air National Guard (MANG), pursuant to Sections 75-2-204 and 211, 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. Facility Location

The legal description of the MANG facility is in the Sections 16 and 21, Township 20 North, Range 3 East, Cascade County, Montana. The emissions at the MANG facility are primarily a result of fuel combustion in various boilers, heaters, emergency generators, a grit blasting operation, and the engine test cell. A complete list of permitted equipment is contained in the permit analysis.

B. Current Permit Action

On February 27, 2014, the Department of Environmental Quality – Air Resources Management Bureau (Department) received a request to administratively amend MAQP #2930 to change existing federally enforceable limits. MANG's mission is undergoing changes due to an aircraft conversion from the F-15 fighter aircraft to an airlift mission with the C-130 Hercules air frame. The C-130 aircraft are equipped with 4 turboprop engines and the change in engine test cell protocols for this different engine type requires a change in MAQP conditions to accommodate them. The proposed changes in power settings and allowable hours per year would result in an overall decrease in facility emissions. Therefore, in accordance with ARM 17.8.764(1)(b), the current permit action is an administrative permit action that updates the enforceable permit conditions regarding the engine test cell hours. Facility emissions would continue to remain below 80 tons per year (tpy) of any individual pollutant.

Section II: Conditions and Limitations

A. Operational Requirements

1. MANG shall only burn natural gas in all boilers, heaters, and furnaces (ARM 17.8.1204).
2. The engine test cell is limited to 600 hours of operation during any rolling 12-month period, designated as follows (ARM 17.8.1204):

Idle Mode	250 hours per rolling 12-month time period
Approach Mode	100 hours per rolling 12-month time period
Intermediate Mode	200 hours per rolling 12-month time period
Military Mode	50 hours per rolling 12-month time period

3. A submerged fill pipe shall be used while loading gasoline into stationary tanks with a capacity of 250 gallons or more, unless the tanks are equipped with a vapor control system (ARM 17.8.324).

4. Fuel consumption is limited to the following amounts calculated over a rolling 12-month period (ARM 17.8.749).

Jet fuel by turbine units	120,000 gallons
Diesel/Jet fuel by reciprocating engines	14,000 gallons
Gasoline by reciprocating engines	12,500 gallons

5. MANG shall operate and maintain the baghouse on the wood-working system (ARM 17.8.749).

6. The grit blast room (unit) shall be vented to a cyclone (ARM 17.8.752).

B. Emission Limitations

1. MANG 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).

2. MANG shall not 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 (ARM 17.8.304).

3. MANG shall not 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 (ARM 17.8.304).

4. The sulfur content of liquid or solid fuel shall be limited to 1 pound per million British thermal units (lb/MMBtu) (ARM 17.8.322).

5. The sulfur content of gaseous fuel shall be limited to 50 grains/100 cubic feet (ft³) calculated as hydrogen sulfide at standard conditions (ARM 17.8.322).

C. Testing Requirements

1. The Department may require testing (ARM 17.8.105).

2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

D. Operational Reporting Requirements

1. MANG 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. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations. Information shall include the following and be in the units required by the Department (ARM 17.8.505):

- a. Hours of operation for the engine test cell.
 - b. Gallons of fuel consumed for the following source(s):
 - i. Jet fuel by turbine units;
 - ii. Diesel/Jet fuel by reciprocating engines; and
 - iii. Gasoline by reciprocating engines.
2. MANG shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745 that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start-up or use of the proposed de minimis change or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).
 3. MANG shall document, by month, the number of hours that the engine test cell operated in idle mode, approach mode, intermediate mode, and military mode. By the 25th day of each month, MANG shall total the number of hours the engine test cell operated in each mode for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.2. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.1204).
 4. MANG 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 in ARM 17.8.1204. The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted with the annual emission inventory information.
 5. All records compiled in accordance with this permit must be maintained by MANG 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 – MANG 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 MANG fails to appeal as indicated below.

- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving MANG 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. Construction Commencement – Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked.
- H. Permit Fees – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by MANG may be grounds for revocation of this permit, as required by that Section and rules adopted thereunder by the Board.

MONTANA AIR QUALITY PERMIT (MAQP) ANALYSIS
Montana Air National Guard
MAQP #2930-06

I. Introduction/Process Description

A. Permitted Equipment

The following is a list and description of permitted equipment at the Montana Air National Guard (MANG) facility:

1. Boilers, heaters, furnaces

Each of the individual boilers, heaters, and furnaces all have less than 10 million British thermal units per hour (MMBtu/hr) heat input rating. The total heat input from all 69 units is approximately 45.5 MMBtu/hr.

2. Spray booth

The spray booth is used for surface coating of miscellaneous surfaces. Four types of spray are used, which include solvent-based paint, water-based paint, primer, and thinner. The maximum amount of spray used in the booth is 0.5 gallons per hour (gal/hr).

3. Engine test cell

An engine test generally lasts about 2 hours and is conducted in the test cell at four different modes of operation, which include idle mode, approach mode, intermediate mode, and military mode.

4. Emergency generators and engines

Twelve of the emergency generators are powered by diesel fuel and five of the generators are powered by gasoline. The four emergency engines are powered by gasoline.

5. Storage tanks and delivery trucks

The storage tanks consist of 12 jet fuel tanks, 1 gasoline tank, and 1 diesel tank.

6. Aerospace ground equipment

A variety of aerospace ground equipment (AGE) (such as air compressors, generators, deicers, etc.) is used at the base. Most of the AGE equipment is considered maintenance equipment and therefore, is exempt from permitting. One piece of AGE equipment is located at the Engine Test Cell. This piece of AGE equipment is a turbine unit, and uses jet fuel. Any other AGE equipment operated in a capacity other than maintenance purposes is subject to MAQP requirements.

7. Wood working

The woodworking system includes a baghouse capture system with 80% control efficiency.

8. Degreaser

The degreaser is used for cleaning and is used in the NDI shop. The unit contains 25 gallons of degreaser at any time.

9. Grit Blast Room

The grit blast room incorporates a 1992 Pauli and Griffen Co., Model #15-12-20/part #011-000 Grit Blast Unit that serves as a dry strip process utilizing plastic media (beads) to separate paint from military equipment and materials. Particulate emissions from the source are controlled by a cyclone.

B. Source Description

MANG is located within the Sections 16 and 21, Township 20 North, Range 3 East, Cascade County, Montana.

MANG provides a trained and equipped combat-ready air defense for mobilization in time of war or national emergency. The base provides facilities where personnel refuel, maintain, perform light repairs, and stage the aircraft onto the runways of the adjacent airport. To support these functions, the base contains facilities for the maintenance of vehicles and other support equipment, a number of small office buildings, and a supply and shipping warehouse.

The emissions from MANG are primarily a result of fuel combustion in various boilers, heaters, emergency generators, and the engine test cell. Approximately 60 tests are performed in the engine test cell each year. A complete record of each test (type of engines tested, duration of tests in each mode, fuel type and amount used, etc.) is kept at the base.

C. Permit History

MAQP #2930-00 was issued to MANG on June 14, 1996. The permit established enforceable limits for carbon monoxide (CO) and oxides of nitrogen (NO_x) emissions from the engine test cell and aerospace ground equipment for the purposes of bringing the potential to emit of the facility to less than 100 tons/year (tpy) for each regulated pollutant. This permit established MANG as a synthetic minor source and, as such, the facility was not required to obtain a Title V Operating Permit.

On December 22, 2000, MANG was issued MAQP #2930-01 for the installation and operation of a grit blasting room. The grit blasting room serves as a dry strip process utilizing plastic media (beads) to separate paint from military equipment and materials. Particulate emissions from the source are controlled by a cyclone. Because potential emissions from the grit blast room exceeded 15 tpy, the permit action was a permit alteration. **MAQP #2930-01** replaced MAQP #2930-00.

On November 16, 2001, MANG submitted a request to modify MAQP #2930-01. In January 2001, MANG began the transition of flying the F-16's with the 100-Pratt and Whitney (PW)-200 engines to flying the F-16's with the new F110-General Electric (GE)-100 engines. Evaluations of the new GE engine in the engine test cell began in August 2001. MANG requested to decrease the permit limit on hours of operation in the engine test cell in order to keep the potential emissions below the Title V operating permit threshold. **MAQP #2930-02** replaced MAQP #2930-01.

On June 13, 2008, MANG submitted information to the Department of Environmental Quality – Air Resources Management Bureau (Department) regarding a change in operations at the Great Falls facility resulting from the Base Realignment and Closure (BRAC) Commission’s final and approved recommendations. The facility is in the process of transitioning from the F-16 fighter aircraft with the F110-GE-100 engines to the larger F-15 fighter aircraft with two 100-PW-200 engines. Prior to 2001, the facility was permitted for the engines used in the F-15 aircraft. This request was to return to using those engines and return to the permitted conditions associated with those engines. After reviewing the information, the Department determined that a modification would be required to change the conditions in the MAQP. **MAQP #2930-03** replaced MAQP #2930-02.

On July 8, 2010, the Department received a request from MANG for a modification to MAQP #2930-03. The modification request was based on MANG’s position that the AGE should be removed from the facility’s MAQP because the equipment is non-road, mobile equipment. A justification was sent along with the request.

Through a series of correspondence and a site visit, the Department determined that most of the AGE equipment is used for maintenance purposes at the facility. In accordance with the Administrative Rules of Montana (ARM) 17.8.744(1)(I), an MAQP is not required for equipment used to perform routine maintenance, repair, or replacement. Therefore, the AGE equipment that falls into the “maintenance” category is exempt from an MAQP.

However, any AGE equipment, including but not limited to the air compressor/generator engine operated at the engine test cell facility would not be considered maintenance equipment because it is an inherent part of the test cell process and would therefore be subject to permitting. The Department removed the AGE equipment from the MAQP as appropriate. **MAQP #2930-04** replaced MAQP #2930-03.

On January 11, 2012, the Department received a request to administratively amend MAQP #2930-05 to change existing federally enforceable limits. MANG’s request was made as part of a project undertaken by the Department to address those sources with existing federally enforceable permit limits that were established to keep potential emissions below the 100 tpy major source Title V Operating Permit thresholds. The Department encouraged synthetic minor sources to take new permit limits to further reduce emissions from just below 100 tpy to just below 80 tpy. The permit limit change consequently altered the oversight category for this facility to a level that is only subject to the State Compliance Monitoring Strategy. MANG’s MAQP was amended to incorporate limits and conditions to maintain allowable emissions below this threshold. Specifically, the current permit action placed more stringent limitations upon the Engine Test Cell. A ratio was developed utilizing potential emissions and desired emissions. This ratio was then applied to previous hourly limitations to result in limitations set to maintain allowable emissions below 80 tpy. In addition, the permit updated the rule references, permit format, and a portion of the emissions inventory. As a note, calculation errors within the previous summary emissions inventory table were also corrected. **MAQP #2930-05** replaced MAQP #2930-04.

D. Current Permit Action

On February 27, 2014, the Department received a request to administratively amend MAQP #2930 to change existing federally enforceable limits. MANG’s mission is undergoing changes due to an aircraft conversion from the F-15 fighter aircraft to an airlift mission with the C-130 Hercules air frame. The C-130 aircraft are equipped with 4

turboprop engines and the change in engine test cell protocols for this different engine type requires a change in MAQP conditions to accommodate them. The proposed changes in power settings and allowable hours per year would result in an overall decrease in facility emissions. Therefore, in accordance with ARM 17.8.764(1)(b), the current permit action is an administrative permit action that updates the enforceable permit conditions regarding the engine test cell hours. Facility emissions would continue to remain below 80 tpy of any individual pollutant. **MAQP #2930-06** replaces MAQP #2930-05.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) 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 rules and regulations applicable 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 17.8.101 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).

MANG 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.

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 a 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 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.221 Ambient Air Quality Standard for Visibility
7. ARM 17.8.222 Ambient Air Quality Standard for Lead
8. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

MANG 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 to an 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 to an 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, MANG 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 or authorize to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.
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 truck or trailer 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).

- a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
 - b. 40 CFR 60, Subpart D – Standard of Performance for Fossil Fuel-Fired Steam Generators. This subpart does not apply to the proposed boilers because they do not have the capabilities of firing fossil fuel at a heat input rate of more than 250 million Btu per hour.
 - c. 40 CFR 60, Subpart III – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE). Owners and operators of stationary CI 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 owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005, are subject to this subpart. Based on the information submitted by MANG, the CI ICE equipment to be used under MAQP #2930-06 is not currently subject to this subpart because the equipment predates the applicability date; however, new replacement equipment may be subject to this subpart.
 - d. 40 CFR 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. 40 CFR 60, Subpart JJJJ applies to any stationary spark ignition (SI) internal combustion engine (ICE) that commence construction, modification, or reconstruction after June 12, 2006, where the stationary ICE is manufactured after July 1, 2007, for engines greater than 500 hp, or after January 1, 2008, for engines less than 500 hp. Based on the information submitted by MANG, the CI ICE equipment to be used under MAQP #2930-06 is not currently subject to this subpart because the equipment predates the applicability date; however, new replacement equipment may be subject to this subpart.
8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This rule incorporates, by reference, 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Categories. MANG is considered a NESHAP-affected facility under 40 CFR Part 63 and is subject to the requirements of the following subparts.
- a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAPs Subpart as listed below.
 - b. 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants (HAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. An area source of HAP emissions is a source that is not a major source.

Based on the information submitted by MANG, the RICE equipment to be used under MAQP #2930-06 is subject to this subpart because it operates a compression ignition RICE at an area source of HAP emissions.

- 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. 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. A permit fee is not required for the current permit action because the permit action is considered an administrative permit change.
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 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 which 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 potential to emit (PTE) greater than 25 tpy of any pollutant. MANG has a PTE greater than 25 tpy of particulate matter (PM), NO_x, volatile organic compounds (VOCs), and CO; therefore, an air quality permit is required.
 3. ARM 17.8.744 Montana Air Quality Permits – General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
 4. ARM 17.8.745 Montana Air Quality Permits – Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
 5. ARM 17.8.748 New or Modified Emitting Units – Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. A permit application was not required for the current permit action because the permit change is considered an administrative permit change. (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. An affidavit of publication of public notice was not required for the current permit action because the permit change is considered an administrative permit change.
 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 MANG of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
 10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
 11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
 12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
 13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
 14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.
- 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.

This facility is not a major stationary source because it is not a listed source and does not have the potential to emit more than 250 tpy (excluding fugitive emissions) of any air pollutant.

- 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 tpy of any pollutant.
 - b. PTE > 10 tpy of any one hazardous air pollutant (HAP), or PTE > 25 tpy of a combination of all HAPs, or lesser quantity as the Department may establish by rule.
 - c. Sources with the PTE > 70 tpy of PM₁₀ in a serious PM₁₀ non-attainment area.
2. ARM 17.8.1204, Air Quality Operating Permit Program Applicability. 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 #2930-06 for MANG, the following conclusions were made:
 - a. The facility's PTE is less than 100 tpy for all criteria pollutants.
 - b. The facility's PTE is less than 10 tpy of any one HAP and less than 25 tpy of all HAPs.
 - c. This source is not located in a serious PM₁₀ non-attainment area.
 - d. This facility is not subject to any current NSPS.
 - e. This facility is subject to area source provisions of a current NESHAP standard (40 CFR 63, Subpart ZZZZ).
 - f. This source is not a Title IV affected source, or a solid waste combustion unit.
 - g. This source is not an 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.

MANG 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.

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

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. The compliance certification submittal required by 17.8.1204(3) shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this subchapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

III. Emission Inventory

SOURCE	Tons/Year					
	PM	PM ₁₀	NO _x	VOC	CO	SO _x
Boilers, Heaters, Furnaces	2.39	2.39	19.95	0.76	4.19	0.08
Spray Booth	0	0	0	11.69	0	0
Engine Test Cell	1.07	1.07	16.87	1.66	4.70	2.18
Emergency Generators / Engines	0.93	0.93	13.08	2.55	14.58	0.86
Storage Tanks / Delivery Trucks	0	0	0	2.88	0	0
Aerospace Ground Equipment	0.67	0.66	9.46	2.78	2.54	8.74
Woodworking	21.91	10.95	0	0	0	0
Degreasers	0	0	0	0.21	0	0
Grit Blast Room	0.79	0.79	0	0	0	0
Total	27.76	16.79	59.36	22.53	26.01	11.86

Boilers, Heaters, Furnaces

PM Emissions:

Emission Factor: 12.00 lb/MMft³ gas {AP-42, 1.4-1, Rev 7/93}
 Fuel Consumption: 399 MMft³
 Calculations: 12.0 lb/ MMft³ gas * 399 MMft³ * 0.0005 ton/lb = 2.39 ton/yr

PM₁₀ Emissions:

Emission Factor: 12.00 lb/ MMft³ gas {AP-42, 1.4-1, Rev 7/93}
 Fuel Consumption: 399 MMft³/yr
 Calculations: 12.0 lb/ MMft³ gas * 399 MMft³ * 0.0005 ton/lb = 2.39 ton/yr

NO_x Emissions:

Emission Factor: 100.0 lb/ MMft³ gas {AP-42, 1.4-2, Rev 7/93}
 Fuel Consumption: 399 MMft³/yr
 Calculations: 100.0 lb/ MMft³ gas * 399 MMft³ * 0.0005 ton/lb = 19.95 ton/yr

VOC Emissions:

Emission Factor: 3.83 lb/ MMft³ gas {AP-42, 1.4-4, Rev 7/93}
 Fuel Consumption: 399 MMft³/yr

Calculations: $3.8 \text{ MMft}^3 \text{ gas} * 399 \text{ MMft}^3 * 0.0005 \text{ ton/lb} = 0.76 \text{ ton/yr}$

CO Emissions:

Emission Factor: 21.0 lb/ MMft³ gas {AP-42, 1.4-2, Rev 7/93}

Fuel Consumption 399 MMft³/yr

Calculations: $399 \text{ MMft}^3/\text{yr} * 21.0 \text{ lb/ MMft}^3 \text{ gas} * 0.0005 \text{ ton/lb} = 4.19 \text{ ton/yr}$

SO_x Emissions:

Emission Factor: 0.60 lb/ MMft³ gas {AP-42, 1.4-2, Rev 7/93}

Fuel Consumption: 399 MMft³/yr

Calculations: $399 \text{ MMft}^3/\text{yr} * 0.6 \text{ lb/ MMft}^3 \text{ gas} * 0.0005 \text{ ton/lb} = 0.08 \text{ ton/yr}$

Spray Booth

Maximum amount sprayed in spray booth = 0.5 gal/hr

	Solvent Base	Water Base	Primer	Thinner	Total
Amount (gal/yr)	1226	1226	263	1664	4379
Density (lb/gal)	7.9	7.6	9.4	7.4	-
% VOC (w/w)	80	17	70	100	-
VOC (lb/gal)	1.77	0.36	0.40	2.81	5.34
VOC (lb/yr)	7748	1584	1731	12314	23376

VOC Emissions:

Emission Factor: 5.34 lb/gal {Permit Application - Average % VOC of solvents used}

Hours of Operation: 8760 hr/yr

Spray Consumed: 0.5 gal/hr

Calculations: $0.5 \text{ gal/hr} * 5.34 \text{ lb/gal} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 11.69 \text{ ton/yr}$

Engine Test Cell

Emission factors provided by MANG for NO_x, CO, and VOC from Table F-2, Appendix F, AFCEE Air Emissions Inventory Guidance. Hrs/yr values are as proposed by MANG and conditioned by the MAQP.

Idle

$\text{NO}_x = (5.48 \text{ lb/hr}) * (250 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 1.644 \text{ TPY}$

$\text{CO} = (3.66 \text{ lb/hr}) * (250 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 1.098 \text{ TPY}$

$\text{VOC} = (2.6 \text{ lb/hr}) * (250 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 0.78 \text{ TPY}$

Approach

$\text{NO}_x = (6.64 \text{ lb/hr}) * (100 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 1.992 \text{ TPY}$

$\text{CO} = (3.42 \text{ lb/hr}) * (100 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 1.026 \text{ TPY}$

$\text{VOC} = (0.79 \text{ lb/hr}) * (100 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 0.237 \text{ TPY}$

Intermediate

$\text{NO}_x = (15.93 \text{ lb/hr}) * (200 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 4.779 \text{ TPY}$

$\text{CO} = (3.37 \text{ lb/hr}) * (200 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 1.011 \text{ TPY}$

$\text{VOC} = (1.14 \text{ lb/hr}) * (200 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 0.342 \text{ TPY}$

Military

$\text{NO}_x = (28.19 \text{ lb/hr}) * (50 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 8.457 \text{ TPY}$

$\text{CO} = (5.2 \text{ lb/hr}) * (50 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 1.56 \text{ TPY}$

$\text{VOC} = (1 \text{ lb/hr}) * (50 \text{ Hrs/yr}) / (2000 \text{ lbs/ton}) = 0.3 \text{ TPY}$

Totals

NOx Totals = (1.644 + 1.992 + 4.779 + 8.457) = 16.87 TPY

CO Totals = (1.098 + 1.026 + 1.011 + 1.56) = 4.70 TPY

VOC Totals = (0.78 + 0.237 + 0.342 + 0.3) = 1.66 TPY

Engine Test Cell SO₂ emission factors were unavailable for the T56-A-7 engine. The Department determined that because the T56-A-7 engines would use the same fuel (Jet A/Kerosene) as the previously tested F110 GE-100 jet engines, the same weighted emission factor from that engine could be used to reasonably estimate the SO₂ emissions from testing the T56-A-7 engines.

SO₂ Emissions:

Emission Factor = 7.28 lbs/hr (weighted emission rate from F110 GE-100 jet engine testing)

Calculation: (600 hrs/yr) * (7.28 lbs/hr) * (ton/2000 lb) = 2.18 ton/yr

Engine Test Cell PM emission factor for the T56-A-7 engine is from the most conservative emission rate presented in the Air Force Institute for Environment, Safety and Occupational Health Risk Analysis (AFIERA) report titled *Aircraft/Auxiliary Power Units/Aerospace Ground Support Equipment Emission Factors, October 2002*, p.44, provided by MANG.

PM Emissions:

Emission Factor = 3.56 lbs/hr (most conservative emission rate for T56-A-7 engines for PM from AFIERA Report *Aircraft/Auxiliary Power Units/Aerospace Ground Support Equipment Emission Factors, October 2002*, p.44, provided by MANG)

Calculation: (600 hrs/yr) * (3.56 lbs/hr) * (ton/2000 lb) = 1.07 ton/yr

Emergency Generators and Engines

There are twelve (12) diesel generators

Units	No. of Units	Fuel Type	Capacity (kW)	Potential (kW-hr/yr)
SRC 70	1	Diesel	230	115000
SRC 71	1	Diesel	150	75000
SRC 72	1	Diesel	60	30000
SRC 73	1	Diesel	45	22500
SRC 74	1	Diesel	22.5	11250
SRC 75	1	Diesel	50	25000
SRC 76	1	Diesel	200	100000
SRC 77	1	Diesel	200	100000
SRC 78	1	Diesel	200	100000
SRC 79	1	Diesel	10	5000
SRC 80	1	Diesel	10	5000
SRC 81	1	Diesel	5	2500
			1182.5	591250

Gasoline Generators (5) & Gasoline Engines (4)

SRC 82	1	Gasoline	3	1500
SRC 83	1	Gasoline	5	2500
SRC 84	1	Gasoline	5	2500
SRC 85	1	Gasoline	5	2500
SRC 86	1	Gasoline	5	2500
SRC 87	4	Gasoline	194	97000
			217	108500

Diesel Generators (12)

TSP Emissions:

Emission Factor: 1.34 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 591250 kW-hr/yr
Calculations: $1.34 \text{ gm/kW-hr} * 591250 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 0.87 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 1.34 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 591250 kW-hr/yr Assume 100% TSP
Calculations: $1.34 \text{ gm/kW-hr} * 591250 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 0.87 \text{ ton/yr}$

NO_x Emissions:

Emission Factor: 18.80 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 591250 kW-hr/yr
Calculations: $18.80 \text{ gm/kW-hr} * 591250 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 12.25 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 1.53 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 591250 kW-hr/yr
Calculations: $1.53 \text{ gm/kW-hr} * 591250 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 1.00 \text{ ton/yr}$

CO Emissions:

Emission Factor: 4.06 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 591250 kW-hr/yr
Calculations: $4.06 \text{ gm/kW-hr} * 591250 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 2.65 \text{ ton/yr}$

SO_x Emissions:

Emission Factor: 1.25 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 591250 kW-hr/yr
Calculations: $1.25 \text{ gm/kW-hr} * 591250 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 0.81 \text{ ton/yr}$

Gasoline Generators (5) & Gasoline Engines (4)

TSP Emissions:

Emission Factor: 0.439 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 108500 kW-hr/yr
Calculations: $0.439 \text{ gm/kW-hr} * 108500 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 0.05 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.439 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 108500 kW-hr/yr Assume 100% of TSP
Calculations: $0.439 \text{ gm/kW-hr} * 108500 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 0.05 \text{ ton/yr}$

NO_x Emissions:

Emission Factor: 6.92 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 108500 kW-hr/yr
Calculations: $6.92 \text{ gm/kW-hr} * 108500 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 0.83 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 13.00 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
Kilowatts Consumed 108500 kW-hr/yr
Calculations: $13.0 \text{ gm/kW-hr} * 108500 \text{ kW-hr/yr} * 1 \text{ lb}/453.6 \text{ gm} * 0.0005 \text{ ton/lb} = 1.55 \text{ ton/yr}$

CO Emissions:

Emission Factor: 267.00 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
 Kilowatts Consumed 108500 kW-hr/yr
 Calculations: 267.0 gm/kW-hr * 108500 kW-hr/yr * 1 lb/453.6 gm * 0.0005 ton/lb = 31.93 ton/yr

SO_x Emissions:

Emission Factor: 0.359 gm/kW-hr {AP-42, 3.3-2, Rev 7/93}
 Kilowatts Consumed 108500 kW-hr/yr
 Calculations: 0.359 gm/kW-hr * 108500 kW-hr/yr * 1 lb/453.6 gm * 0.0005 ton/lb = 0.043 ton/yr

Storage Tanks and Delivery Trucks

Total potential loss calculated using Tanks 2.0 program

Units	No. of Units	Fuel Type	Tank Size (gal)	Capacity (gal)	Total Potential Loss (lb/yr)
SRC 88	6	Jet	25000	150000	895.47
SRC 89	1	Diesel	10000	10000	1403.33
SRC 90	1	Diesel	5000	5000	2.20
SRC 91	1	Diesel	2500	2500	1.13
SRC 92	1	Diesel	2500	2500	268.63
SRC 93	1	Diesel	60000	60000	805.48
SRC 94	1	Diesel	6000	6000	819.02
SRC 95	1	Diesel	6000	6000	869.03
SRC 96	1	Diesel	5000	5000	687.41
Total ton/yr					2.88

Aerospace Ground Equipment

(Note: The list of aerospace ground equipment is for informational purposes only. Most of this equipment is used for maintenance purposes and therefore exempt from permitting. As of issuance of MAQP #2930-04, there is one piece of aerospace ground equipment used at the Engine Test Cell. This piece of equipment uses approximately 1000 gallons/year of jet fuel, and is a turbine unit.)

Units	No. of Units	Fuel Type	Capacity (gal/hr)	Potential (gal/yr)	Limited (gal/yr)
SRC 97	9	Jet	73.58	644531	120000
Limiting Jet Fuel In Turbines				644531	120,000
SRC 98	1	Diesel/Jet	6.1314	3711	NA
SRC 99	1	Diesel/Jet	10.73	93994	NA
SRC 100	1	Diesel/Jet	6.23	54606	NA
SRC 101	1	Diesel/Jet	5.62	9235	NA
SRC 102	1	Diesel/Jet	22.69	198731	NA
SRC 103	3	Diesel/Jet	2.3	20142	NA
SRC 104	11	Diesel/Jet	14.16	124072	NA
SRC 105	4	Diesel/Jet	5.15	45117	NA
SRC 106	5	Diesel/Jet	4.7	41178	NA
SRC 107	6	Diesel/Jet	3.37	29521	NA
SRC 108	3	Diesel/Jet	13.8	120850	NA
SRC 109	2	Diesel/Jet	12.26	107422	NA
Limiting Diesel/Jet in Reciprocating Unit				938579	14000
SRC 110	2	Gasoline	13.55	118670	NA
SRC 111	1	Gasoline	6.77	59335	NA
SRC 112	9	Gasoline	5.71	50003	NA

SRC 113	2 Gasoline	0.12	1079	NA
SRC 114	9 Gasoline	9.14	80102	NA
SRC 115	1 Gasoline	4.62	40456	NA
Limiting Diesel/Jet in Reciprocating Units				12000

AGE - JP-8

TSP Emissions:

Emission Factor: 0.005 lb/gal {AFSEF 2-03-001-02}
 Gallons Consumed 120000 gal/yr
 Calculations: $0.0050 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.30 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.005 lb/gal {AFSEF 2-03-001-02}
 Gallons Consumed 120000 gal/yr
 Calculations: $0.0048 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.29 \text{ ton/yr}$

NO_x Emissions:

Emission Factor: 0.068 lb/gal {AFSEF 2-03-001-02}
 Gallons Consumed 120000 gal/yr
 Calculations: $0.0678 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 4.07 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 0.005 lb/gal {AFSEF 2-03-001-02}
 Gallons Consumed 120000 gal/yr
 Calculations: $0.0048 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.29 \text{ ton/yr}$

CO Emissions:

Emission Factor: 0.015 lb/gal {AFSEF 2-03-001-02}
 Gallons Consumed 120000 gal/yr
 Calculations: $0.0154 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.92 \text{ ton/yr}$

SO_x Emissions:

Emission Factor: 0.140 lb/gal {AFSEF 2-03-001-02}
 Gallons Consumed 120000 gal/yr
 Calculations: $0.1400 \text{ lb/gal} * 120000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 8.40 \text{ ton/yr}$

AGE - Diesel/JP

BTU Rating 0.137 MMBtu/gal {Air National Guard data}

TSP Emissions:

Emission Factor: 0.31 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
 Gallons Consumed 14000 gal/yr
 Calculations: $0.31 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.30 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.31 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
 Gallons Consumed 14000 gal/yr Assume 100% TSP
 Calculations: $0.31 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.30 \text{ ton/yr}$

NO_x Emissions:

Emission Factor: 4.41 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
 Gallons Consumed 14000 gal/yr
 Calculations: $4.41 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 4.23 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 0.36 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr
Calculations: $0.36 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.35 \text{ ton/yr}$

CO Emissions:

Emission Factor: 0.95 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr
Calculations: $0.95 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.91 \text{ ton/yr}$

SO_x Emissions:

Emission Factor: 0.29 lb/MMBtu {AP-42, 3.3-1, Rev 7/93}
Gallons Consumed 14000 gal/yr
Calculations: $0.29 \text{ lb/MMBtu} * 0.137 \text{ MMBtu/gal} * 14000 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.28 \text{ ton/yr}$

AGE – Gasoline

BTU Rating 0.11368 MMBtu/gal {Air National Guard data}

TSP Emissions:

Emission Factor: 0.10 lb/MMBtu {AP-42, 3.3-1, Rev 10/96}
Gallons Consumed 12500 gal/yr
Calculations: $0.10 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.07 \text{ ton/yr}$

PM-10 Emissions:

Emission Factor: 0.10 lb/MMBtu {AP-42, 3.3-1, Rev 10/96}
Gallons Consumed 12500 gal/yr Assume 100% TSP
Calculations: $0.10 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.07 \text{ ton/yr}$

NO_x Emissions:

Emission Factor: 1.63 lb/MMBtu {AP-42, 3.3-1, Rev 10/96}
Gallons Consumed 12500 gal/yr
Calculations: $1.63 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 1.16 \text{ ton/yr}$

VOC Emissions:

Emission Factor: 3.03 lb/MMBtu {AP-42, 3.3-1, Rev 10/96}
Gallons Consumed 12500 gal/yr
Calculations: $3.03 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 2.15 \text{ ton/yr}$

CO Emissions:

Emission Factor: 0.99 lb/MMBtu {AP-42, 3.3-1, Rev 10/96}
Gallons Consumed 12500 gal/yr
Calculations: $0.99 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.71 \text{ ton/yr}$

SO_x Emissions:

Emission Factor: 0.084 lb/MMBtu {AP-42, 3.3-1, Rev 10/96}
Gallons Consumed 12500 gal/yr
Calculations: $0.084 \text{ lb/MMBtu} * 0.114 \text{ MMBtu/gal} * 12500 \text{ gal/yr} * 0.0005 \text{ ton/lb} = 0.06 \text{ ton/yr}$

Woodworking

Baghouse Hours of Operation: 8,760 hr/yr Potential

TSP Emissions

Emission Factor: 5.00 lb/hr {Fire V 5.0, 3-07-008-07, 7/95}
Calculations: 8760 hr/yr * 5.00 lb/hr * 0.0005 ton/lb = 21.90 ton/yr

PM-10 Emissions:

Emission Factor: 2.50 lb/hr {Fire V 5.0, 3-07-008-07, 7/95}
Calculations: 8760 hr/yr * 2.50 lb/hr * 0.0005 ton/lb = 10.95 ton/yr

Baghouse Potential Material Handling

TSP Emissions

Emission Factor: 1.00 lb/ton {Fire V 5.0, 3-07-008-03, 7/95}
Potential Handling: 21.9 ton/yr
Calculations: 1.0 lb/ton * 21.9 ton/yr * 0.0005 ton/lb = 0.011 ton/yr

PM-10 Emissions:

Emission Factor: 0.36 lb/ton {Fire V 5.0, 3-07-008-03, 7/95}
Potential Handling: 10.95 ton/yr
Calculations: 0.4 lb/ton * 11.0 ton/yr * 0.0005 ton/lb = 0.002 ton/yr

Degreasers

Location of Station	Station Capacity (gal)	Changeouts per year	Quantity Delivered (gal/yr)
NDI Shop	25	12	1155
Density (lb/gal)	7.22		

VOC Emissions:

Emission Factor: 7.22 lb/gal {Permit Application - Average % VOC of solvents used}
% VOCs Emitted 5 %
Degreasers Consumed 1155.0 gal/yr
Calculations: 1155.0 gal/yr * 7.22 lb/gal * 5 % * 0.0005 ton/lb = 0.21 ton/yr

Grit Blasting Room

Maximum Process Rate: 600 lb grit blast material/hr
Emission Factor: 0.10 lb/hr (approximately 10% of grit blast media throughput is released to cyclone: Manufacturers Information)
Control Efficiency: 99.7% Cyclone Control: Manufacturers Information

PM Emissions

$600 \text{ lb/hr} * 0.10 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 262.8 \text{ ton/yr}$
 $262.8 \text{ ton/yr} * (1 - 0.997) = 0.79 \text{ ton/yr}$

PM₁₀ Emissions

$600 \text{ lb/hr} * 0.10 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 262.8 \text{ ton/yr}$
 $262.8 \text{ ton/yr} * (1 - 0.997) = 0.79 \text{ ton/yr}$

IV. BACT Analysis

A BACT determination is required for any new or modified source. MANG 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 used.

A BACT analysis was not required for the current permit action because the current permit action is considered an administrative permit action.

V. Existing Air Quality

The surrounding area is considered attainment/unclassified for the Montana and National Ambient Air Quality Standards (MAAQS and NAAQS).

VI. Air Quality Impacts

The Department determined that there will be no negative impacts from this permitting action because this permitting action is considered an administrative action. Therefore, the Department believes this action will not cause or contribute to a violation of any ambient air quality standard.

VII. Ambient Air Impact Analysis

Based on the information provided and the conditions established in MAQP #2930-06, the Department determined that there will be no negative ambient air impacts from this permitting action. The Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VIII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

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.

VII. Environmental Assessment

An environmental assessment was not required for the current permit action because it is considered an administrative action.

Analysis prepared by: Ed Warner
Date: March 11, 2014