



Montana Department of  
**ENVIRONMENTAL QUALITY**

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March 16, 2010

Hi-Line Crematory  
P.O. Box 429  
Malta, MT 59538

Dear Mr. Kirkwood:

Montana Air Quality Permit #3034-02 is deemed final as of March 5, 2010, by the Department of Environmental Quality (Department). This permit is for a human crematorium/incinerator. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

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

Ed Warner  
Environmental Engineer  
Air Resources Management Bureau  
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VW:EW  
Enclosure

Montana Department of Environmental Quality  
Permitting and Compliance Division

Montana Air Quality Permit #3034-02

Kirkwood Funeral Home dba Hi-Line Crematory  
P.O. Box 429  
Malta, MT 59538

March 5, 2010



## Montana Air Quality Permit

Issued to: Kirkwood Funeral Home, Montana Air Quality Permit #3034-02  
dba Hi-Line Crematory Administrative Amendment (AA)  
P.O. Box 429 Request Received: 01/13/10  
Malta, MT 59538 Department Decision on AA: 02/17/10  
Final Permit Issued: 03/05/10  
AFS: 071-0004

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Hi-Line Crematory, pursuant to Sections 75-2-204, 211, and 215 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

### Section I: Permitted Facilities

#### A. Facility Location

The Hi-Line Crematory is located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. The legal description is Section 18, Township 30 North, Range 30 East, Phillips County. A complete listing of the permitted equipment can be found in Section I of the Permit Analysis.

#### B. Current Permit Action

On January 13, 2010, the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) received a letter from Mr. Greg Kirkwood to inform the Department of a change in ownership and a request to change the name on MAQP #3034-01 from Adams Funeral Home and Hi-Line Crematory to Kirkwood Funeral Home and Hi-Line Crematory. The letter included a signed notice from responsible officials from both the selling and purchasing parties in accordance with ARM 17.8.765(2). The current permit action changes the company name on MAQP #3034-01, corrects the mailing address, and updates the permit to reflect current language and rule references used by the Department.

### SECTION II: Limitations and Conditions

#### A. Operational Requirements

1. Hi-Line Crematory shall operate the 1989 Crawford Incinerator as specified in their application for their MAQP and all supporting documentation (ARM 17.8.749).
2. Hi-Line Crematory shall not incinerate/cremate any material other than human remains and the corresponding container (ARM 17.8.749).
3. The secondary chamber operating temperature of the 1989 Crawford Incinerator shall be maintained above 1400 °F. The operating temperature shall be maintained during operation and for ½ hour after the feed has stopped (ARM 17.8.752).

B. Emission Limitations

Hi-Line Crematory shall not cause or authorize to be discharged into the atmosphere from the 1989 Crawford Incinerator.

1. Any visible emissions that exhibit an opacity of 10% or greater (ARM 17.8.752); and
2. Any particulate emissions in excess of 0.10 grains per dry standard cubic foot (gr/dscf) corrected to 12% carbon dioxide (CO<sub>2</sub>) (ARM 17.8.752).

C. Testing Requirements

1. All compliance source tests shall conform to the requirements of 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

Hi-Line Crematory shall install, calibrate, maintain and operate continuous monitoring and recording equipment on the 1989 Crawford Incinerator to measure the secondary chamber exit temperature. Hi-Line Crematory shall also record the daily quantity of material incinerated/cremated and the daily hours of operation of the 1989 Crawford Incinerator (ARM 17.8.749).

E. Operational Reporting Requirement

1. Hi-Line Crematory 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 required in the emission inventory request. Information shall be in the units required by the Department (ARM 17.8.505).
2. Hi-Line Crematory 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).
3. The records compiled in accordance with this permit shall be maintained by Hi-Line Crematory as a permanent business record for at least 5 years following the date of the measurement, shall be submitted to the Department upon request, and shall be available at the plant site for inspection by the Department (ARM 17.8.749).

### Section III: General Conditions

- A. Inspection - The recipient 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 emission monitoring system (CEMS) or continuous emission rate monitoring systems (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 the recipient fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving the permittee of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.
- F. Permit Inspection - As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay by the permittee of an annual operation fee 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).

Permit Analysis  
Hi-Line Crematory  
Montana Air Quality Permit #3034-02

I. Introduction

Hi-Line Crematory owns and operates a human crematorium/incinerator. The facility is located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. The legal description is Section 18, Township 30 North, Range 30 East, Phillips County.

A. Permitted Equipment

Hi-Line Crematory operates a 1989 Crawford model c-1000 H-S incinerator/crematorium.

B. Source Description

The incinerator/crematorium is fired on natural gas and is capable of consuming up to 150 pounds per hour (lb/hr) of human remains.

C. Permit History

On December 7, 1998, Adams Funeral Home and Hi-Line Crematory submitted a complete application for a Montana Air Quality Permit (MAQP) to install and operate a 1989 Crawford model c-1000 H-S incinerator/crematorium at their existing funeral home located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. **MAQP #3034-00** was issued to Hi-Line Crematory on February 6, 1999.

In 1999, the U.S. Environmental Protection Agency (EPA) informed the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) that any condition in an air quality preconstruction 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 MAQPs that they could request deletion of those conditions based on the Administrative Rules of Montana (ARM) 17.8.756 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 Department removed the condition, based on ARM 17.8.315, from Adams Funeral Home and Hi-Line Crematory's MAQP and updated the rule references. **MAQP #3034-01** replaced MAQP #3034-00.

D. Current Permit Action

On January 13, 2010, the Department received a letter from Mr. Greg Kirkwood to inform the Department of a change in ownership and a request to change the name on MAQP #3034-01 from Adams Funeral Home and Hi-Line Crematory to Kirkwood Funeral Home and Hi-Line Crematory. The letter included a signed notice from responsible officials from both the selling and purchasing parties in accordance with ARM 17.8.765(2). The sale of the business occurred on August 21, 2008. The current permit action changes the company name, corrects the mailing address, and updates the permit to reflect current language and rule references used by the Department. **MAQP #3034-02** replaces #3034-01.

E. Additional Information

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

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARM and are available, upon request, from the Department. Upon request, the Department will provide references for location 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 emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

Hi-Line Crematory 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 telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means 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 PM<sub>10</sub>

Hi-Line Crematory must comply with the applicable ambient air quality standards. As part of the risk assessment required for the initial permit, the Department completed a screening level ambient air impact analysis using an EPA-approved dispersion model (SCREEN3). The analysis was also used to demonstrate that the crematorium incinerator would comply with all 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 six consecutive minutes.
2. 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 matter.
3. 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.
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 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used. Also no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator, emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes. This section does not apply to the 1989 Crawford Incinerator because Hi-Line Crematory has applied for and received an air quality permit in accordance with ARM 17.8.770 and MCA 75-2-215.
6. 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.
7. 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 Hi-Line Crematory 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 not 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. Hi-Line Crematory 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. The current permit action is administrative; therefore, a permit application and fee are 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, described above, shall take place on a calendar-year basis. The Department may insert into any final permit, issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions which pro-rate the required fee amount.
- E. ARM 17.8, Subchapter 7, Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:
1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
  2. ARM 17.8.743 Montana Air Quality Permits – When Required. This rule requires a facility to obtain an air quality permit or permit modification if the facility proposes to construct, modify, or use an air contaminant source that has the potential to emit (PTE) greater than 25 tons per year (TPY) of any pollutant. While Hi-Line Crematory does not have the PTE more than 25 TPY of any pollutant, an air quality permit must be obtained under the requirements of MCA 75-2-215. Because Hi-Line Crematory obtained an air quality permit, all normally applicable requirements apply to the facility.
  3. ARM 17.8.744 Montana Air Quality Permits – General Exclusions. This rule identifies the activities that are not subject to the MAQP program.
  4. ARM 17.8.745 Montana Air Quality Permits – Exclusions for De Minimis. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the MAQP program.

5. ARM 17.8.748 New or Modified Emitting Units – Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. A permit application was not required for the current permit action because it is considered an administrative permit change. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. An affidavit of publication was not required because the current permit action is considered an administrative change.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that Best Available Control Technology (BACT) shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Hi-Line Crematory of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the

Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names and signatures of the transferor and the transferee, is sent to the Department.
15. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, MCA.

F. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications – Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 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 major source because it is not a listed source and does not have the PTE greater than 250 TPY (excluding fugitive emissions) of any pollutant. In addition, the current permit action is an administrative change and is not associated with an increase in emissions. 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 FCAA is defined as any stationary source having:
  - a. PTE > 10 TPY of any one hazardous air pollutant (HAP), or PTE > 25 TPY of a combination of all HAPs, or lesser quantity as the Department may establish by rule.
  - b. PTE > 100 TPY of any pollutant.
  - c. PTE > 70 TPY of particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) in a serious PM<sub>10</sub> nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in

ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #3034-02 for Hi-Line Crematory, the following conclusions were made:

- a. The facility's PTE is less than 100 TPY for any pollutant.
- b. The facility's PTE is less than 10 TPY for any single HAP and less than 25 TPY for all HAPs.
- c. This source is not located in a serious PM<sub>10</sub> nonattainment area.
- d. This facility is not subject to any current NSPS.
- e. This facility is not subject to any current National Emission Standards for Hazardous Air Pollutants (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.

Based on these facts, the Department determined that Hi-Line Crematory is a minor source of emissions as defined under the Title V operating permit program and therefore a Title V operating permit is not required.

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

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

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

1. MCA 75-2-215 requires air quality permits for all new commercial solid waste incinerators. Hi-Line Crematory therefore must obtain 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 information submitted in the initial permit application fulfilled this requirement.
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 permit action. Based on the results of the emission inventory, modeling, and the health risk assessment, the Department determined that Hi-Line Crematory's proposal complied with this requirement.

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

### III. BACT Analysis

A BACT determination is required for each new or modified source of emissions. Hi-Line Crematory 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. There was no increase in emissions for the current permit action because no sources were added or modified. Therefore, a BACT determination is not required.

### IV. Emission Inventory

An emission inventory was completed for the initial Hi-Line Crematory permit. This emission inventory for criteria pollutants was based on emission factors from the AIRS FACILITY SUBSYSTEM SOURCE CLASSIFICATION CODES (AFSSCC) manual dated March 1990. The original application indicated that the fuel used would be natural gas; therefore, the Department also used emission factors from AFSSCC 1-02-006-03 for the combustion of natural gas.

The Department developed a hazardous air pollutant emission inventory using those emissions contained in FIRE (the EPA emission factor repository) for SCC code 50200505 (Incineration-Pathological). Since the only currently regulated hazardous air pollutants are those pollutants considered in the required health risk assessment, only those hazardous air pollutants with an associated risk factor were considered in the emission inventory.

	TPY					
	TSP	PM-10	SO <sub>x</sub>	NO <sub>x</sub>	VOC	CO
Crawford Incinerator	2.63	1.94	2.63	0.99	0.99	0.00
Natural Gas Fuel	0.03	0.03	0.88	0.05	0.18	0.01
<b>Total</b>	<b>2.66</b>	<b>1.97</b>	<b>3.51</b>	<b>1.04</b>	<b>1.17</b>	<b>0.01</b>

#### Crawford Incinerator

##### TSP Emissions

Emission Factor: 8.00 lb/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 657.00 tons/year (Maximum Rated Design)  
 Calculations: 657.00 tons/year\*8 lb/ton\*0.0005 ton/lb = 2.63 TPY

##### PM-10 Emissions:

Emission Factor: 5.92 lb/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 657.00 tons/year (Maximum Rated Design)  
 Calculations: 657.00 tons/year\*6 lb/ton\*0.0005 ton/lb = 1.94 TPY

##### NO<sub>x</sub> Emissions:

Emission Factor: 3.00 lb/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 657.00 tons/year (Maximum Rated Design)

Calculations: 657.00 tons/year\*3.00 lb/ton\*0.0005 ton/lb = 0.99 TPY  
 VOC Emissions:  
 Emission Factor: 3.00 lb/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 657.00 tons/year (Maximum Rated Design)  
 Calculations: 657.00 tons/year\*3.00 lb/ton\*0.0005 ton/lb = 0.99 TPY

CO Emissions:  
 Emission Factor: 0.00 lb/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 657.00 tons/year (Maximum Rated Design)  
 Calculations: 657.00 tons/year\*0 lb/ton\*0.0005 ton/lb = 0.00 TPY

SO<sub>x</sub> Emissions:  
 Emission Factor: 8.00 lb/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 657.00 tons/year (Maximum Rated Design)  
 Calculations: 657.00 tons/year\*8.00 lb/ton\*0.0005 tons/lb = 2.63 TPY

#### Natural Gas Fuel

TSP Emissions  
 Emission Factor: 3.00 lb/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 17.52 MMscf/yr (Maximum Rated Design)  
 Calculations: 17.52 MMscf/yr\*3 lb/MMscf\*0.0005 ton/lb = 0.03 TPY

PM-10 Emissions:  
 Emission Factor: 3.00 lb/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 17.52 MMscf/yr (Maximum Rated Design)  
 Calculations: 17.52 MMscf/yr\*3 lb/MMscf\*0.0005 ton/lb = 0.03 TPY

NO<sub>x</sub> Emissions:  
 Emission Factor: 100.00 lb/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 17.52 MMscf/yr (Maximum Rated Design)  
 Calculations: 17.52 MMscf/yr\*100.00 lb/MMscf\*0.0005 ton/lb = 0.88 TPY

VOC Emissions:  
 Emission Factor: 5.30 lb/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 17.52 MMscf/yr (Maximum Rated Design)  
 Calculations: 17.52 MMscf/yr\*5.30 lb/MMscf\*0.0005 ton/lb = 0.05 TPY

CO Emissions:  
 Emission Factor: 20.00 lb/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 17.52 MMscf/yr (Maximum Rated Design)  
 Calculations: 17.52 MMscf/yr\*20 lb/MMscf\*0.0005 ton/lb = 0.18 TPY

SO<sub>x</sub> Emissions:

Emission Factor: 0.60 lb/MMscf {AFSSCC 1-02-006-03, pg 23}  
Control Efficiency: 0.0%  
Fuel Consumption: 17.52 MMscf/yr (Maximum Rated Design)  
Calculations: 17.52 MMscf/yr\*0.60 lb/MMscf\*0.0005 tons/lb = 0.01 TPY

HAZARDOUS AIR POLLUTANTS

Bromoform

Emission Factor: 2.90e-05 lb/ton {AFSSCC 5-02-005-05, pg 227}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.00003 lb/ton\*0.0005 tons/lb = 9.53e-06 TPY

Carbon Tetrachloride

Emission Factor: 5.74e-05 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.00006 lb/ton\*0.0005 ton/lb = 1.89e-05 TPY

Chloroform

Emission Factor: 5.45e-05 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.0000545 lb/ton\*0.0005 ton/lb = 1.79e-05 TPY

1,2-Dichloropropane

Emission Factor: 1.32e-03 lb/ton {AFSSCC 1-02-009-01} (Salt laden wood)  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.001320000 lb/ton\*0.0005 ton/lb = 4.34e-04 TPY

Ethylbenzene

Emission Factor: 1.61e-03 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.001610000000 lb/ton\*0.0005 ton/lb = 5.29e-04 TPY

Naphthalene

Emission Factor: 1.16e-02 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.011600 lb/ton\*0.0005 ton/lb = 3.81e-03 TPY

Tetrachloroethylene

Emission Factor: 4.03e-05 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.0000 lb/ton\*0.0005 tons/lb = 1.32e-05 TPY

1,1,1,2-Tetrachloroethane

Emission Factor: 1.10e-04 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.0001 lb/ton\*0.0005 tons/lb = 3.61e-05 TPY

#### Toluene

Emission Factor: 4.62e-03 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.00462 lb/ton\*0.0005 ton/lb = 1.52e-03 TPY

#### Vinylidene Chloride

Emission Factor: 7.10e-05 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.0000710 lb/ton\*0.0005 ton/lb = 2.33e-05 TPY

#### Xylene

Emission Factor: 2.20e-03 lb/ton {AFSSCC 1-02-009-01}  
Control Efficiency: 0.0%  
Fuel Consumption: 657.00 TPY (Maximum Rated Design)  
Calculations: 657.00 TPY\*0.002200000 lb/ton\*0.0005 ton/lb = 7.23e-04 TPY

### V. Existing Air Quality

Hi-Line Crematory is located at 202 South 2<sup>nd</sup> Street East in Malta, Montana. The town of Malta and the surrounding area is classified as attainment with ambient air quality standards. MAQP #3034-02 contains operating and monitoring requirements that would ensure that the proper operation of the facility would not result in air emissions that violate any ambient air quality standards.

### VI. Air Quality Impacts

The current permitting action is considered an administrative amendment and does not change the ambient air impact from the facility. During the permit analysis of the original MAQP application, the Department ran SCREEN3, an EPA-approved screening model, using the indicated inputs obtained from the permit application and an emission rate of 0.00020561 gram per second, which is the sum of all of the hazardous air pollutant emissions. The individual 1-hour results for each pollutant were then calculated prorating the actual emission rate in grams per second against the 0.00020561 gram-per-second ambient impact of 0.1729  $\mu\text{g}/\text{m}^3$ . The maximum 1-hr concentrations were then converted to an annual average and used in the risk assessment.

#### SCREEN3 Model Run

##### Simple Terrain Inputs:

Source Type	=	POINT
Emission Rate (G/S)	=	.20561E-03
Stack Height (M)	=	3.0500
Stack Inside Diam (M)	=	.6100
Stack Exit Velocity (M/S)	=	3.3900
Stack Gas Exit Temp (K)	=	755
Ambient Air Temp (K)	=	293
Receptor Height (M)	=	1.0000
Urban/Rural Option	=	RURAL
Building Height (M)	=	0.0000
Minimum Horizontal Building Dimension (M)	=	0.0000
Maximum Horizontal Building Dimension (M)	=	0.0000

Stack exit velocity was calculated using a volumetric flow rate of 2100 ACFM.

Summary of Screen Model Results

Calculation Procedure	Maximum 1-Hour Concentration ( $\mu\text{g}/\text{m}^3$ )	Distance of Maximum (M)	Terrain Height (M)
Simple Terrain	.1729	31	0

VII. Health Risk Assessment

A health risk assessment was conducted for the initial permit action to determine if the proposed Hi-Line Crematory 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 must be considered; therefore, the Department has determined that inhalation risk was the only necessary pathway to consider. Only those HAPs for which there were established emission factors were considered in the emission inventory.

Chemical Compound	Annual Conc $\mu\text{g}/\text{m}^3$	Cancer ELCR Chronic	Non-Cancer Hazard Quotient	
			Chronic	Acute
Bromoform	.220E-04	.24E-10	.0000	.0000
Carbon Tetrachloride	.450E-04	.10E-08	.0000	.0000
Chloroform	.430E-04	.10E-08	.0000	.0000
1,2-Dichloropropane	.105E-02	.00	.0000	.0000
Ethyl Benzene	.128E-02	.00	.0000	.0000
Naphthalene	.925E-02	.00	.0006	.0000
Tetrachloroethylene	.310E-04	.18E-09	.0000	.0000
1,1,2,2-Tetrachloroethane	.880E-04	.10E-07	.0000	.0000
Toluene	.367E-02	.00	.0000	.0000
Vinylidene Chloride	.570E-04	.30E-08	.0000	.0000
Xylene	.175E-02	.00	.0000	.0000
Total Risks =		.20E-07	.0006	.0000

ELCR = Excess lifetime cancer risks

The Department considers the risks estimated in the risk assessment to comply with the requirement to demonstrate negligible risk to human health and the environment.

VIII. 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.

IX. Environmental Assessment

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

Prepared by: Ed Warner

Date: January 29, 2010