

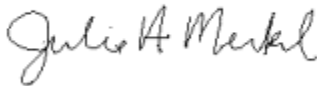
July 1, 2019

Colonel Jennifer K. Reeves
Commander, 341st Missile Wing
21 77th Street North, Suite 144
Malmstrom Air Force Base, MT 59402-7538

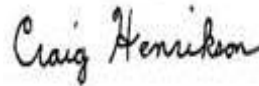
Dear Colonel Reeves:

Montana Air Quality Permit #1427-10 is deemed final as of June 27, 2019, by the Department of Environmental Quality (Department). 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
Permitting Services Section Supervisor
Air Quality Bureau
(406) 444-3626



Craig Henrikson P.E.
Environmental Engineer
Air Quality Bureau
(406) 444-6711

JM:CH
Enclosure

Montana Department of Environmental Quality
Air, Energy & Mining Division

Montana Air Quality Permit #1427-10

United States Department of Air Force
Malmstrom Air Force Base, Montana
341 CES/CEIE, 39th Street North
Malmstrom Air Force Base, MT 59402-7536

June 27, 2019



MONTANA AIR QUALITY PERMIT

Issued to:	Malmstrom	MAQP: #1427-10
	Malmstrom Air Force Base	Application Complete: 4/9/2019
	341 CES/CEV	Preliminary Determination (PD) Issued: 05/10/2019
	39-78th Street North	Department Decision (DD) Issued: 06/11/2019
	Great Falls, MT 59402-7536	Permit Final: 06/27/2019

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to the United States Air Force – Malmstrom Air Force Base (Malmstrom), 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 Malmstrom base is located primarily in Township 20 North, Range 4 and 5 East, in Cascade County. The facility is contained within approximately 3,159 acres located on the eastern edge of the City of Great Falls, Montana.

B. Current Permit Action

On March 1, 2019, the Department received an application from Malmstrom to establish federally enforceable limits to keep Malmstrom below 100 tons per year (tpy) for all criteria pollutants. This would make Malmstrom a synthetic minor source and allow for a future revocation of their Title V Operating permit. Specifically, the proposed limits would restrict facility operations to lower the potential to emit (PTE) of oxides of nitrogen (NO_x) emissions to less than 100 tons per year which is the pollutant with the highest actual emissions. Carbon monoxide (CO) and sulfur dioxide (SO₂) would also have PTE emissions below 100 tpy. The NO_x PTE for the three central plant boilers has been reduced by approximately 68.6 percent with the incorporated federally enforceable limits on fuel combustion.

SECTION II: Limitations and Conditions

A. Emission Limitations

1. Malmstrom shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any of the three heating plant boilers or the coal handling baghouse that exhibit an opacity of 20% or greater averaged over six consecutive minutes (ARM 17.8.304).
2. Particulate emissions from any of the three heating plant boilers shall not exceed 4.0 pounds per hour (lbs/hour) (ARM 17.8.752).

3. SO₂ emissions from any of the heating plant boilers shall not exceed (ARM 17.8.752):

- a. 0.320 pounds per million British thermal unit (lb/MMBtu); or
- b. 33.9 lb/hour.

4. NO_x emissions from any of the heating plant boilers shall not exceed (ARM 17.8.752):

- a. 0.50 lb/MMBtu; or
- b. 53 lb/hour.

5. Total heat content of the fuel combusted (coal + natural gas) in the three heating plant boilers during any rolling 12-month time period shall not exceed 314,120 MMBtu. Total Btus combusted shall be determined on a monthly basis using the following equation (ARM 17.8.749):

$$\text{Total Btus Combusted} = (A \times B) + (C \times D)$$

Where: A = Natural gas combusted million standard cubic foot (MMscf)
B = Average heat content of the natural gas (Btu/MMscf)
C = Coal combusted (tons)
D = Average heat content of the coal (Btu/ton)

6. Maximum operating level of the three heating plant boilers combined shall not exceed 212 MMBtu/hr heat input (ARM 17.8.749).

7. A dry lime scrubber and baghouse shall be used on each heating plant boiler when combusting coal (ARM 17.8.752).

8. Malmstrom shall not emit from the coal handling baghouse, particulate matter in excess of 0.02 grains per dry standard cubic foot (gr/dscf) (ARM 17.8.752).

9. A baghouse shall be used to control emissions from the coal handling system (ARM 17.8.752).

10. Malmstrom shall not cause or authorize emissions to be discharged to the atmosphere from coal storage and handling that exhibit an opacity of 20% or greater averaged over six consecutive minutes (ARM 17.8.304).

11. Malmstrom may combust coal and/or natural gas in heating plant boiler #1 and heating plant boiler #3 (ARM 17.8.749).

12. Malmstrom shall combust only natural gas in heating plant boiler #2 (ARM 17.8.749).

13. Malmstrom shall obtain a coal analysis, which is representative of each load of coal received, from each coal supplier. The analysis shall contain, at minimum, sulfur content, ash content, and Btu value (ARM 17.8.749).

14. Malmstrom shall utilize fuel storage tanks H-1 and H-2 to store only JP-8 jet fuel or a similar jet fuel with a vapor pressure <3.5 kiloPascals (kPa) (ARM 17.8.749).
15. An internal floating roof shall be operated on each tank listed in Section I.B.4 of the permit analysis (ARM 17.8.752).
16. Malmstrom shall not combust any hospital/medical/infectious waste, as defined in 40 Code of Federal Regulations (CFR) 60, Subpart Ce, at their facility (ARM 17.8.749).
17. The Building 780 emergency/back-up diesel generator shall only be operated during periods when electric power from the local utility is interrupted or as necessary for routine maintenance of the generator (ARM 17.8.749).
18. Each of the emitting units identified in Table 1 are limited to 160 hours of operation on a rolling 12-month total (ARM 17.8.749).

Table 1. Emitting Units

Emissions Unit ID	Description	Pollution Control Device/Practice
EU004	Emergency Power Diesel Generator Building 82110	Limited Operation
EU010	Building 500 Emergency/Back-Up Diesel Generator	Limited Operation
EU011	Building 165 Emergency/Back-Up Diesel Generator	Limited Operation
EU012	Building 200 Emergency/Back-Up Diesel Generator	Limited Operation
EU014	Building 18902 Emergency/Back-Up Diesel Generator	Limited Operation
EU015	Building 429 Emergency/Back-Up Diesel Generator	Limited Operation
EU016	Building 530 Emergency/Back-Up Diesel Generator	Limited Operation
EU017	Building 1836 Emergency/Back-Up Diesel Generator	Limited Operation
EU018	Building 1879 Emergency/Back-Up Diesel Generator	Limited Operation
EU019	Building 780 Emergency/Back-Up Diesel Generator	Limited Operation
EU020	Building 1996 Emergency/Back-Up Diesel Generator	Limited Operation
EU021	Building 3080 Emergency/Back-Up Diesel Generator	Limited Operation
EU023	Building 1845 Emergency/Back-Up Diesel Generator	Limited Operation
EU024	Building 1408 Emergency/Back-Up Diesel Generator	Limited Operation
EU026	Building 1082 Emergency/Back-Up Diesel Generator	Limited Operation
EU027	Building 1482 Emergency/Back-Up Diesel Generator	Limited Operation
EU028	Building 470 Emergency/Back-Up Diesel Generator	Limited Operation
EU029	Building 1440 Emergency/Back-Up Diesel Generator	Limited Operation
EU030	Building 407 Emergency/Back-Up Diesel Generator	Limited Operation
EU031	Building 1075 Emergency/Back-Up Diesel Generator	Limited Operation
EU032	Building 1441 Emergency/Back-Up Diesel Generator	Limited Operation
EU033	Building 152 Emergency/Back-Up Diesel Generator	Limited Operation
EU034	Building 1320 Emergency/Back-Up Diesel Generator	Limited Operation
EU035	Building 1459 Emergency Diesel Fire Pump #1	Limited Operation
EU036	Building 1459 Emergency Diesel Fire Pump #2	Limited Operation
EU037	Building 1459 Emergency Diesel Fire Pump #3	Limited Operation
EU038	Building 1840 Emergency/Back-Up Diesel Generator	Limited Operation
EU039	Building 13115 Emergency/Back-Up Diesel Generator	Limited Operation
EU040	Building 145/144 Emergency/Back-Up Generator	Limited Operation

Emissions Unit ID	Description	Pollution Control Device/Practice
EU041	Building 219 Trainer Electric Generator	Turbocharged with Combustion Air Cooler
IEU031	Insignificant Emitting Units (Include units in Bldgs. 1831, 348, 2040, 294 and 1439)	

B. Testing Requirements

1. Malmstrom shall conduct source testing for SO₂, NO_x, particulate, CO, Mercury and opacity on boilers #1 and #3 and demonstrate compliance with the emission limits contained in Section II.A.1 through Section II.A.4. The above testing shall be performed while the boilers are being fired exclusively on coal. Compliance source testing shall be performed on a once every three-year basis or according to another testing/monitoring schedule as may be approved by the Department. The first three-year period shall begin with the date on the final permit regardless of the elapsed time since the last source tests were conducted (ARM 17.8.749 and ARM 17.8.105).
2. Malmstrom shall conduct source testing for NO_x on boiler #2 and demonstrate compliance with the emission limits contained in Section II.A.4. For compliance with Section II.A.2 and II.A.3, particulate and SO₂ emissions may assumed to be zero since boiler #2 can only combust natural gas. Compliance source testing shall be performed on a once every three-year basis or according to another testing/monitoring schedule as may be approved by the Department. The first three-year period shall begin with the date on the final permit regardless of the elapsed time since the last source tests were conducted (ARM 17.8.749 and ARM 17.8.105).
3. Malmstrom shall provide the Department with a record of the amount of coal being combusted and a coal analysis for sulfur and Btu value during all compliance source tests on the heating plant boilers (ARM 17.8.749 and ARM 17.8.106).
4. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
5. The Department may require further testing (ARM 17.8.105)

C. Operational and Emission Inventory Reporting Requirements:

1. Malmstrom 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, and sources identified in Section I of 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 include the information listed below and shall be in the units as required by the Department (ARM 17.8.505).

- a. Tons of coal combusted in heating plant boilers #1 and #3, respectively;
- b. Million cubic feet of gas combusted in heating plant boilers #1, #2, and #3, respectively;
- c. Tons of coal delivered to the facility;
- d. Tons of coal processed through the coal handling system;
- e. Sulfur analysis for coal combusted during the past calendar year;
- f. Tons of ash removed from the facility;
- g. Gallons of JP-8 fuel throughput;
- h. Vehicle miles traveled on haul roads, type of vehicle category, and percent of roads paved;
- i. Gallons of diesel used in haul vehicles and unloaders; and
- j. Fugitive dust information consisting of a listing of all plant vehicles including:
 - i. Vehicle type;
 - ii. Vehicle weight;
 - iii. Number of tires on vehicle;
 - iv. Average trip length;
 - v. Number of trips per day;
 - vi. Average vehicle speed;
 - vii. Area of activity; and
 - viii. Vehicle fuel usage (gasoline or diesel) – annual total.

If the information on vehicle size has not changed over the past year, Malmstrom only needs to supply the vehicle type and the vehicle miles traveled (VMT) by each vehicle type as required in Section II.C.1.h and i. If changes occur, Malmstrom shall supply the information in Section II.C.1.j for the changed vehicles.

- 2. Malmstrom shall document the total Btu value of the fuel combusted in the three heating plant boilers, based on the equation in Section II.A.5. Further, by the 25th day of each month Malmstrom shall calculate the total Btu value of the fuel combusted during the previous month. The monthly information will be used to verify compliance with the limitation in Section II.A.6. A written report of the compliance verification shall be submitted to the Department annually. The report for the previous calendar year shall be submitted no later than March 15 and may be submitted along with the annual emission inventory (ARM 17.8.749).
- 3. Malmstrom shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit***, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation

The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

4. Malmstrom shall document by month, the hours of operation of each of the emitting units identified in Table 1 (except for IEU031) and shall maintain an on-site log of the monthly hours of operation of each unit. The log must be available for inspection by the Department and a copy submitted to the Department, if requested.
5. All records compiled in accordance with this permit must be maintained by Malmstrom as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

D. Notification

Malmstrom shall provide the Department with written notification of the following dates within the specified time periods (ARM 17.8.749):

1. All compliance source tests as required by the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

Section III: General Conditions

- A. Inspection – Malmstrom shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment Continuous Emissions Monitoring System (CEMS) or Continuous Emissions Rate Monitoring System (CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Malmstrom fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Malmstrom of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the

provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Malmstrom 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
 United States Air Force – Malmstrom Air Force Base
 MAQP #1427-10

I. Introduction/Process Description

A. Facility Description

The United States Air Force – Malmstrom Air Force Base (Malmstrom) is contained within approximately 3,159 acres, and is located in Township 20 North, Ranges 4 and 5 East, Sections 1, 2, 3, 10, 11, 12, 13, 14, and 15, in Cascade County. Malmstrom is located on the eastern edge of the City of Great Falls, Montana.

Malmstrom was established in 1942, and currently houses the 341st Missile Wing. The base itself contains the facilities necessary for all of its military and non-military personnel, which currently number between 4,000 and 5,000. The greatest stationary source of air contaminants at Malmstrom is the three heating plant boilers, although several other miscellaneous smaller sources of emissions are present at the base.

B. Permitted Equipment:

The list of permitted equipment has been expanded from MAQP #1427-09 to demonstrate that all the equipment on site has a potential to emit with less than 100 tons per year for all criteria pollutants.

Emissions Unit ID	Description	Pollution Control Device/Practice
EU001	Heating Plant Boiler #1, Coal / Natural Gas (Maximum Capacity 106.25 MMBtu/hr)	Dry Lime Scrubber and Fabric Filter Baghouse
EU002	Heating Plant Boiler #2, Natural Gas Only (Maximum Capacity 35 MMBtu/hr)	Natural Gas Combustion Only
EU003	Heating Plant Boiler #3, Coal / Natural Gas (Maximum Capacity 106.25 MMBtu/hr)	Dry Lime Scrubber and Fabric Filter Baghouse
EU004	Emergency Power Diesel Generator Building 82110	Limited Operation
EU005	Coal Yard Handling System	Fabric Filter Baghouse
EU008	JP-8 Fuel Storage Tanks (H-1 and H-2)	Floating Internal Roof
EU010	Building 500 Emergency/Back-Up Diesel Generator	Limited Operation
EU011	Building 165 Emergency/Back-Up Diesel Generator	Limited Operation
EU012	Building 200 Emergency/Back-Up Diesel Generator	Limited Operation
EU014	Building 18902 Emergency/Back-Up Diesel Generator	Limited Operation
EU015	Building 429 Emergency/Back-Up Diesel Generator	Limited Operation
EU016	Building 530 Emergency/Back-Up Diesel Generator	Limited Operation
EU017	Building 1836 Emergency/Back-Up Diesel Generator	Limited Operation
EU018	Building 1879 Emergency/Back-Up Diesel Generator	Limited Operation
EU019	Building 780 Emergency/Back-Up Diesel Generator	Limited Operation
EU020	Building 1996 Emergency/Back-Up Diesel Generator	Limited Operation
EU021	Building 3080 Emergency/Back-Up Diesel Generator	Limited Operation
EU023	Building 1845 Emergency/Back-Up Diesel Generator	Limited Operation
EU024	Building 1408 Emergency/Back-Up Diesel Generator	Limited Operation
EU026	Building 1082 Emergency/Back-Up Diesel Generator	Limited Operation
EU027	Building 1482 Emergency/Back-Up Diesel Generator	Limited Operation

Emissions Unit ID	Description	Pollution Control Device/Practice
EU028	Building 470 Emergency/Back-Up Diesel Generator	Limited Operation
EU029	Building 1440 Emergency/Back-Up Diesel Generator	Limited Operation
EU030	Building 407 Emergency/Back-Up Diesel Generator	Limited Operation
EU031	Building 1075 Emergency/Back-Up Diesel Generator	Limited Operation
EU032	Building 1441 Emergency/Back-Up Diesel Generator	Limited Operation
EU033	Building 152 Emergency/Back-Up Diesel Generator	Limited Operation
EU034	Building 1320 Emergency/Back-Up Diesel Generator	Limited Operation
EU035	Building 1459 Emergency Diesel Fire Pump #1	Limited Operation
EU036	Building 1459 Emergency Diesel Fire Pump #2	Limited Operation
EU037	Building 1459 Emergency Diesel Fire Pump #3	Limited Operation
EU038	Building 1840 Emergency/Back-Up Diesel Generator	Limited Operation
EU039	Building 13115 Emergency/Back-Up Diesel Generator	Limited Operation
EU040	Building 145/144 Emergency/Back-Up Generator	Limited Operation
EU041	Building 219 Trainer Electric Generator	Turbocharged with Combustion Air Cooler
IEU031	Insignificant Emitting Units (Included for enforceable units) Include units in Bldgs. 1831, 348, 2040, 294 and 1430	
IEU023, IEU033, IEU035, IEU036, IEU037 IEU038	Emissions Unit ID IEU023 (Bldg 1075, off-season heating) IEU033 (Bldg 1010) IEU035 (Bldg 1012) IEU036 (Bldg 1180) IEU037 (Bldg 1075, domestic hot water) IEU038 (Bldg 1075, domestic hot water)	Occasional Use - Clean Burning Natural Gas Heaters

C. Permit History

MAQP #1427 was issued to Malmstrom on October 28, 1980. The application required a Prevention of Significant Deterioration (PSD) review by the state of Montana for sulfur dioxide (SO₂), particulate, and oxides of nitrogen (NO_x). The application was deemed complete September 4, 1979. The application was for the construction of a new heating plant at Malmstrom. Malmstrom proposed three high temperature hot water generators (heating plant boilers #1, #2, and #3) to be used as a heating plant for the base. Each boiler was rated at 85 MMBtu heat output per hour, with an input design capacity of 106.25 MMBtu/hr. Malmstrom identified that the three boilers would be capable of combusting coal. Two of the boilers would also have natural gas capabilities. The coal would generally be used only during the coldest periods of the year. At other times, the boilers would be operated using natural gas.

The Department of Environmental Quality – Air Resources Management Bureau (Department) determined the boilers were not subject to New Source Performance Standards (NSPS) because the size of the boilers is below the cutoff size contained in Subpart D and Da and the date of installation is before the effective date for Subpart Dc. Also, the "boilers" do not actually produce steam, they produce hot water.

Malmstrom was required to obtain an Environmental Protection Agency (EPA) New Source Review (NSR) Prevention of Significant Deterioration (PSD) of air quality permit for this project since the state of Montana did not have a fully approved program at the time the permit application was processed. The **EPA PSD Permit**

was issued pursuant to 40 Code of Federal Regulations (CFR) Part 52.21 (as amended 43 FR 26388). This permit was issued June 1, 1981. The EPA PSD permit contains emission limits. One of the limits stated that the maximum operating level of the system could not be greater than the combined capacities of any two of the three boilers operating simultaneously.

In 1994, Malmstrom requested a permit alteration to remove the 85% control efficiency requirement contained in MAQP #1427. The permit application was given MAQP #1427-01. An incompleteness letter was sent to Malmstrom. Malmstrom chose not to respond and to have the application withdrawn. The application was withdrawn by Malmstrom and MAQP #1427-01 was not issued.

MAQP #1427-02 accomplished numerous permitting goals at Malmstrom. Specifically, the requirement that the dry scrubbers maintain a control efficiency of 85% for SO₂ was removed. That level of efficiency was not practical when the facility burned low sulfur coal or operated at low loads. Because the emissions under this scenario were below the limits identified in the Department permit, the Department determined the SO₂ emission limits contained in the permit were sufficient to maintain the ambient air quality of the area. MAQP #1427-02 also identified the fuels each of the boilers were capable of burning.

In addition, MAQP #1427-02 allowed Malmstrom to bypass the scrubbers and baghouses on the boilers during start up, until the scrubber inlet temperature reached approximately 350 degrees Fahrenheit (°F). At temperatures below this level, the moisture in the lime slurry would not be completely evaporated and would cause blinding of the bags. All emission limits were still in effect during periods of scrubber bypass.

Further, MAQP #1427-02 authorized the modification of the #1 boiler to enable the boiler to fire coal and natural gas simultaneously. Prior to MAQP #1427-02, the boiler could not physically fire both fuels at once. The MAQP also established limits for NO_x emissions and modified the SO₂ limits for the boilers. The SO₂ emission limit was changed from 37 pounds per hour (lb/hour) to 33.8 lb/hour and a limit of 0.320 lb/MMBtu was added to be consistent with the BACT determination at the time of EPA's PSD permit issuance. The permit also limited the total fuel consumption for the boilers. The fuel consumption limitation (along with the NO_x and SO₂ limits) ensured that emissions of any pollutant from the three boilers would be less than 250 tons per year (tpy), or less than the PSD major-source permitting threshold. Therefore, the installation of the boilers was not subject to the requirements of the PSD program and it was possible for EPA to revoke the PSD permit issued on June 1, 1981.

MAQP #1427-02 also included the medical waste incinerator and the classified document incinerator to the list of permitted equipment on the base. Even though a permit was not required by the state at the time of construction, the Department determined a permit was necessary to meet the requirements of the Administrative Rules of Montana (ARM) 17.8.705 and for Malmstrom to operate the incinerators. The conditions applicable to the incinerators were included as part of that permit action.

Finally, MAQP #1427-02 included the tanks installed in 1987, which Malmstrom was not required to permit at the time of construction. The Department determined that a permit was necessary to meet the requirements of ARM 17.8.705 and to operate the tanks. The conditions applicable to the tanks were included as part of the permit.

On July 17, 1996, the Department received information regarding minor facility changes. The facility changes were assigned MAQP #1427-03. Subsequent to receipt of this information, the Department determined that the facility changes did not require any permit action. Therefore, MAQP #1427-03 was not issued.

MAQP #1427-04 removed the Medical Waste Incinerator from Malmstrom's permit. Disposal of the medical red bag waste was to be accomplished through a private contractor, and the gas supply for the incinerator was disconnected.

In addition, MAQP #1427-04 removed two large fuel storage tanks (S-1 and S-2), subject to 40 CFR 60, Subpart Kb, from Malmstrom's permit and emission inventory. Malmstrom decommissioned the two large (1,050,000 gallons each) aboveground fuel storage tanks (S-1 and S-2) with the relocation of the 43rd Air Refueling Group. The remaining tanks (H-1 and H-2) were each 210,000-gallon and primarily supported the helicopters used by the 341st missile wing.

Further, the permit modification established a new testing campaign to begin by January 31, 2001, and to perform compliance testing on a once every four-year basis thereafter. Malmstrom requested a one-year extension to conduct emission testing on the base's heating plant boilers. The reasoning behind the request was that the boilers (Coal-fired) located at Malmstrom were selected for outsourcing and were to be operated by a private (non-government) contractor. The contractor that was awarded the bid for services began operation of the facilities on January 15, 2000.

MAQP #1427-04 resulted in an overall decrease in the allowable emissions from the facility. MAQP #1427-04 replaced MAQP #1427-02.

On December 22, 1999, the Department received a request from Malmstrom for modification of MAQP #1427-04. Condition II.A.18 in MAQP #1427-04, regarding jet fuel storage tanks H-1 and H-2, required that Malmstrom comply with 40 CFR 60, Standards of Performance for New Stationary Sources, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels. However, based on information in the permit modification request, the Department determined that changes in Air Force policy and practice made 40 CFR 60, Subpart Kb, no longer applicable to jet fuel storage tanks H-1 and H-2.

Section I.B.5 of the permit analysis to MAQP #1427-04 listed two 210,000-gallon storage tanks used for the storage of JP-4 and JP-8 jet fuel. Because of the physical characteristics of JP-4 jet fuel, and because Malmstrom had the option of storing JP-4 jet fuel in storage tanks H-1 and H-2, the tanks were subject to the requirements of 40 CFR 60, Subpart Kb. However, changes in Air Force policy dictated that the Air Force no longer utilize JP-4 jet fuel. Instead, Malmstrom reverted to the storage and use of JP-8 jet fuel only in the two affected storage tanks. JP-8 jet fuel has a vapor pressure <3.5 kilopascals (kPa); therefore, storage of JP-8 or a similar jet fuel with a vapor pressure <3.5 kPa rendered the jet fuel storage tanks H-1 and H-2 as non-

affected sources under 40 CFR 60, Subpart Kb, 60.110b. Therefore, the fuel storage tanks H-1 and H-2 were no longer subject to the requirements of 40 CFR 60, Subpart Kb.

The permit action removed permit condition II.A.18 in MAQP #1427-04 and relieved Malmstrom from the responsibility of compliance with 40 CFR 60, Subpart Kb, for jet fuel storage tanks H-1 and H-2. Further, the permit action added, in place of permit condition II.A.18 in MAQP #1427-04, a condition requiring the storage of only JP-8 jet fuel or a similar jet fuel with a vapor pressure <3.5 kPa. Finally, the permit action updated the equipment list in Section I.B of the permit analysis to properly identify the 210,000-gallon fuel storage tanks H-1 and H-2 and change the name of the boilers from High Temperature Hot Water Generators #1, #2, and #3 to Heating Plant Boilers #1, #2, and #3. **MAQP #1427-05** replaced MAQP #1427-04.

On November 26, 2002, the Department received a request for permit modification from Malmstrom. On August 28, 2002, the Department received a copy of a letter, dated November 5, 2001, from Malmstrom requesting a permit determination. The Department was unable to find any record of this letter being received on or around November 5, 2001. The permit determination request was for the removal of the existing Building 1075 natural gas fired boiler rated at 11.954 MMBtu/hr heat input capacity and replacement of the existing unit with two smaller 2.1 MMBtu/hr heat input capacity units. Because potential emissions from the replacement boilers were less than the de minimis threshold of 15 tpy for any regulated pollutant, the Department determined that the changes were accomplished in accordance with ARM 17.8.745(1).

The letter received by the Department on November 26, 2002, also indicated that Malmstrom intended to install and operate a 200-kilowatt (kW) emergency diesel generator in the Building 780, Missile Services Facility. Because potential emissions of all regulated pollutants from the proposed Building 780 emergency diesel generator, operating under emergency/back-up equipment status, were less than 15 tpy, the Department determined that installation and operation of the Building 780 emergency diesel generator could be accomplished under the provisions of ARM 17.8.745.

On January 29, 2003, the Department received notice of a contested case hearing before the Montana Board of Environmental Review (Board) regarding specific conditions that were included in the Department's decision on MAQP #1427-06, issued January 13, 2003. Based on the Settlement Stipulation and Order issued by the Board on March 28, 2003, several revisions were made to MAQP #1427-06 prior to issuance as a final permit. A detailed discussion of these revisions is contained in Section I.D, Current Permit Action, to air quality MAQP #1427-06. **MAQP #1427-06** replaced MAQP #1427-05.

On March 25, 2004, the Department received a complete permit application to modify Malmstrom's MAQP #1427-06. Malmstrom proposed process changes to current operations at heating plant boilers #1 and #3. The proposed changes included the following:

- Replacement of the existing motors driving the induced draft fans with new variable frequency drive motors.
- Replacement of the existing ash unloading system with a new ash unloading system.
- Modification of exhaust gas ductwork to increase spray dryer absorber (SDA) control efficiency of SO₂ emissions.
- Installation of ductwork to provide effluent heat to the opacity monitors for the purpose of decreasing false increased opacity readings during foggy weather conditions.
- Removal of the existing 35 MMBtu/hr heat input capacity natural gas-fired burner from Boiler #1 and replacement of this burner with two 25 MMBtu/hr heat input capacity natural gas-fired low NO_x burners.
- Installation of two, 25 MMBtu/hr heat input capacity natural gas-fired low NO_x burners on Boiler #3.
- Installation of a load simulator for the purpose of testing and evaluating the new low NO_x burners described above.

As detailed in a Department internal file memorandum dated January 16, 2004, and subsequent Department correspondence to Malmstrom dated March 15, 2004, the Department determined that Malmstrom is a major source as defined under the New Source Review (NSR) permitting program. However, potential emissions from the above detailed modifications were below the NSR/PSD significance threshold for all pollutants. Therefore, the permit action was not subject to NSR/PSD review. An emission inventory detailing potential emissions from the proposed project was included in Section IV of the permit analysis to this permit. **MAQP #1427-07** replaced MAQP #1427-06.

On May 16, 2005, the Department received a request from Malmstrom for changes to Montana Air Quality Permit #1427-07 under the provisions contained in ARM 17.8.764, Administrative Amendment to permit. The requested changes include the following:

- Removal of the Classified Document Incinerator and all associated requirements from the permit. The unit has been dismantled and removed from the facility; and
- The addition of “National Security Emergency” and “surge condition” language as recommended to Malmstrom by the United States Pentagon.

At that time, the Department did not believe that the addition of the requested “National Security Emergency” and “surge condition” language was appropriate for inclusion in the permit; therefore, the Department did not include the language under the permit action. The Classified Document Incinerator and all associated requirements were removed under the permit action.

Further, based on information obtained through correspondence between the Department and Malmstrom, the Department determined that Malmstrom is a minor source of Hazardous Air Pollutants (HAPs), as defined under 40 CFR 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler

MACT). Based on this information, the Department determined that Malmstrom is not subject to the requirements contained in the Boiler MACT. **AMAQP #1427-08** replaced MAQP #1427-07.

On September 6, 2012, the Department received a written request from Malmstrom to allow a 100-ton test burn of wood pellet fuel in Boiler #1 during the 2012-2013 heating season. This request was submitted in accordance with the requirements contained in ARM 17.8.745. On September 26, 2012, Malmstrom informed the Department that Boiler #1 was down for repairs and requested to use Boiler #3 to complete the test burn.

According to the information submitted, Malmstrom proposed to test Boiler #3 (EU003) while burning 80 percent (%) coal and 20% wood pellets at a maximum heat input rate of 80 MMBtu/hr. Pursuant to the request, this was a temporary test burn to be completed during the 2012-2013 heating season, Malmstrom would not burn more than 100 tons of wood pellets and the emissions of any pollutant will not exceed 5 tpy. The duration of the test burn was to exceed 208 hours. In addition to this, the permit action also updated potential NSPS and NESHAP applicability, rule references and permit format. **MAQP #1427-09** replaced MAQP #1427-08.

D. Current Permit Action

On March 1, 2019, the Department received an application from Malmstrom to establish federally enforceable limits to keep Malmstrom below 100 tpy for all criteria pollutants. This would make Malmstrom a synthetic minor and allow a future revocation of their Title V Operating permit. Specifically, the limits proposed restrict facility operations to lower the potential to emit for NO_x, CO and SO₂ to less than 100 tpy which were the three pollutants which triggered the requirement for a Title V permit. Restricting the average daily firing rate over the heating season, and applying this over a 12-month rolling average, limits the overall heat input to approximately 314,120 MMBtu. **MAQP #1427-10** replaces MAQP #1427-09.

E. Response to Public Comments (None Received)

F. Response to Malmstrom Comments

Item	Comment	Department Response
Page 4 Table 1, IEU031	Correct to read “units in Building 1439”, there is no emergency generator in 1430.	Corrected
Page 4, II.B.2	Boiler #2 only burns natural gas. Testing for SO ₂ , PM and opacity are not an issue for this unit.	Modified to require only NO _x testing. Also added language to II.B.2 for compliance demonstrations.
Page 6, II.C.4	Condition states “Malmstrom shall document by month the hours of operation of the Building 780 emergency/backup generator at the facility. The information shall be submitted	Revised as requested. Deleted II.C.4

	along with the annual emission inventory.” Page II.C.5 already requires documentation for all generators. Request that EU0019 be treated the same as the other 29 emergency generators. Then II.C.4 can be deleted.	
Page 6, II.C.5	Please justify why the IEU’s require the same reporting requirements as the EU’s.	Removed the requirement for the IEU’s.
Page 9, MAQP Analysis	Please revise the table to read. IEU023 (Bldg 1075, off-season heating) IEU033 (Bldg 1010) IEU035 (Bldg 1012) IEU036 (Bldg 1180) IEU037 (Bldg 1075, domestic hot water) IEU038 (Bldg 1075, domestic hot water)	Revised as requested.
Page 22, MAQP Analysis	Revise “Total Particulate (Coal and Natural Gas)” to read “Total Particulate (Coal)”. Revise “PM10 (Coal and Natural Gas)” to read “PM10 (Coal)”.	Combustion of natural gas produces particulate matter generally considered to be less than 1 micron in size, however this makes it part of the reporting for PM10. See AP42 1.4. No change made.
Environmental Assessment Header	Change 341 CES/CEV to read 341 CES/CEIE	Revised as requested
Environmental Assessment Item 7.1	Revise the last sentence to read. “The site was disturbed during heat plant construction and has been industrial in nature since that time. No disturbance of historical or archaeological sites will occur under this action.”	Revised as requested

G. Additional Information

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

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARMs and are available upon request from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emissions 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).

Malmstrom shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by phone 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 four hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant which 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

Malmstrom must comply with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Malmstrom shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this rule.
6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.
7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates by reference 40 CFR 60, Standards of Performance for New Stationary Sources (NSPS). The following sources are considered NSPS-affected facilities under the following subparts.

Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. This Subpart does not apply to the heating plant boilers. The units do not produce steam and, therefore, are not affected facilities.

Subpart Kb, Volatile Organic Liquid Storage Vessels. This subpart applies to tanks for which construction, reconstruction or modification commenced after July 23, 1984. The Department determined that Subpart Kb does not apply to the above-ground fuel storage tanks listed in Section I.B of the analysis section of this permit.

40 CFR 60, Subpart IIII - 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. Malmstrom may potentially be subject to this subpart.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR 63, shall comply with the requirements of 40 CFR 63.

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. Malmstrom may potentially be subject to this subpart.

- 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. Malmstrom 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. Malmstrom was not required to submit a fee because the permit action is considered 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. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

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

- 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 alteration to construct, modify or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. Malmstrom has the PTE more than 25 tons per year of oxides of nitrogen (NO_x), carbon monoxide (CO), and oxides of sulfur (SO_x); 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. Malmstrom submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Malmstrom submitted an affidavit of publication of public notice for the February 24, 2019, issue of the Great Falls Tribune, a newspaper of general circulation in the City of Great Falls, as proof of compliance with the public notice requirements.
 6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
 7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The BACT analysis is provided 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 Malmstrom 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 one 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 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. The current permit action is an administrative amendment.
 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 FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a listed source, but emissions are greater than or equal to 250 tons per year; therefore, the facility is major. The current permit action will not cause a net emission increase of any regulated pollutant; therefore, the current permit action is not subject to major NSR review.

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 source having:
 - a. PTE > 100 tpy of any pollutant;
 - b. PTE > 10 tpy of any one HAP, PTE > 25 tpy of a combination of all HAPs, or a lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tpy of PM₁₀ in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #1427-10 for Malmstrom, 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 for a single HAP and less than 25 tpy for all HAPs.
 - c. This source is not located in a serious PM₁₀ nonattainment area.
 - d. This facility may be subject to an NSPS (40 CFR 60, Subpart IIII).
 - e. This facility may be subject to a NESHAP (40 CFR 63, Subpart ZZZZ).
 - f. This source is not a Title IV affected source, nor 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.

Malmstrom 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.

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

III. BACT Determination

A BACT determination is required for each new or modified source. Malmstrom shall install on the new or modified source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized.

A BACT analysis was not required for the current permit action because the current permit action provides federally enforceable shutdown limits which does not provide for new equipment nor modify existing equipment. Existing BACT limits were not revised under this permit action.

IV. Emission Inventory

This emission inventory reflects revised federally enforceable conditions to keep the facility below Title V Operating permit thresholds. The primary emission units at Malmstrom are the Heating Plant Boilers, which are inventoried below.

Criteria Pollutants: Heating Plant Boilers

Source	tons/year					
	PM	PM ₁₀	NO _x	SO ₂	CO	VOC
Heating Plant Boilers	52.6	52.6	78.5	52.8	43.7	1.55
Potential emissions included in this table represent worst-case emissions regardless of fuel-type combusted.						

Fuel consumption = 314,120 MMBtu/yr (Revised Permit Limit)

If All Natural Gas:

Assume conservative heat content of 900 MMBtu/MMscf

$314,120 \text{ MMBtu/yr} * 0.0011 \text{ MMscf/MMBtu} = 1110 \text{ MMscf/yr}$

If All Coal:

Assume conservative heat content of 18 MMBtu/ton

$314,200 \text{ MMBtu/yr} * 0.0556 \text{ ton/MMBtu} = 17,470 \text{ tons coal/year}$

Total Particulate (Coal and Natural Gas)

Emission Factor 4 lb/hour (Revised Permit Limit)
 PM = 4.0 lb/hour * 8760 hours/year * 0.0005 ton/lb
 = 17.52 tons/year per Boiler
 = 52.56 tons/year

PM₁₀ (Coal and Natural Gas)

Assume all TSP is PM₁₀

Emission Factor 4 lb/hour (Permit Limit)
 PM₁₀ = 4.0 lb/hour * 8760 hours/year * 0.0005 ton/lb
 = 17.52 tons/year per Boiler
 = 52.56 tons/year

NO_x Emissions (Coal and Natural Gas):

Emission Factor: 0.5 lb/MMBtu (Permit Limit)
 Fuel Consumption: 314,120 MMBtu/yr {Permit Limit}
 NO_x = 0.5 lb/MMBtu * 314,120 MMBtu/yr * 0.0005 ton/lb
 = 78.53 ton/yr

SO₂ Emissions (Coal):

Emission Factor: 0.32 lb/MMBtu (Permit Limit)
 Fuel Consumption: 314,120 MMBtu/yr (Permit Limit)
 SO₂ = 0.32 lb/MMBtu * 314,120 MMBtu/yr * 0.0005 ton/lb
 = 50.6 ton/yr

SO₂ Emissions (Natural Gas):

Emission Factor: 0.60 lb/MMscf (FIRE V 5.0 SCC 10200602)
 SO₂ = 1110 MMscf/yr * 0.60 lb/MMscf * 0.0005 ton/lb
 = 0.33 ton/yr

CO Emissions (Coal)
 Emission Factor: 5.00 lb/ton coal (FIRE V 5.0 SCC 10200204)
 CO = 17,470 tons coal/year * 5.00 lb/ton coal * 0.0005 ton/lb
 = 43.7 ton/yr

CO Emissions (Natural Gas)
 Emission Factor: 35.00 lb/MMscf (FIRE V 5.0 SCC 10200602)
 CO = 1110 MMscf/yr * 35.00 lb/MMscf * 0.0005 ton/lb
 = 19.43 ton/yr

VOC Emissions (Coal)
 Emission Factor: 0.05 lb/ton (FIRE V 5.0 SCC 10200204)
 VOC = 17,470 tons coal/year * 0.05 lb/ton * 0.0005 ton/lb =
 = 0.44 ton/yr

VOC Emissions (Natural Gas)
 Emission Factor: 2.80 lb/MMscf (FIRE V 5.0 SCC 10200602)
 VOC = 1110 MMscf/yr * 2.80 lb/MMscf * 0.0005 ton/lb =
 = 1.55 ton/yr

All emergency generators and emergency related equipment located across the site are each limited to 160 hours of operation per year. Facility emissions totals are included in the below table.

Source	Tons/year					
	PM	PM ₁₀	NO _x	SO ₂	CO	VOC
Facility Total	53.7	53.7	93.9	50.6	44.8	2.7
Potential emissions included in this table represent worst-case emissions regardless of fuel-type combusted.						

Emergency Generators PTE

Bldg.		Pollutant Emission Factor (lb/hp-hr)					Engine HP	PTE Operating Time (hr/yr)	Potential to Emit (lbs/yr)					Potential to Emit (tons/yr)									
		SO ₂	CO	NO ₂	VOC	PM ^a			SO ₂	CO	NO ₂	VOC	PM	SO ₂	CO	NO ₂	VOC	PM					
500	EU010	0.000220	0.005500	0.008810	0.000176	0.000500	1175	160	41.36	1034.00	1656.28	33.09	94.00	0.02	0.52	0.83	0.02	0.05					
1831 *	IEU031	0.008100	0.005500	0.015200	0.002202	0.000881	749	160	970.70	659.12	1821.57	263.89	105.58	0.49	0.33	0.91	0.13	0.05					
348 *	IEU031	0.002050	0.006680	0.015200	0.002470	0.002250	166	160	54.45	177.42	403.71	65.60	59.76	0.03	0.09	0.20	0.03	0.03					
780	EU019	0.001280	0.006680	0.010970	0.000507	0.002250	317	160	64.92	338.81	556.40	25.72	114.12	0.03	0.17	0.28	0.01	0.06					
165	EU011	0.000375	0.001830	0.004277	0.000265	0.000220	162	160	9.72	47.43	110.86	6.87	5.70	0.00	0.02	0.06	0.00	0.00					
82110	EU004	0.000242	0.005500	0.008700	0.000154	0.000500	1490	160	57.69	1311.20	2074.08	36.71	119.20	0.03	0.66	1.04	0.02	0.06					
1996	EU020	0.002050	0.006680	0.031000	0.002470	0.002250	166	160	54.45	177.42	823.36	65.60	59.76	0.03	0.09	0.41	0.03	0.03					
3080	EU021	0.002050	0.005500	0.015200	0.002202	0.000881	207	160	67.90	182.16	503.42	72.93	29.18	0.03	0.09	0.25	0.04	0.01					
1840	EU038	0.000011	0.000033	0.000487	0.000004	0.000033	497	160	0.90	2.63	38.74	0.35	2.63	0.00	0.00	0.02	0.00	0.00					
1845	EU023	0.002050	0.006680	0.015200	0.002470	0.002250	166	160	54.45	177.42	403.71	65.60	59.76	0.03	0.09	0.20	0.03	0.03					
1408	EU024	0.002050	0.006680	0.031000	0.002470	0.002250	102	160	33.46	109.02	505.92	40.31	36.72	0.02	0.05	0.25	0.02	0.02					
145 / 144 ..	EU040	0.000309	0.000419	0.010097	0.000086	0.000044	375	160	18.54	25.14	605.82	5.16	2.64	0.01	0.01	0.30	0.00	0.00					
2040 *	IEU031	0.008100	0.005500	0.024000	0.000700	0.000700	749	160	970.70	659.12	2876.16	83.89	83.89	0.49	0.33	1.44	0.04	0.04					
294 *	IEU031	0.002050	0.006680	0.031000	0.002470	0.002250	29	160	9.51	31.00	143.84	11.46	10.44	0.00	0.02	0.07	0.01	0.01					
1082	EU026	0.002050	0.006680	0.031000	0.002470	0.002250	207	160	67.90	221.24	1026.72	81.81	74.52	0.03	0.11	0.51	0.04	0.04					
530	EU016	0.002050	0.006680	0.031000	0.002470	0.002250	36	160	11.81	38.48	178.56	14.23	12.96	0.01	0.02	0.09	0.01	0.01					
1879	EU018	0.002050	0.006680	0.031000	0.002470	0.002250	45	160	14.76	48.10	223.20	17.78	16.20	0.01	0.02	0.11	0.01	0.01					
1482	EU027	0.008100	0.005500	0.024000	0.000700	0.000700	750	160	972.00	660.00	2880.00	84.00	84.00	0.49	0.33	1.44	0.04	0.04					
470	EU028	0.002050	0.006680	0.031000	0.002470	0.002250	317	160	103.98	338.81	1572.32	125.28	114.12	0.05	0.17	0.79	0.06	0.06					
1440	EU029	0.002050	0.006680	0.031000	0.002470	0.002250	166	160	54.45	177.42	823.36	65.60	59.76	0.03	0.09	0.41	0.03	0.03					
1439 *	IEU031	0.002050	0.006680	0.015200	0.002470	0.002250	141	160	46.25	150.70	342.91	55.72	50.76	0.02	0.08	0.17	0.03	0.03					
407	EU030	0.002050	0.006680	0.031000	0.002470	0.002250	99	160	32.47	105.81	491.04	39.12	35.64	0.02	0.05	0.25	0.02	0.02					
1075	EU031	0.002050	0.006680	0.031000	0.002470	0.002250	465	160	152.52	496.99	2306.40	183.77	167.40	0.08	0.25	1.15	0.09	0.08					
1441	EU032	0.002050	0.006700	0.031000	0.002470	0.002250	166	160	54.45	177.95	823.36	65.60	59.76	0.03	0.09	0.41	0.03	0.03					
152	EU033	0.002100	0.006700	0.031000	0.002500	0.002250	305	160	102.48	326.96	1512.80	122.00	109.80	0.05	0.16	0.76	0.06	0.05					
1320	EU034	0.002050	0.006680	0.031000	0.002470	0.002250	41	160	13.45	43.82	203.36	16.20	14.76	0.01	0.02	0.10	0.01	0.01					
1836	EU017	0.000011	0.003726	0.011905	0.000705	0.000617	100	160	0.18	59.55	190.29	11.28	9.87	0.00	0.03	0.10	0.01	0.00					
429	EU015	0.002050	0.006680	0.007709	0.000220	0.002250	27	160	8.86	28.86	33.30	0.95	9.72	0.00	0.01	0.02	0.00	0.00					
18902	EU014	0.002048	0.008223	0.007730	0.007730	0.000658	82	160	26.87	107.89	101.42	101.42	8.63	0.01	0.05	0.05	0.05	0.00					
1459 #1	EU035	0.002050	0.005500	0.031000	0.002470	0.002200	290	160	95.12	255.20	1438.40	114.61	102.08	0.05	0.13	0.72	0.06	0.05					
1459 #2	EU036	0.002050	0.005500	0.031000	0.002470	0.002200	290	160	95.12	255.20	1438.40	114.61	102.08	0.05	0.13	0.72	0.06	0.05					
1459 #3	EU037	0.002050	0.005500	0.031000	0.002470	0.002200	290	160	95.12	255.20	1438.40	114.61	102.08	0.05	0.13	0.72	0.06	0.05					
200	EU012	0.000010	0.006700	0.010600	0.000700	0.002250	755	160	1.21	809.36	1280.48	84.56	271.80	0.00	0.40	0.64	0.04	0.14					
13115	EU039	0.000012	0.001645	0.008075	0.000428	0.000280	33	160	0.06	8.58	42.12	2.23	1.46	0.00	0.00	0.02	0.00	0.00					
Total									4357.8	9498.0	30870.7	2192.6	2190.8	2.2	4.7	15.4	1.1	1.1					
Ref: Total PTE, lb/hr									27.2	59.4	192.9	13.7	13.7										

V. Air Quality Impacts

The Department does not anticipate any additional adverse air quality impacts as a result of this permitting action. The permit action incorporates federally enforceable permit conditions which limits the PTE of the facility. Malmstrom will need to continue to provide recordkeeping documenting facility emissions.

VI. Existing Air Quality

The facility is in an area identified as attainment for all pollutants. However, the facility is located near an area that has been re-designated attainment for CO under a limited maintenance plan. The Malmstrom facility has not been identified in any studies as impacting the previous nonattainment area. The current permit action provides for a decrease in potential emissions.

VII. Taking or Damaging Implication Analysis

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

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

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

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Air, Energy & Mining Division
Air Quality Bureau
1520 East Sixth Avenue
P.O. Box 200901, Helena, Montana 59620-0901
(406) 444-3490

ENVIRONMENTAL ASSESSMENT (EA)

Issued For: Malmstrom Air Force Base
341 CES/CEIE
39-78th Street North
Great Falls, MT 59402-7536

Montana Air Quality Permit (MAQP) Number: 1427-10

Draft EA Issued: 05/10/2019

Final EA Issued: 06/11/2019

Permit Final: 06/27/2019

1. *Legal Description of Site:* Township 20 North, Range 4 and 5 East, in Cascade County.
2. *Description of Project:* With this application Malmstrom is requesting federally enforceable shutdown limits which will lower their potential to emit below 100 tons per year for all criteria pollutants. Once this action is complete, Malmstrom may choose to request the revocation of their existing Title V Operating permit.
3. *Objectives of Project:* Request federally enforceable conditions which will allow Malmstrom to request a revocation of their Title V Operating permit.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. The “no-action” alternative would deny issuance of the MAQP to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because Malmstrom demonstrated compliance with all applicable rules and regulations as required for permit issuance. If the “no-action” alternative were implemented, no emission increases would occur. Therefore, the “no-action” alternative was eliminated from further consideration.
5. *A listing of mitigation, stipulations and other controls:* A list of enforceable permit conditions and a complete permit analysis, including BACT determinations, would be contained in MAQP #1427-10.
6. *Regulatory effects on private property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and to demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. *The following summarizes the potential physical and biological effects of the proposed project on the human environment for the thermal combustor project. The "no action alternative" was discussed previously.*

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

A. *Terrestrial and Aquatic Life and Habitats*

This permit action would limit fuel usage and remove some equipment from service. Actual emissions may not go down but the potential to emit will be reduced under the new federally enforceable conditions. No discernible impact to terrestrial and aquatic life and habitats as a result of the changes permitted in MAQP #1427-10 would be expected. Any impacts would be expected to be minor.

B. *Water Quality, Quantity, and Distribution*

This permit action would limit fuel usage and remove some equipment from service. Actual emissions may not go down but the potential to emit will be reduced under the new federally enforceable conditions. The emissions changes would not be expected to result in any discernible impact to water quality, quantity, and distribution. Impacts to water quality would be expected to be minor.

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

The proposed changes occur within the existing facility property boundary on an area previously disturbed. Impacts to geology and soil quality, stability, and moisture are not expected with this action.

D. *Vegetation Cover, Quantity, and Quality*

This permit action would limit fuel usage and remove some equipment from service. Actual emissions may not go down but the potential to emit will be reduced under the new federally enforceable conditions. The emissions changes would not be expected to result in any discernible impact to vegetation cover, quantity, and quality. No new disturbance occurs with this action.

E. *Aesthetics*

The proposed changes will not change the aesthetics of the industrial site. No change would occur with the current aesthetics.

F. *Air Quality*

This permit action would limit fuel usage and remove some equipment from service. Actual emissions may not go down but the potential to emit will be reduced under the new federally enforceable conditions. The changes would not be expected to result in any more than minor impacts to current air quality.

G. *Unique Endangered, Fragile, or Limited Environmental Resources*

No discernible change in impacts to any unique endangered, fragile, or limited environmental resources would be expected as a result of this project. Any impacts to unique endangered, fragile, or limited environmental resources as a result of this project would be expected to be minor.

H. *Demands on Environmental Resource of Water, Air, and Energy*

As discussed in Section F. above, no more than minor impacts to current air quality would be expected as a result of this project. As discussed in Section B. above, no more than minor impacts would be expected to occur. No significant change to energy needs would be expected as a result of this project. Demands on resources of water, air, and energy would be expected to be minor.

I. *Historical and Archaeological Sites*

The permitting action would not result in new ground disturbance. No impacts to any historical and archaeological sites would be expected to occur. The site was disturbed during heat plant construction and has been industrial in nature since that time. No disturbance of historical or archaeological sites will occur under this action.

J. *Cumulative and Secondary Impacts*

Impacts to the individual physical and biological considerations above would be expected to be minor. Cumulatively, these impacts are expected to be minor. Further, secondary impacts would be expected to be minor.

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

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS:

The following comments have been prepared by the Department:

A. *Social Structures and Mores*

The permitting action would not be expected to cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area. The nature of the site will not be changed and any impacts to social structures and mores would be expected to be minor.

B. *Cultural Uniqueness and Diversity*

The permitting action would not be expected to cause a change in the cultural uniqueness and diversity of the area. The nature of the site will not be changed. No impacts to cultural uniqueness and diversity would be expected.

C. *Local and State Tax Base and Tax Revenue*

Discontinuing construction plans as part of this action may result in a lower tax base. However, no large-scale impacts to the local and state tax base and tax revenue would be expected.

D. *Agricultural or Industrial Production*

The permitting action would not result in a reduction of available acreage of any agricultural land outside of Malmstrom. Changes in emissions of air pollutants would not be expected to impact agricultural productivity. No impacts to industrial production would be expected.

E. *Human Health*

As described in Section 7.F and 7.H of this environmental assessment, impacts on air quality, water quality, and energy demands are expected to be minor. Further, the permit would have conditions and limitations derived from rules intended to protect public health. No more than minor impacts to human health would be expected as a result of this permitting action.

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

This permitting action would not be expected to have an impact on recreational or wilderness activities because the site is removed from recreational and wilderness areas or access routes. The action would not result in any changes in access to and quality of recreational and wilderness activities. Any impacts to recreational and wilderness activities would be expected to be minor.

G. *Quantity and Distribution of Employment*

No change or only a minor change to the number of employees at the facility or in support of the facility is expected as a result of this permitting action. Any impacts to the quantity and distribution of employment would be expected to be minor.

H. *Distribution of Population*

This permitting action does not involve any physical change that would be expected to affect the location, distribution, density, or growth rate of the human population. The distribution of population would not be expected to change as a result of this action. Any impacts would be expected to be minor.

I. *Demands of Government Services*

The demands on government services are not expected to increase with this permitting action. No additional permits are expected to be required.

J. *Industrial and Commercial Activity*

No change is expected to occur on industrial and commercial activity as actual run hours will not be lower than the most recent baseline.

K. *Locally Adopted Environmental Plans and Goals*

The Department is not aware of any locally adopted environmental plans and goals which this project would interfere with.

L. *Cumulative and Secondary Impacts*

The impacts to the individual social and economic considerations above would be expected to be minor. From a cumulative viewpoint, and in consideration of secondary impacts, impacts would be expected to be minor.

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

If an EIS is not required, explain why the EA is an appropriate level of analysis: All potential effects resulting from this permitting action would be minor; therefore, an EIS is not required. In addition, this permit action would limit fuel usage and remove some equipment from service. Actual emissions may not go down but the potential to emit will be reduced under the federally enforceable conditions incorporated into this permit.

Other groups or agencies contacted, or which may have overlapping jurisdiction: None.

Individuals or groups contributing to this EA: Department of Environmental Quality, Air, Energy & Mining Division - Air Quality Bureau.

EA Prepared By: Craig Henrikson

Date: 3/18/2019