

AIR QUALITY PERMIT

Issued to: Croxford & Sons Funeral Home
1307 Central Ave
Great Falls, MT 59401

Permit: #3032-01
Modification Request Received: 10/15/99
Dept. Decision on Modification: 5/22/00
Final Permit Issued: 6/07/00
AFS: 013-0032

An air quality permit, with conditions, is hereby granted to Croxford & Sons Funeral Home (Croxford), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.701 *et seq.*, as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

A human crematorium located at 1307 Central Avenue in Great Falls, Montana. The legal description is NW¼ of Section 7, Township 20 North, Range 4 East, Cascade County. The list of permitted equipment can be found in Section I of the permit analysis.

- B. The current permit action is a modification of permit #3032-00. In 1999, the U.S. Environmental Protection Agency (EPA) informed the Montana Department of Environmental Quality (department) that any condition in an air quality pre-construction permit would be considered a federally enforceable condition. However, there are certain state rules that were never intended to be federally enforceable. The department notified all facilities holding pre-construction permits that they could request deletion of those conditions based on ARM 17.8.717 and 17.8.315. Removing either of these conditions does not relieve the facility from complying with the rule upon which the permit condition was based; removal only ensures that enforcement of that condition remains solely with the department. The current permit action removes the condition based on ARM 17.8.315 from Croxford's permit. Additionally, the department is removing the conditions for notification of construction and commencement of operation because Croxford supplied this information. Permit #3032-01 replaces permit #3032-00.

SECTION II: Limitations and Conditions

A. Operational Requirements

1. Croxford shall operate the 1998 Industrial Equipment & Engineering Company (I.E.&E.) Incinerator as specified in their application for their Montana Air Quality permit #3032-00 and all supporting documentation (ARM 17.8.710).
2. Croxford shall not incinerate/cremate any material other than human remains and the corresponding container (ARM 17.8.710).
3. The secondary chamber operating temperature of the 1998 I.E.&E. Incinerator shall be maintained above 1400°F. The operating temperature shall be maintained during operation and for one-half hour after the feed has stopped (ARM 17.8.710).

B. Emission Limitations and Conditions

Croxford shall not cause or authorize to be discharged into the atmosphere from the 1998 I.E.&E. Incinerator:

1. Visible emissions that exhibit an opacity of 10% or greater (ARM 17.8.715); and
2. Any particulate emissions in excess of 0.10 gr/dscf corrected to 12% CO₂ (ARM 17.8.715).

C. Testing Requirements

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

D. Monitoring Requirements

Croxford shall install, calibrate, maintain and operate continuous monitoring and recording equipment on the 1998 I.E.&E. Incinerator to measure the secondary chamber exit temperature. Croxford shall also record the daily quantity of material incinerated/cremated and the daily hours of operation of the 1998 I.E.&E. Incinerator (ARM 17.8.710).

E. Reporting Requirement

1. Croxford 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 Section I of the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the department by the date specified in the emission inventory request. Information shall be in units as required by the department (ARM 17.8.505).

2. Croxford shall notify the department of any construction or improvement project conducted pursuant to ARM 17.8.705(1)(r), that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emissions unit.

The notice must be submitted to the department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.705(1)(r)(iv) (ARM 17.8.705).

3. All records compiled in accordance with this permit must be maintained by Croxford as a permanent business record for at least five (5) years following the date of the measurement, available at the plant site for inspection by the department, and submitted to the department upon request (ARM 17.8.710).

SECTION III: General Conditions

- A. Inspection – Croxford shall allow the department's representatives access to the source at all reasonable times for the purpose of making inspections, surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if Croxford fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving Croxford of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.701, *et seq.* (ARM 17.8.717).
- D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals - Any person or persons, jointly or severally, adversely affected by the department's decision may request, within fifteen (15) days after the department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The department's decision on the application is not final unless fifteen (15) days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the department's decision until the conclusion of the hearing and issuance of a final decision by the Board.
- F. Permit Inspection - As required by ARM 17.8.716, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by department personnel at the location of the permitted source.
- G. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Croxford may be grounds for revocation of this permit, as required by that Section and rules adopted thereunder by the Board.

Permit Analysis
Croxford & Sons
Funeral Home & Crematory
Permit #3032-01

I. Introduction/Process Description

A. Site Location

A human crematorium at a funeral home located at 1307 Central Avenue in Great Falls, Montana. The legal description is the NW¼ of Section 7, Township 20 North, Range 4 East, Cascade County, Montana.

B. Existing Source Description

A 1998 Industrial Equipment & Engineering Company (I.E.&E.) incinerator/crematorium. The incinerator/crematorium is fired on natural or LP gas and is capable of consuming up to 100 lbs/hr of human remains.

C. Permit History

On November 10, 1998, Croxford & Sons Funeral Home & Crematory (Croxford) submitted an application for an air quality preconstruction permit to install and operate an I.E.&E. incinerator/crematorium at their existing funeral home located at 1307 Central Avenue in Great Falls, Montana. Permit **#3032-00** was issued to Croxford on January 15, 1999.

D. Current Permit Action

The current permit action is a modification of permit #3032-00. In 1999, the U.S. Environmental Protection Agency (EPA) informed the Montana Department of Environmental Quality (department) that any condition in an air quality pre-construction permit would be considered a federally enforceable condition. However, there are certain state rules that were never intended to be federally enforceable. The department notified all facilities holding pre-construction permits that they could request deletion of those conditions based on ARM 17.8.717 and 17.8.315. Removing either of these conditions does not relieve the facility from complying with the rule upon which the permit condition was based; removal only ensures that enforcement of that condition remains solely with the department. The current permit action removes the condition based on ARM 17.8.315 from Croxford's permit. Additionally, the department is removing the conditions for notification of construction and commencement of operation because Croxford supplied this information. Permit **#3032-01** replaces permit #3032-00.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments are 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 which apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) 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 17.8.105, Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the department.
2. ARM 17.8.106, Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, MCA.

Croxford 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.

3. ARM 17.8.110, Malfunctions. The department must be notified promptly, by telephone, whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.
4. ARM 17.8.111, Circumvention. 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. 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 Quality Assurance Procedures;
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; and
11. ARM 17.8.230, Fluoride in Forage.

Croxford must comply with the applicable ambient air quality standards.

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

1. ARM 17.8.308, Particulate Matter, Airborne. This rule requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate. Under this rule, Croxford 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.
2. ARM 17.8.309, Particulate Matter, Fuel Burning Equipment. This rule states that emissions of particulate matter caused by the combustion of fuel shall not exceed the hourly rate set forth in this rule.
3. ARM 17.8.315, Emission Standards - Odors. This rule requires that no person shall cause, suffer, or allow any emissions of gases, vapors, or odors beyond his property line in such manner as to create a public nuisance. A person operating any business or using any machine, equipment, device or facility or process which discharges into the outdoor air any odorous matter or vapors, gases, dusts, or any combination thereof which create odors, shall provide, properly install, and maintain in good working order and in operation such odor control devices or procedures as may be specified by the department.
4. ARM 17.8.316, Incinerators. This rule requires that no person may cause or authorize to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used. Also, no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator, emissions which exhibit an opacity of 10% or greater averaged over six consecutive minutes. This rule does not apply to the 1998 I.E.&E. Incinerator because Croxford applied for and received an air quality permit in accordance with ARM 17.8.706(5) and MCA 75-2-215.
5. ARM 17.8.340, New Source Performance Standards. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). The owner or operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the NSPS. The Croxford incinerator is not an NSPS affected source because it does not meet any of the definitions in 40 CFR Part 60. Subpart E, Standards of Performance for Incinerators, is not applicable to this facility because it does meet the definition of a solid waste incinerator. Subpart Ec, Standards of Performance for Hospital/Medical/Infectious Waste Incinerators, is not applicable to this facility because the cremation of human remains is specifically excluded from the definitions of hospital waste and medical/infectious wastes.

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

1. ARM 17.8.504, Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the department. The current permit modification is an administrative action; therefore, a permit application and fee were not required.

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; and 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, as described above, shall take place on a calendar-year basis. The department may insert into any final permit, issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions which pro-rate the required fee amount.

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

1. ARM 17.8.704, General Procedures for Air Quality Preconstruction Permitting. This air quality preconstruction permit contains requirements and conditions applicable to both construction and subsequent use.
2. ARM 17.8.705, When Permit Required--Exclusions. This rule requires a facility to obtain an air quality permit or permit alteration if they construct, alter, or use an air contaminant source having the potential to emit more than 25 tons per year of any pollutant. While Croxford does not have the potential to emit more than 25 tons per year of any pollutant, an air quality permit was required under the requirements of MCA 75-2-215. Because Croxford obtained an air quality permit, all normally applicable requirements apply in this case.
3. ARM 17.8.706, New or Altered Sources and Stacks, Permit Application Requirements. This rule requires that an application for an air quality permit be submitted for a new or altered source or stack. The current permit modification is an administrative action and there were no sources or stacks either added or altered. Therefore, a permit application and fee were not required.
4. ARM 17.8.707, Waivers. This rule requires the permit application be submitted 180 days before construction begins. This rule allows the department to waive this time limit. The department hereby waives this limit.
5. ARM 17.8.710, Conditions for Issuance of Permit. This rule requires that the source demonstrate compliance with applicable rules and standards before a permit can be issued. In addition, a permit may be issued with such conditions as are necessary to assure compliance with all applicable rules and standards. Croxford has demonstrated compliance with applicable rules and standards as required for permit issuance.
6. ARM 17.8.715, Emission Control Requirements. This rule requires a source to install on a new or altered source, the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized. The current permit modification is an administrative action which will not increase emissions at this facility and there were no sources added or altered; therefore, a BACT analysis was not

required.

7. ARM 17.8.716, 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.
 8. ARM 17.8.717, Compliance with Other Statutes and Rules. This rule states that nothing in the permit shall be construed as relieving Croxford of the responsibility for complying with any applicable federal and Montana statutes, rules and standards, except as specifically provided in ARM 17.8.101, *et seq.*
 9. ARM 17.8.720, Public Review of Permit Applications. 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. The current permit modification is an administrative action which does not require submittal of a permit application; therefore, an affidavit of publication of public notice is not required.
 10. ARM 17.8.731, 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 altered 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.
 11. ARM 17.8.733, Modification of Permit. An air quality permit may be modified for changes in any applicable rules and standards adopted by the board, or for changed conditions of operation at a source or stack which do not result in an increase in emissions because of those changed conditions. A source may not increase its emissions beyond those found in its permit unless the source applies for and receives another permit.
 12. ARM 17.8.734, Transfer of Permit. This rule states 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:

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 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

This facility is not a PSD source because it is not listed and it does not have the potential to emit above 250 tons-per-year (excluding fugitive emissions) of any pollutant. Therefore, a PSD review is not required

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 Federal Clean Air Act (FCAA) is defined as any stationary source having:
 - a. Potential to Emit (PTE) > 10 tons/year of any one hazardous air pollutant (HAP), or PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the department may establish by rule.
 - b. PTE > 100 tons/year of any pollutant.
 - c. Sources with the PTE > 70 tons/year of PM₁₀ in a serious PM₁₀ non-attainment area.
2. ARM 17.8.1204, Air Quality Operating Permit Program Applicability. Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing air quality permit #3032-01 for Croxford, the following conclusions were made:
 - a. The facility's PTE is less than 100 tons/year for any pollutant.
 - b. The facility's PTE is less than 10 tons/year for any single HAP and less than 25 tons/year for all HAPs.
 - c. This source is not located in a serious PM₁₀ non-attainment area.
 - d. This facility is not subject to any current NSPS.
 - e. This facility is not subject to any current NESHAP standards.
 - 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.

Therefore, a Title V operating permit is not required.

H. MCA 75-2-215, Solid or Hazardous Waste Incineration - additional permit requirements:

1. MCA 75-2-215 requires air quality permits for all new commercial solid waste incinerators. Croxford obtained an air quality permit.
2. MCA 75-2-215 requires the applicant to provide, to the department's satisfaction, a characterization and estimate of emissions and ambient concentrations of air pollutants, including hazardous air pollutants from the incineration of solid waste. The department determined that the information submitted in the application for the initial permit fulfilled this requirement. The current permit modification is an administrative action that will not increase emissions; therefore, the estimate and characterization is not required.
3. MCA 75-2-215 requires that the department reach a determination that the projected emissions and ambient concentrations constitute a negligible risk to public health, safety and welfare. The department completed a health risk assessment based on an emissions

inventory and ambient air quality modeling for the initial permitting action. The current permit modification is an administrative action that will not increase emissions; therefore, a health risk assessment is not required.

4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed BACT. There was no increase in emissions for the current permit modification because no sources were added or altered. Therefore, a BACT determination is not required.

III. Best Available Control Technology Analysis

A BACT determination is required for each new or altered source. Croxford shall install on the new or altered source the maximum air pollution control capability which is technically practicable and economically feasible, except that best available control technology shall be utilized. In addition, MCA 75-2-215 requires a BACT determination for all pollutants, not just criteria pollutants. There was no increase in emissions for the current permit modification because no sources were added or altered. Therefore, a BACT determination is not required.

IV. Emission Inventory Croxford & Sons Funeral Home Permit #3032-01

<u>Emission Unit</u>	<u>TSP</u>	Air Pollutants (Tons/Year)					<u>CO</u>
		<u>PM₁₀</u>	<u>SO_x</u>	<u>NO_x</u>	<u>VOC</u>	<u>CO</u>	
I.E.&E. Incinerator		1.75	1.30	1.75	0.66	0.66	0.00
<u>Natural Gas Fuel</u>		<u>0.22</u>	<u>0.22</u>	<u>0.04</u>	<u>7.29</u>	<u>0.39</u>	<u>1.46</u>
Total Emissions		1.97	1.52	1.79	7.95	1.05	1.46

I.E. & E. Incinerator

TSP Emissions

Emission Factor: 8.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)
 Calculations: 438.00 tons/year*8 lbs/ton*0.0005 ton/lb = 1.75 tons/yr

PM₁₀ Emissions

Emission Factor: 5.92 lbs/ton {AFSSCC 5-02-005-05, pg 227}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)
 Calculations: 438.00 tons/year*6 lbs/ton*0.0005 ton/lb = 1.30 tons/yr

NO_x Emissions

Emission Factor: 3.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)
 Calculations: 438.00 tons/year*3.00 lbs/ton * 0.0005 ton/lb = 0.66 tons/yr

VOC Emissions

Emission Factor: 3.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)
 Calculations: 438.00 tons/year * 3.00 lbs/ton * 0.0005 ton/lb = 0.66 tons/yr

CO Emissions

Emission Factor: 0.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}

Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)
 Calculations: 438.00 tons/year * 0 lbs/ton * 0.0005 ton/lb = 0.00 tons/yr

SO_x Emissions

Emission Factor: 8.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)
 Calculations: 438.00 tons/year * 8.00 lbs/ton * 0.0005 tons/lb = 1.75 tons/yr

Natural Gas Fuel

TSP Emissions

Emission Factor: 3.00 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}
 Control Efficiency: 0.0 %
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)
 Calculations: 16.64 MMscf/yr*3 lbs/MMscf*8760 hr/yr*0.0005 ton/lb = 0.22 tons/yr

PM₁₀ Emissions

Emission Factor: 3.00 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}
 Control Efficiency: 0.0 %
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)
 Calculations: 16.64 MMscf/yr*3 lbs/MMscf*8760 hrs/yr*0.0005 ton/lb = 0.22 tons/yr

NO_x Emissions

Emission Factor: 100.00 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}
 Control Efficiency: 0.0 %
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)
 Calculations: 16.64 MMscf/yr*100 lbs/MMscf*8760 hrs/yr*0.0005 ton/lb = 7.29 tons/yr

VOC Emissions

Emission Factor: 5.30 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}
 Control Efficiency: 0.0 %
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)
 Calculations: 16.64 MMscf/yr*5.3 lbs/MMscf*8760 hrs/yr*0.0005 ton/lb = 0.39 tons/yr

CO Emissions

Emission Factor: 20.00 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}
 Control Efficiency: 0.0 %
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)
 Calculations: 16.64 MMscf/yr*20 lbs/MMscf*8760 hrs/yr*0.0005 ton/lb = 1.46 tons/yr

SO_x Emissions

Emission Factor: 0.60 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}
 Control Efficiency: 0.0 %
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)
 Calculations: 16.64 MMscf/yr*0.6 lbs/MMscf*8760 hrs/yr*0.0005 tons/lb = 0.04 tons/yr

HAZARDOUS AIR POLLUTANTS

Bromoform

Emission Factor: 2.90E-05 lbs/ton {AFSSCC 5-02-005-05, pg 227}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.00003 lbs/ton * 0.0005 tons/lb = 6.35E-06 tons/yr

Carbon Tetrachloride

Emission Factor: 5.74E-05 lbs/ton {AFSSCC 1-02-009-01}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.00006 lbs/ton * 0.0005 ton/lb = 1.26E-05 tons/yr

Chloroform

Emission Factor: 5.45E-05 lbs/ton {AFSSCC 1-02-009-01}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.0000545 lbs/ton * 0.0005 ton/lb = 1.19E-05 tons/yr

1,2-Dichloropropane

Emission Factor: 1.32E-03 lbs/ton {AFSSCC 1-02-009-01}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.001320000 lbs/ton * 0.0005 ton/lb = 2.89E-04 tons/yr

Ethyl benzene

Emission Factor: 1.61E-03 lbs/ton {AFSSCC 1-02-009-01}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.001610000000 lbs/ton * 0.0005 ton/lb = 3.53E-04 tons/yr

Naphthalene

Emission Factor: 1.16E-02 lbs/ton {AFSSCC 1-02-009-01}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.011600 lbs/ton * 0.0005 ton/lb = 2.54E-03 tons/yr

Tetrachloroethylene

Emission Factor: 4.03E-05 lbs/ton {AFSSCC 1-02-009-01}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.0000 lbs/ton * 0.0005 tons/lb = 8.83E-06 tons/yr

1,1,2,2-Tetrachloroethane

Emission Factor: 1.10E-04 lbs/ton {AFSSCC 1-02-009-01}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.0001 lbs/ton * 0.0005 tons/lb = 2.41E-05 tons/yr

Toluene

Emission Factor: 4.62E-03 lbs/ton {AFSSCC 1-02-009-01}
 Control Efficiency: 0.0 %
 Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
 Calculations: 438.00 ton/yr * 0.00462 lbs/ton * 0.0005 ton/lb = 1.01E-03 tons/yr

Vinylidene Chloride

Emission Factor: 7.10E-05 lbs/ton {AFSSCC 1-02-009-01}
Control Efficiency: 0.0 %
Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
Calculations: 438.00 ton/yr * 0.0000710 lbs/ton * 0.0005 ton/lb = 1.55E-05 tons/yr

Xylene

Emission Factor: 2.20E-03 lbs/ton {AFSSCC 1-02-009-01}
Control Efficiency: 0.0 %
Fuel Consumption: 438.00 ton/yr (Maximum Rated Design)
Calculations: 438.00 ton/yr * 0.002200000 lbs/ton * 0.0005 ton/lb = 4.82E-04 tons/yr

V. Air Quality Impacts

The facility is located at 1307 Central Avenue in Great Falls, Montana. The legal description is the NW¼ of Section 7, T20N, R4E in Cascade County, Montana. Cascade County is unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants except carbon monoxide (CO). In Great Falls, a portion of the 10th Ave. South traffic corridor is designated as a “not classified” nonattainment area for CO. This permitting action is considered an administrative action and does not increase emissions from the facility. No air quality impacts are expected.

VI. Health Risk Assessment

A health risk assessment was conducted for the initial permitting action to determine if the incinerator/crematorium complied with the negligible risk requirement of MCA 75-2-215. The emission inventory did not contain sufficient quantities of any pollutant on the department's list of pollutants for which non-inhalation impacts had to be considered; therefore, the department determined that inhalation risk was the only pathway to consider. Only those hazardous air pollutants (HAPS) for which there were established emission factors were considered in the emission inventory, listed in Table 1. The department considers the risks estimated in the risk assessment to be in compliance with the requirement to demonstrate negligible risk to human health and the environment.

Table 1. HAPS Inhalation Health Risk Assessment

<u>Hazardous Air Pollutant</u>	<u>(µg/m³) Annual Concentration</u>	<u>Cancer ELCR¹ Chronic</u>	<u>Non-Cancer Hazard Quotient</u>	
			<u>Chronic</u>	<u>Acute</u>
Bromoform	0.387E-05	0.43E-11	0.0000	0.0000
Carbon Tetrachloride	0.773E-05	0.12E-09	0.0000	0.0000
Chloroform	0.744E-05	0.17E-09	0.0000	0.0000
1,2-Dichloropropane	0.181E-03	0.00	0.0000	0.0000
Ethyl Benzene	0.222E-03	0.00	0.0000	0.0000
Naphthalene	0.160E-02	0.00	0.0001	0.0000
Tetrachloroethylene	0.535E-05	0.32E-10	0.0000	0.0000
1,1,2,2-Tetrachloroethane	0.150E-03	0.79E-09	0.0000	0.0000
Toluene	0.632E-03	0.00	0.0000	0.0000
Vinylidene Chloride	0.981E-05	0.49E-09	0.0000	0.0000
<u>Xylene</u>	<u>0.302E-03</u>	<u>0.00</u>	<u>0.0000</u>	<u>0.0000</u>
Total Risks	N/A	0.16E-08	0.0001	0.0000

¹ ELCR = Excess lifetime cancer risks

VII. Taking or Damaging Implication Analysis

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.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, is not required for the current permit modification because it is an administrative action.

Prepared by: Robert K. Jeffrey

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