

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OPERATING PERMIT TECHNICAL REVIEW DOCUMENT**

**STATE OF MONTANA
Department of Environmental Quality
1520 E. Sixth Avenue
P.O. Box 200901
Helena, Montana 59620**

Department of the Air Force
Malmstrom Air Force Base, Montana
Section 2, Township 20 North, Range 4 East, Cascade County, MT
341 CES/CEV
39 – 78th Street North
Malmstrom AFB, MT

The following table summarizes the air quality programs testing, monitoring, and reporting requirements applicable to Malmstrom Air Force Base, Montana (Malmstrom).

Facility Compliance Requirements	Yes	No	Comments
Source Tests Required	X		Methods 5, 6, 7, and 9
Ambient Monitoring Required		X	
COMS Required		X	
CEMS Required		X	
Schedule of Compliance Required		X	
Annual Compliance Certification and Semiannual Reporting Required	X		As Applicable
Monthly Reporting Required		X	
Quarterly Reporting Required	X		As Applicable
Applicable Air Quality Programs			
ARM Subchapter 7 Montana Air Quality Permitting	X		MAQP #1427-08
New Source Performance Standards (NSPS)		X	
National Emission Standards for Hazardous Air Pollutants (NESHAPS)		X	Except Subpart M
Maximum Achievable Control Technology (MACT)		X	
Major New Source Review (NSR)/Prevention of Significant Deterioration (PSD)	X		NO _x Emissions Exceed 250 tpy
Risk Management Plan Required (RMP)		X	
Acid Rain Title IV		X	
State Implementation Plan (SIP)	X		General SIP
Compliance Assurance Monitoring (CAM)	X		Appendix E

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SECTION I. GENERAL INFORMATION

A. Purpose

This document establishes the basis for the decisions made regarding the applicable requirements, monitoring plan, and compliance status of emission units affected by the operating permit proposed for this facility. The document is intended for reference during review of the proposed permit by the United States Environmental Protection Agency (EPA) and the public. It is also intended to provide background information not included in the operating permit and to document issues that may become important during modifications or renewals of the permit. Conclusions in this document are based on information provided in the original application submitted by the Department of the Air Force, Malmstrom Air Force Base (Malmstrom) on July 12, 1995, an additional submittal on June 19, 1998; an application submitted for a significant modification on November 26, 2002; an application for a significant modification submitted to the Department of Environmental Quality (Department) on February 11, 2004, with additional information received on July 28, 2004 (Administrative Amendment request); the application for Title V Operating Permit renewal submitted to the Department on December 30, 2004; an application for a significant modification submitted on May 16, 2005, an application for a minor modification on January 26, 2010, an application for an administrative amendment received by the Department on August 13, 2010, an application for a Title V renewal received on June 13, 2011, an administrative amendment request on January 18, 2012, and an administrative amendment submitted May 29, 2013 with follow up information submitted June 4th, 2013.

B. Facility Location

Malmstrom is located at 39 – 78th Street North, Malmstrom Air Force Base, Montana, within Section 2, Township 20 North, Range 4 East, Cascade County, Montana.

C. Facility Background Information

Montana Air Quality Permit (MAQP) History

MAQP #1427 (MAQP #1427-00) was issued to the US Air Force - Malmstrom AFB 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. The boilers have been installed on the base. Each boiler is 85 million British thermal units heat output per hour (MMBtu/hr), 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 Health and Environmental Sciences, predecessor to the Department, determined the boilers are not subject to New Source Performance Standards (NSPS) because the size of the boilers is below the cut-off 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 also required to obtain an EPA PSD permit for this project since the state of Montana did not have a fully delegated program at the time the permit application was processed. The **EPA PSD permit** was issued pursuant to 40 CFR 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 states that the maximum operating level of the system shall 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 is burning low sulfur coal or being operated at low loads. Because the emissions under this scenario are below the limits identified in the Department permit, the Department has determined that the SO₂ emission limits contained in the permit are sufficient to maintain the ambient air quality of the area. MAQP #1427-02 also identified the fuels that each of the boilers are capable of burning.

In addition, MAQP #1427-02 allowed Malmstrom to bypass the scrubbers and baghouses on the boilers during startup, until the scrubber inlet temperature reaches approximately 350 degrees Fahrenheit (°F). At temperatures below this level, the moisture in the lime slurry will not be completely evaporated and will cause blinding of the bags. All emission limits are 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 permit 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) ensures that emissions of any pollutant from the three boilers will be less than 250 tons/year, and established the installation of the boilers as a "synthetic minor" modification. Therefore, the installation of the boilers will not be subject to the requirements of the PSD program and it will be 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 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 is accomplished through a private contractor, and the gas supply for the incinerator has been disconnected.

In addition, MAQP #1427-04 removed 2 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) above ground 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) are each 210,000-gallon and primarily support the helicopters used by the 341st missile wing.

Further, the permit modification also established a new testing campaign to begin by January 31, 2001, and to perform compliance testing on a once every 4-year basis thereafter. Malmstrom requested a 1-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, have been selected for outsourcing and will be operated by a private (non-government) contractor. The contractor that was awarded the bid for services will begin 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, from Malmstrom, a request 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, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels. However, based on information in the permit modification request, it was evident that changes in Air Force policy and practice make 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 the previously mentioned fuel storage tanks, the tanks were subject to the requirements of 40 CFR 60, Subpart Kb. However, according to current Air Force policy, the Air Force no longer utilizes JP-4 jet fuel and has 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 kPa; therefore, storage of JP-8 or a similar jet fuel with a vapor pressure <3.5 kPa will render the jet fuel storage tanks H-1 and H-2 as non-affected sources under 40 CFR 60, Subpart Kb, 60.110b. Therefore, because of the physical characteristics of JP-8 jet fuel, and because current Air Force policy dictates the storage of JP-8 jet fuel only, the fuel storage tanks H-1 and H-2 are no longer subject to the requirements of 40 CFR 60, Subpart Kb.

The permit action removed 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 JP-8 jet fuel or a similar jet fuel with a vapor pressure <3.5 kPa only. Finally, the permit action updated the equipment list in section I.B of the permit analysis to MAQP #1427-04 to properly identify the 210,000-gallon fuel storage tanks H-1 and H-2. **MAQP #1427-05** replaced MAQP #1427-04.

On November 26, 2002, the Department received a permit modification request from Malmstrom for the replacement of an 11.954 MMBtu/hr boiler with two 2.1 MMBtu/hr units in Building 1075. The request also included the installation of a 200 kilowatt emergency/backup diesel generator in Building 780. **MAQP #1427-06** replaced MAQP #1427-05.

On March 25, 2004, the Department received a complete permit application to modify Malmstrom's air quality 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 – Prevention of Significant Deterioration (NSR/PSD) significance threshold for all pollutants. Therefore, the permit action was not subject to NSR/PSD review. **MAQP # 1427-07** replaced MAQP #1427-06.

On August 19, 2005, the Department of Environmental Quality (Department) issued an administrative amendment to Malmstrom for changes to Montana Air Quality Permit #1427-07 under the provisions contained in the Administrative Rules of Montana (ARM) 17.8.764, Administrative Amendment to Permit. The requested changes included 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.

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 this language under this permit action. The Classified Document Incinerator and all associated requirements have been removed under this 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. A HAPs emission inventory was included in Section IV of the permit analysis to this permit. **MAQP #1427-08** replaced MAQP #1427-07.

D. Title V Operating Permit History

Operating Permit #OP1427-00 was issued as final on July 2, 2000.

Correspondence from Malmstrom received on January 10, 2001, requested an administrative amendment to Operating Permit #OP1427-00. The letter addressed a reporting requirement, Section III.B.21.c, that Malmstrom perceived was an error, and subsequently requested that the requirement be removed from the permit. Upon review of the permit, the Department determined that the above referenced requirement was appropriate, but had erroneously requested a summary of any maintenance work performed on the heating plant boilers. The Department has modified Section III.B.21.c to require Malmstrom to submit a summary of any maintenance performed on the dry lime scrubbers or the baghouses used to control emissions from heating plant boilers #1 and #3. **Operating Permit #OP1427-01** replaced Operating Permit #OP1427-00.

On July 26, 2002, the Department received correspondence from Malmstrom for an administrative amendment to Operating Permit #OP1427-01, for a change in the responsible official and contact person. The permit was updated to reflect that change. **Operating Permit #OP1427-02** replaced Operating Permit #OP1427-01.

On November 26, 2002, the Department received correspondence from Malmstrom requesting the addition of a 200 kilowatt emergency/backup diesel generator in Building 780 (EU011) and the removal of the 11.954 MMBtu/hr boiler from Building 1075 (previously identified as EU004). This boiler was replaced by two 2.1 MMBtu/hr units, which are insignificant emitting units. **Operating Permit #OP1427-03** replaced Operating Permit #OP1427-02.

On December 11, 2004, Malmstrom was issued **Operating Permit #OP1427-04** for process changes to heating plant boilers #1 and #3. The permitted 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 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.

The permit action modified the allowable fuels for Boiler #3 from coal only to coal and/or natural gas. This change was reflected in Section III.B of Operating Permit #OP1427-04.

Further, on July 30, 2004, the Department received official notification of a change in responsible official from former Colonel C. Donald Alston to incoming Colonel Everett H. Thomas. The permit action included Colonel Everett H. Thomas as the responsible official. **Operating Permit #OP1427-04** replaced Operating Permit #OP1427-03.

As required under ARM 17.8.1205(d), on December 30, 2004, Malmstrom submitted to the Department an application for renewal of Operating Permit #OP1427-04. The application for Title V Operating Permit renewal indicated the following changes to the Title V Operating Permit:

- Addition of the Building 500 diesel-fired emergency/back-up generator to Malmstrom's permitted emitting units ((EU011) Operating Permit #OP1427-04), since potential NOx emissions from the unit exceed the significant emissions threshold of 5 tons per year;
- In accordance with the Administrative Rules of Montana (ARM) 17.8.1509, the incorporation of a Compliance Assurance Monitoring (CAM) plan(s) for particulate matter with an aerodynamic diameter of 10 microns or greater (PM10) (fabric filter baghouse) and SO2 (spray dryer absorber) emissions from the heating plant boiler(s) #1 and #3 (see Appendix E); and
- Removal of permit conditions (Sections III.B.9 and III.B.10 in Operating Permit #OP1427-04) allowing Malmstrom to bypass the boiler scrubber and baghouse when combusting coal in Boiler #1 and #3 until such time as the boiler reaches 350°F. Under MAQP #1427-07, issued final on June 4, 2004, Malmstrom installed natural gas-fired low NOx burners on Boiler #1 and #3 providing a mechanism for bringing the boiler temperature up to 350°F before firing coal thereby removing the need for bypass of the affected control equipment.

In addition to the above-cited changes to the Title V Operating Permit, Malmstrom requested the addition of various units to the list of insignificant emitting units. The requested changes above were incorporated into the current Title V Operating Permit renewal.

Further, on May 16, 2005, the Department received a request from Malmstrom for various additional changes to the Title V Operating Permit. The requested changes include the following:

- Removal of EU09 (Operating Permit #OP1427-04), Classified Documents Incinerator, from the permit;
- Removal of IEU023 (Operating Permit #OP1427-04), Waste Oil Burner, from the list of insignificant emitting units;
- Relaxation of the current Method 9 source testing schedule for the heating plant boilers from an annual requirement to an annual requirement only if the affected boiler(s) operate for a period exceeding 4 hours during any year;
- Clarification of the term "on-site" as it relates to the physical location of the Title V operating Permit at the base;
- Clarification of the heating plant boiler heating value limit to specify a combined boiler "heat input" value of 212 MMBtu/hr; and

- The addition of “National Security Emergency” language as recommended by the Pentagon. At this time, the Department does not believe that the addition of the requested “National Security Emergency” language is appropriate for the Title V Operating Permit; therefore, the Department did not include this language in the current permit action.

In accordance with ARM 17.8.1226, the above-cited changes constitute minor modifications to the Title V Operating Permit except the relaxation of source testing for the heating plant boiler(s), which constitutes a significant modification of the Title V Operating Permit under ARM 17.8.1227. Since Malmstrom’s Title V Operating Permit was opened for renewal, the requested changes were included in the renewal, as appropriate.

In addition, on July 26, 2006, the Department received notification of a change in the facility responsible official from Colonel Everett H. Thomas to Colonel Sandra E. Finan. The responsible official contact has been updated under the current permit action. **Operating Permit #OP1427-05** replaced Operating Permit #OP1427-04.

On January 26, 2010, Malmstrom submitted a request to the Department for a minor modification of Operating Permit #OP1427-05. The request included changes in indicator ranges on the CAM plan. During testing, Malmstrom successfully demonstrated compliance with its particulate matter emission limits while operating the Boiler #1 baghouse, and the Boiler #3 baghouse at a pressure drop of up to 3.5 inches of water. However, consistent with experience of others in the industry, Malmstrom has determined that the bags work best when there is a slight cake build-up on the bags, which occurs at a slightly higher pressure drop than is currently in the CAM plan. Malmstrom’s request was to change the indicator range pressure drop from between 0.10 and 3.0 inches of water to between 0.10 and 4.0 inches of water.

In addition, during the March 2009 source testing, Malmstrom demonstrated compliance with its SO₂ emission limits during high loads while operating the spray dryer absorber with a lime slurry flow rate of 8 gallons/minute. Additionally, an increased lime slurry flow is necessary to cool the flue gas to proper operating temperature for the baghouse at high loads. Malmstrom requested to change the lime slurry flow rate indicator range from 0.5 to 4.0 gallons per minute to 0.5 to 8.0 gallons per minute.

On August 11, 2008, Malmstrom also requested a change in responsible official from Colonel Sandra E. Finan to Colonel Michael E. Fortney. **Operating Permit #OP1427-06** replaced Operating Permit #OP1427-05.

On August 13, 2010, Malmstrom requested an administrative amendment to change the responsible official from Colonel Michael E. Fortney to Colonel Anthony J. Cotton. In a letter received on November 22, 2010 Malmstrom also informed the Department of the installation of a 5.1 MMBtu/hr natural gas fueled water heater as part of the new Community Activities Center (Building 1010). The project was accomplished under the provisions of the de minimis rule (ARM17.8.745) and qualified as an insignificant emitting source since the project’s potential to emit any regulated pollutant was less than the 5 tons per year threshold outlined in ARM 17.8.1201(22)(a). **Operating Permit #OP1427-07** replaced Operating Permit #OP1427-06.

On June 13, 2011 the Department received a Title V Permit renewal application from Malmstrom. The renewal application was intended to satisfy the renewal requirements for Montana Air Quality Operating Permit #OP1427-07 in accordance with the Administrative Rules of Montana (ARM) 17.8.1205(3)(a). The renewal application provided information on any modifications or additions since the last permit renewal. With respect to the existing permit, Malmstrom had added four sources since the last modification and proposed to update the Compliance Assurance Monitoring (CAM) Plan for the Central Heat Plant Boilers #1 and #3.

The new sources included the addition of: an emergency/backup diesel generator at Building 18902, two natural gas fired hot water heating boilers at the Fitness Center, and one natural gas fired hot water heating boiler at the Community Activities Center. On September 20, 2007 and December 1, 2010, the Department sent letters to Malmstrom confirming that the hot water heating boilers at the Community Activities and Fitness Center fall under the de minimus rule under the Title V program. The requested changes above were incorporated into the current Title V Operating Permit renewal.

The proposed change to the SO₂ CAM Plan for the Central Heat Plant boilers included modifying the indicator ranges of the temperature parameter for the spray dry absorber. For indicator range #2, the proposed change was to decrease the low end temperature indicator range from 195 to 170 degrees Fahrenheit. The requested changes above were included in the CAM Plan of the Title V Operating Permit renewal.

On January 18, 2012, Malmstrom requested an administrative amendment to change the responsible official from Colonel Anthony J. Cotton to Colonel Heraldo B Brual. **Title V Operating Permit #OP1427-08** replaced Title V Operating Permit #OP1427-07.

E. Current Permit Action

On May 29, 2013, the Department received an administrative amendment request to update the Title V Operating Permit to reflect a change in responsible official. Colonel Robert W. Stanley II replaced Colonel Heraldo B Brual as the responsible official. On June 4, 2013, the Department asked for confirmation regarding appropriate phone number remaining the same, and to obtain an email address for the RO, and the information was received. The current permit action is an administrative action updating the responsible official, and updating the de minimis language reference to reflect that the de minimis rule is no longer a state-only condition. **Operating Permit #OP1427-09** replaces #OP1427-08.

F. Taking and Damaging Analysis

HB 311, the Montana Private Property Assessment Act, requires analysis of every proposed state agency administrative rule, policy, permit condition or permit denial, pertaining to an environmental matter, to determine whether the state action constitutes a taking or damaging of private real property that requires compensation under the Montana or U.S. Constitution. As part of issuing an operating permit, the Department is required to complete a Taking and Damaging Checklist. As required by 2-10-101 through 105, MCA, the Department has conducted a private property taking and damaging assessment and has determined there are no taking or damaging implications. The checklist was completed on January 30, 2012.

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?

YES	NO	
	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.

G. Compliance Designation

Malmstrom was last inspected on September 16, 2011, and was found to be in compliance with all applicable requirements.

SECTION II. SUMMARY OF EMISSION UNITS

A. Facility Process Description

Malmstrom houses the 341st Missile Wing and the 819th Red Horse Engineering Squadron. The 341st Missile Wing operates 200 Minuteman missile launch facilities and 20 Minuteman missile alert facilities. The main function of the Red Horse Engineering Squadron is to maintain readiness for deployment to other geographical areas.

B. Emission Units and Pollution Control Device Identification

The emission units regulated by this permit are the following (ARM 17.8.1211):

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 (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	Auxiliary Power Generator (diesel) Building 82110	NA
EU005	Coal Yard Handling System	Fabric Filter Baghouse
EU006	Landfill #1	NA
EU007	Landfill #2	NA
EU008	JP-8 Fuel Storage Tanks (H-1 and H-2)	Internal Floating Roof
EU009	Building 780 Emergency/Backup Diesel Generator	Limited Operation
EU010	Building 500 Emergency/Backup Diesel Generator	Limited Operation

C. Categorically Insignificant Sources/Activities

The following table of insignificant sources and/or activities was provided by Malmstrom to assist in understanding the facility's layout. Because there are no requirements to update such a list, the emission units and/or activities may change from those specified in the table.

Emissions Unit ID	Description
IEU01	Aircraft Maintenance
IEU02	Aircraft Refueling
IEU03	Ground Vehicle Maintenance
IEU04	Privately Owned Vehicle Refueling
IEU05	Government Owned Vehicle Refueling
IEU06	Summer Hot Water Generators
IEU07	Refrigeration and Air Conditioning
IEU08	Redhorse Auxiliary Generators
IEU09	Craft / Hobby Centers
IEU010	Open Grill Restaurants
IEU011	Small Arms Firing
IEU012	Welding
IEU013	Woodworking
IEU014	Explosive Ordinance Disposal
IEU015	Oil / Water Separators
IEU016	Fire Training
IEU017	Pesticide Use
IEU018	Painting of Structures
IEU019	Fuel Storage Tanks (Excluding JP-8 Fuel Tanks H-1 and H-2)
IEU020	Spray Painting Booths

IEU021	Miscellaneous Chemical Use
IEU022	Solvent Degreasing
IEU023	Building 1075 Natural Gas Fired Boilers
IEU024	Asphalt Content Tester
IEU025	Abrasive Blasting
IEU026	Equipment Leaks
IEU027	Fuel Transfer
IEU028	Heavy Construction Operations
IEU029	Landfarm Operations
IEU030	Lime Storage Handling
IEU031	Small Emergency Generators
IEU032	Wet Cooling Towers
IEU033	5.1 MMBtu/hr natural gas fueled water heater (Building 1010)
IEU034	35 kW Emergency/Backup Diesel Generator (Building 18902)
IEU035	Two 5.1 MMBtu/hr Natural Gas Fired Hot Water Heating Boilers (Building 1012)
IEU036	5.1 MMBtu/hr Natural Gas Fired Hot Water Heating Boiler (Building 1180)

SECTION III. PERMIT CONDITIONS

A. Emission Limits and Standards

The Department determined that the applicable emission limits that apply to the Heating Plant Boilers #1, #2, and #3 (EU001, EU002, EU003) are as follows: particulate matter = 4.0 lb/hr; sulfur dioxide emissions = 0.320 lb/MMBtu or 33.90 lb/hr; oxides of nitrogen emissions = 0.50 lb/MMBtu or 53.0 lb/hr. The applicable limits were established in Malmstrom's MAQP #1427-08.

The Department determined that the applicable particulate matter emission limit that applies to the Auxiliary Power Generator Building 82110 (EU004) is established using the particulate matter fuel burning calculation for new fuel burning equipment contained in ARM 17.8.309.

The Department determined that the applicable opacity and particulate matter emission limits that apply to the Coal Yard Handling System (EU005) are as follows: 20% opacity and 0.02 grains per dry standard cubic feet of air-flow through the fabric filter baghouse control unit. The applicable limit was established in Malmstrom's MAQP #1427-06.

The Department determined that the applicable opacity limit that applies to Landfill #1 (EU006) and Landfill #2 (EU007), respectively, is 20% opacity. The applicable limit is established in accordance with the provisions contained in ARM 17.8.308.

The Department determined that the applicable opacity limit that applies to the JP-8 Fuel Storage Tanks H-1 and H-2 (EU008) is 20% opacity. The applicable limit is established in accordance with the provisions contained in ARM 17.8.308.

The Department determined that the applicable particulate matter emission limit that applies to the Building 780 (EU009) and Building 500 (EU010) Emergency/Backup Generator(s) is established using the particulate matter fuel burning calculation for new fuel burning equipment contained in ARM 17.8.309.

B. Monitoring Requirements

ARM 17.8.1212(1) requires that all monitoring and analysis procedures or test methods required under applicable requirements are contained in operating permits. In addition, when the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirements for testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor for all emission units. Furthermore, it does not require extensive testing or monitoring to assure compliance with the applicable requirements for emission units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. When compliance with the underlying applicable requirement for a insignificant emissions unit is not threatened by lack of regular monitoring and when periodic testing or monitoring is not otherwise required by the applicable requirement, the status quo (**i.e., no monitoring**) will meet the requirements of ARM 17.8.1212(1). Therefore, the permit does not include monitoring for insignificant emission units.

The permit includes periodic monitoring or recordkeeping for each applicable requirement. The information obtained from the monitoring and recordkeeping will be used by Malmstrom to periodically certify compliance with the emission limits and standards. However, the Department may request additional testing to determine compliance with the emission limits and standards.

Heating Plant Boilers #1, #2, #3 (EU001, EU002, EU003)

The Department determined that an annual Reference Method 9 visual observation (unless the boiler operates for a period less than 4 hours per year), Stack testing in accordance with Method 5 every 4 years, Method 6 every 2 years, and Method 7 every 2 years are sufficient to monitor compliance with the opacity, particulate, sulfur dioxide (SO₂), and oxides of nitrogen (NO_x) emission limits, respectively, for the Heating Plant Boilers #1, #2, #3.

Further, the boilers are limited to a maximum heat content of 999,000 MMBtu/year heat input and 212 MMBtu/hr heat input by conditions in MAQP #1427-08. This limit was placed on the equipment to ensure that emissions are not significantly greater than those on which the permit analysis was performed.

Finally, the Department determined that record keeping shall be sufficient to monitor compliance with the fuel use (type) and sulfur-in-fuel limits for the boilers.

Auxiliary Power Generator Building 82110 (EU004);
Building 780 Emergency/Backup Generator (EU009); and
Building 500 Emergency/Backup Generator (EU010)

The Department determined that Reference Method 9 visual observations, as required by the Department, are sufficient to monitor compliance with the opacity limit for these generators. Further, the Department determined that the burning of diesel-fuel only shall be sufficient to monitor compliance with the particulate and sulfur-in-fuel limits and requirements for these generators. Finally, the Department placed a 500-hour per year operating limit on the Auxiliary Power Generator Building 82110 to ensure its use as an emergency backup power unit and the Building 780 Emergency/Backup Generator is limited to use only when electric power from the local utility is interrupted or as necessary for routine maintenance of the generator.

Coal Yard Handling System (EU005)

The Department determined that while the base is utilizing coal to fire the heating plant boilers an annual Reference Method 9 visual observation and Stack testing in accordance with Method 5, as required by the Department, are sufficient to demonstrate compliance with the opacity and particulate limits for the Coal Yard Handling System.

Landfill #1 and Landfill #2 (EU006, EU007)

The Department determined that a Method 9 opacity source test, as required by the Department, shall be sufficient to demonstrate compliance with the opacity limitation for Landfill #1 and Landfill #2.

JP-8 Fuel Storage Tanks (EU008)

The Department determined that a Method 9 opacity source test, as required by the Department, shall be sufficient to demonstrate compliance with the opacity limitation for the JP-8 storage fuel tanks (H-1 and H-2). Further, the Department determined that recordkeeping will be sufficient to satisfy the fuel use requirement for the JP-8 storage fuel tanks (H-1 and H-2).

C. Test Methods and Procedures

The operating permit may not require testing for all sources if routine monitoring is used to determine compliance, but the Department has the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, Malmstrom may elect to voluntarily conduct compliance testing to confirm its compliance status.

D. Recordkeeping Requirements

Malmstrom is required to keep all records listed in the operating permit as a permanent business record for at least 5 years following the date of the generation of the record.

E. Reporting Requirements

Reporting requirements are included in the permit for each emissions unit and Section V of the operating permit "General Conditions" explains the reporting requirements. However, Malmstrom is required to submit semi-annual and annual monitoring reports to the Department and to annually certify compliance with the applicable requirements contained in the permit. The reports must include a list of all emission limit and monitoring deviations, the reason for any deviation, and the corrective action taken as a result of any deviation.

F. Public Notice

As an administrative action, no public notice is required.

SECTION IV. NON-APPLICABLE REQUIREMENT ANALYSIS

Pursuant to ARM 17.8.1221, Malmstrom requested a permit shield for all non-applicable regulatory requirements and regulatory orders identified in Table 8-1 of the original Title V Operating Permit application.

The following table outlines those requirements that Malmstrom had identified as non-applicable in the original permit application but, after Department review, will not be included in the operating permit as non-applicable. The table includes both the applicable requirement and reason that the Department did not identify this requirement as non-applicable. Malmstrom's application for Title V Operating Permit renewal identified several additional non-applicable requirements, none of which have been included in the following table. The non-applicable requirements listed in the Title V Operating Permit renewal application are identified in Section IV of Title V Operating Permit #OP1427-08.

Rule Citation	Reason
40 CFR Part 50 40 CFR Part 51 40 CFR Part 58 40 CFR Part 71	Although these rules contain requirements for the regulatory authorities and not major sources, these rules can be used as authority to impose specific requirements on a major source.
40 CFR Part 70	This rule does not have specific requirements and may or may not be relevant to a major source and should never be listed in the applicable or non-applicable requirements.
40 CFR Part 52 40 CFR Part 62	This rule does not have specific requirements and is always relevant to a major source and should never be listed in the applicable or non-applicable requirements.
ARM 17.8.120 ARM 17.8.611 ARM 17.8.612	This rule is procedural and has specific requirements that may become relevant to a major source during the permit span.
ARM 17.8.340	Shield granted under 40 CFR Part 60
ARM 17.8.210 ARM 17.8.211 ARM 17.8.212 ARM 17.8.213 ARM 17.8.222 ARM 17.8.223 ARM 17.8.304 ARM 17.8.309 ARM 17.8.310 ARM 17.8.341	These rules are applicable to the source and may contain specific requirements for compliance. These rules are applicable to the source and may contain specific requirements for compliance.
40 CFR 60, Subpart A	These rules consist of either a statement of purpose, applicability statement, regulatory definitions or a statement of incorporation by reference. These types of rules do not have specific requirements associated with them.

SECTION V. FUTURE PERMIT CONSIDERATIONS

A. MACT Standards

In 2004, the Department requested a determination of rules applicability from the EPA. Specifically, the request concerned source applicability under the Maximum Achievable Control Technology (MACT) requirements contained at that time in 40 CFR 63, Subpart DDDDD, NESHAPs from Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT) as applicable to major sources. Based on EPA's response, the Department determined that boilers, such as the hot water heaters in Malmstrom's heating plant, may be subject to the Boiler MACT. The final rule for the original Boiler MACT was effective on November 12, 2004.

By definition, the owner or operator of an affected unit(s), located at a major source of Hazardous Air Pollutants (HAPs), would be subject to the original Boiler MACT requirements. The Department determined that the heating plant boilers at Malmstrom would be affected units, as defined in the Boiler MACT. However, using conservative emission factors published in EPA's "Development of Average Emission Factors and Baseline Emission Estimates for the Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants" (Model 2f emission factors), and supporting source-specific testing data (Malmstrom HCl and HF source testing results submitted to Department on July 11, 2005), the Department determined that Malmstrom is a minor source of HAPs. Therefore, Malmstrom is not subject to the Boiler MACT under 40 CFR 63, Subpart DDDDD. The original Boiler MACT requirements contained in 40 CFR 63, Subpart DDDDD were vacated by EPA and taken out of the Department rules.

Following the vacature, EPA was directed to establish Boiler MACT standards for both major and area sources of HAPs. The final Boiler MACTs (both for major and area sources) were published on March 21, 2011. Malmstrom, as an area source of HAPs, would be subject to requirements under the area source Boiler MACT, 40 CFR 63, Subpart JJJJJ. Pursuant to Subpart JJJJJ, Malmstrom would be required to comply with this final rule no later than March 21, 2014.

B. NESHAP Standards

As of the date of this permit, the Department is not aware of any NESHAP Standards that are applicable to this source, except for asbestos abatement projects as detailed below.

Asbestos abatement projects and building demolition/renovation activities will be conducted in accordance with applicable asbestos regulatory requirements. Those regulatory requirements include, but are not limited to 29 CFR 1926.1101; 40 CFR 763 Sections 120, 121, 124, and Subpart E; 40 CFR Part 61, Subpart M; State of Montana Asbestos Control Act 75-2-501 through 519 MCA, and State of Montana Occupational Health Rules ARM 17.74.301 through 406. State-accredited asbestos abatement personnel shall conduct the abatement of regulated asbestos-containing materials. Asbestos-containing waste materials shall be transported properly and disposed of in a State-approved landfill.

C. NSPS Standards

In the initial Title V Operating Permit Application, submitted on July 12, 1995, four jet fuel storage tanks (H-1, H-2, S-1, S-2) were reported as significant emitting units subject to the requirements of 40 CFR 60, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage. However, since submittal of the initial Title V application, Malmstrom has undergone extensive change in base practices resulting in a decreased demand for fuel use and storage at the base. Subsequently, on November 7, 1999, Malmstrom was issued a permit modification removing two of the previously listed NSPS affected storage tanks (S-1 and S-2) from base operation.

Further, on December 22, 1999, the Department received a letter from Malmstrom indicating that Air Force policy has dictated a change in the type of fuel to be used and stored at the base from jet fuel JP-4 and JP-8 to jet fuel JP-8 only. Because the vapor pressure of JP-8 is less than 3.5 kPa the two remaining jet fuel storage tanks on base (H-1 and H-2) are no longer subject to NSPS requirements.

40 CFR 60, Subpart D, does not apply to the heating plant boilers #1, #2, and #3 because the boilers are hot water generators and do not generate steam nor do the boilers meet heat input capacity applicability.

40 CFR 60, Subpart Db, does not apply to the heating plant boilers #1, #2, and #3 because the boilers are hot water generators and do not generate steam.

40 CFR 60, Subpart Dc, does not apply to the heating plant boilers #1, #2, and #3 because the boilers are hot water generators and do not generate steam.

40 CFR 60, Subpart Y, does not apply to the coal yard handling system because the source does not meet the definition of a coal preparation plant.

As of the date of this permit, the Department is not aware of any additional NSPS affected sources at Malmstrom.

D. Risk Management Plan (RMP)

As of the date of this permit, Malmstrom does not exceed the minimum threshold quantities for any regulated substance listed in 40 CFR 68.115 for any facility process. Consequently, this facility is not required to submit a RMP. Initially, it was determined that Malmstrom would require a RMP due to the storage of propane for use as fuel at the base. However, on August 5, 1999, legislation was signed removing propane, used solely as fuel, from RMP requirements.

If a facility has more than a threshold quantity of a regulated substance in a process, the facility is required to comply with 40 CFR 68 requirements no later than June 21, 1999; 3 years after the date on which a regulated substance is first listed under 40 CFR 68.130; or the date on which a regulated substance is first present in more than a threshold quantity in a process, whichever is later.

E. Prevention of Significant Deterioration (PSD) and Title V Greenhouse Gas Tailoring Rule

On May 7, 2010, EPA published the "light duty vehicle rule" (Docket # EPA-HQ-OAR- 2009-0472, 75 FR 25324) controlling greenhouse gas (GHG) emissions from mobile sources, whereby GHG became a pollutant subject to regulation under the Federal and Montana Clean Air Act(s). On June 3, 2010, EPA promulgated the GHG "Tailoring Rule" (Docket # EPA-HQ-OAR-2009-0517, 75 FR 31514) which modified 40 CFR Parts 51, 52, 70, and 71 to specify which facilities are subject to GHG permitting requirements and when such facilities become subject to regulation for GHG under the PSD and Title V programs.

Under the Tailoring Rule, any PSD action (either a new major stationary source or a major modification at a major stationary source) taken for a pollutant or pollutants other than GHG that was not final prior to January 2, 2011, would be subject to PSD permitting requirements for GHG if the GHG increases associated with that action were at or above 75,000 tons per year (tpy) of carbon dioxide equivalent (CO₂e). Similarly, if such action were taken, any resulting requirements would be subject to inclusion in the Title V Operating Permit. Starting on July 1, 2011, PSD permitting requirements would be triggered for modifications that were determined to be major under PSD based

on GHG emissions alone, even if no other pollutant triggered a major modification. In addition, sources that exceed the 100,000 tpy CO₂e threshold under Title V would be required to obtain a Title V Operating Permit if they were not already subject.

Based on information provided by Malmstrom and calculations performed by the Department, Malmstrom's potential emissions for the current listed emitting units do not exceed the GHG major source threshold of 100,000 tpy of CO₂e for either Title V or PSD under the Tailoring Rule.