November 13, 2023

Randy Wilke
Mountain Valley Crematories, LLC.
Mountain Valley Crematory
2807 Bozeman Ave
Helena, MT 59601

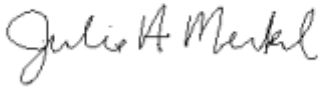
Sent via email: the fishinmortician@yahoo.com

RE: Final for MAQP #3887-02

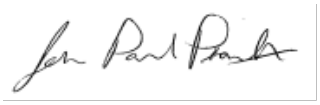
Dear Mr. Wilke:

Montana Air Quality Permit (MAQP) #3887-02 is deemed final as of November 8, 2023, by DEQ. This permit is for the Mountain Valley Crematory. All conditions of the Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For DEQ,



Julie A. Merkel
Permitting Services Section Supervisor
Air Quality Bureau
(406) 444-3626



John P. Proulx
Air Quality Engineer
Air Quality Bureau
(406) 444-5391

Montana Department of Environmental Quality
Air, Energy & Mining Division
Air Quality Bureau

Montana Air Quality Permit #3887-02

Mountain Valley Crematories, LLC
Mountain Vally Crematory
Section 28, Township 10 North, Range 3 West
2807 Billings Ave
Helena, MT 59601

November 8, 2023

MONTANA AIR QUALITY PERMIT

Issued to: Mountain Valley Crematory
2807 Bozeman Ave.
Helena, MT 59601

MAQP #3887-02
Application Complete: 08/11/2023
Preliminary Determination Issued: 09/15/2023
Department Decision Issued: 10/23/2023
Permit Final: 11/08/2023

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

SECTION I: Permitted Facilities

A. Plant Location

The MVC facility is located at 2807 Bozeman Avenue in Helena, Montana. The legal description of the site is the Airport Road Business Park Subdivision Lot 15, Section 28, Township 10 North, Range 3 West, Lewis and Clark County, Montana.

B. Current Permit Action

On August 11, 2023, the Department of Environmental Quality (DEQ) received a complete application from Mountain Valley Crematory to install and operate a new Power Pak I human remains incinerator.

SECTION II: Limitations and Conditions

A. Emissions Limitations

1. MVC shall not incinerate/cremate any material other than human remains and/or any corresponding container unless otherwise approved by DEQ in writing (ARM 17.8.749).

2. The MVC crematorium shall be equipped with auxiliary fuel burners. The auxiliary fuel burners shall be used to preheat the secondary chamber of the crematorium to the minimum required operating temperature prior to igniting the primary chamber burner. The operating temperatures shall be maintained during operation and for one-half hour after waste feed has stopped. The secondary chamber operating temperature of the crematorium shall be maintained above 1500 Fahrenheit (°F) for any one-hour averaging period with no single reading less than 1400°F (ARM 17.8.752).

3. MVC shall develop crematorium operation procedures, print those procedures in a crematorium operation procedures manual, and require all personnel who operate the crematorium to familiarize themselves with the operating procedures. A copy of this manual shall be supplied to DEQ upon request (ARM 17.8.752).

4. MVC shall install, calibrate, maintain, and operate continuous monitoring and recording equipment on both incinerators to measure the secondary chamber exit gas temperature. MVC shall also record the daily quantity of material incinerated/cremated and the daily hours of operation of each unit (ARM 17.8.749).

5. MVC shall use pipeline quality natural gas as a supplemental fuel for each unit and maintain good combustion practices to minimize emissions (ARM 17.8.752).

6. MVC shall not cause or authorize to be discharged into the atmosphere from the crematorium visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes and any particulate emissions in excess of 0.10 grains per dry standard cubic foot (gr/dscf) corrected to 12% Carbon Dioxide (CO2) (ARM 17.8.752).

7. The MVC Power Pak I crematorium shall be equipped with auxiliary fuel burners. The auxiliary fuel burners shall be used to preheat the secondary chamber of the crematorium to the minimum required operating temperature prior to igniting the primary chamber burner. The operating temperatures shall be maintained during operation and for one-half hour after waste feed has stopped. The secondary chamber operating temperature of the crematorium shall be maintained above 1600 Fahrenheit (°F) for any one-hour averaging period with no single reading less than 1400 °F (ARM 17.8.752).

B. 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. DEQ may require testing (ARM 17.8.105).

C. Operational Reporting Requirement

1. MVC shall supply DEQ with annual production information for all emission points, as required by DEQ in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions covered by this permit.

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

2. MVC shall notify DEQ 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 DEQ, 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 MVC as a permanent business record for at least 5 years following the date of the measurement, shall be submitted to DEQ upon request, and shall be available at the plant site for inspection by DEQ (ARM 17.8.749).

D. Notifications

1. MVC shall provide DEQ with written notification of the start-up date of the incinerator/crematorium within 15 working days of the start-up date (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection – MVC shall allow the DEQ'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 such as Continuous Emission Monitoring Systems (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 the terms, conditions, and matters stated herein shall be deemed accepted if MVC fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving MVC of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the DEQ's decision may request, within 15 days after the DEQ 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 filing of a request for a hearing does not stay the DEQ'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 DEQ'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 DEQ's decision on the application is final 16 days after the DEQ's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the DEQ at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by MVC may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Montana Air Quality Permit Analysis
Mountain Valley Crematory
MAQP #3887-02

I. Introduction

The Mountain Valley Crematory (MVC) operates a human crematory (crematorium) located at 2807 Bozeman Avenue in Helena, Montana. The legal description of the site is the Airport Road Business Park Subdivision Lot 15, Section 28, Township 10 North, Range 3 West, Lewis and Clark County, Montana.

A. Permitted Equipment

MVC is permitted to operate a 150 pound per hour (lb/hr) Matthews Cremation Unit Model Power-Pak II human crematory (crematorium) unit and a 150 lb/hr Matthews Environmental Solutions Power Pak I human crematory unit.

B. Source Description

The crematoriums use natural gas as a fuel source and each are capable of incinerating up to 150 lb/hr of human remains.

C. Permit History

On October 3, 2006, Anderson Mortuary, Inc. dba Anderson Cremation Services (ACS) submitted a complete application for an MAQP to install and operate a 2006 Matthews Cremation Unit Model Power-Pak II human crematory (crematorium). On December 30, 2006, **MAQP #3887-00** was issued to ACS to operate a crematorium in Lewis and Clark County, Montana.

On September 28, 2010, DEQ of Environmental Quality (DEQ) received a request to change the permittee name from ACS to MVC. The permit action was an administrative amendment pursuant to the Administrative Rules of Montana (ARM) 17.8.764 that changed the permittee name as requested. **MAQP #3887-01** replaced MAQP #3887-00.

D. Current Permit Action

On August 11, 2023, the Department of Environmental Quality (DEQ) received an application to install and operate a new Power Pak I human remains incinerator. DEQ updated the permit to reflect current permit language rule references. **MAQP #3887-02** replaced MAQP #3887-01.

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 DEQ. Upon request, DEQ will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of DEQ, 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 DEQ.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by DEQ, 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).

   MVC 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 DEQ upon request.

4. ARM 17.8.110 Malfunctions. (2) DEQ must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.210, Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211, Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212, Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.214, Ambient Air Quality Standard for Hydrogen Sulfide
5. ARM 17.8.220, Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.223, Ambient Air Quality Standard for PM_{10}

MVC must comply with all applicable ambient air quality standards. As part of the risk assessment required for this project, DEQ conducted SCREEN3 modeling, an Environmental Protection Agency (EPA)-approved air dispersion model.

The screening analysis demonstrated that the proposed project would comply with all applicable ambient air quality standards as required for permit issuance.

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

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter (PM).

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.316 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. Further, 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.

   While MVC is required to comply with the Emission Limitations specified in Section II.B of MAQP #3887-01, this particular rule does not apply to the crematorium because MVC has applied for and operates under an MAQP in accordance with ARM 17.8.770 and MCA 75-2-215 for this unit.

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 Standard of Performance Standards for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of an affected facility under any NSPS subpart defined in 40 CFR Part 60.

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 DEQ. 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 DEQ by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by DEQ. 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. DEQ may insert into any final permit issued after the effective date of these rules such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

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

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. MVC does not have the PTE greater than 25 tons per year of any pollutant; however, in accordance with the Montana Code Annotated (MCA) 75-2-215, an air quality permit must be obtained prior to the construction and operation of any incinerator, regardless of potential incinerator emissions. Because MVC must obtain an air quality permit, all normally applicable requirements apply in this case.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. MVC submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. MVC submitted an affidavit of publication of public notice for the August 17, 2023, issue of the *Independent Record*, a newspaper of general circulation in the City of Helena in Lewis and Clark County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by DEQ 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 DEQ 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 MVC 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 DEQ's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to DEQ.

15. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to DEQ for incineration facilities subject to 75-2-215, Montana Code Annotated (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 ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant.

G. ARM 17.8, Subchapter 12, Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:

a. PTE > 100 tons/year of any pollutant

b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as DEQ may establish by rule, or

c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) in a serious PM_{10} 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 #3887-02 for MVC, 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 one HAP and less than 25 tons/year for all HAPs.

c. This source is not located in a serious PM_{10} nonattainment 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, or a solid waste combustion unit.

g. This source is not an EPA designated Title V source.

Based on these facts, DEQ determined that MVC will be a minor source of emissions as defined under the Title V operating permit program and will not require a Title V operating permit.

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 of 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; therefore, MVC must obtain an air quality permit.

2. MCA 75-2-215 requires the applicant to provide, to DEQ's satisfaction, a characterization and estimate of emissions and ambient concentrations of air pollutants, including hazardous air pollutants from the incineration of solid waste. DEQ determined that the information submitted in the application for MAQP #3887-00 is sufficient to fulfill this requirement.

3. MCA 75-2-215 requires that DEQ reach a determination that the projected emissions and ambient concentrations constitute a negligible risk to public health, safety, and welfare. DEQ completed a health risk assessment based on an emissions inventory and ambient air quality modeling for this proposal. Based on the results of the emission inventory, modeling, and the health risk assessment, DEQ determined that MVC's proposal under MAQP #3887-00 complies with this requirement.

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 action because no sources were added or modified. Therefore, a BACT determination is not required.

III. BACT Determination

A BACT determination is required for each new or modified source. MVC 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.

Emissions of products of incomplete combustion from incineration (carbon monoxide (CO), volatile organic compounds (VOC), particulate matter, and organic HAPs) resulting from incinerator operations can be controlled by use of a properly designed and operated secondary combustion chamber.

In a secondary combustion chamber, auxiliary burner(s) (often referred to as 'afterburners') are utilized to further combust components vaporized or carried through (entrained) during primary combustion. Proper design includes good turbulence, high temperature and adequate residence time. The destruction efficiency of the components released, formed, or carried through from primary combustion is exponentially increased with increased residence time and temperature in the secondary chamber.
Proper operation includes operating the secondary chamber at maximum rated temperatures and ensuring that the secondary chamber is preheated to the required set-point prior to igniting the primary chamber.

Temperature requirements of the secondary chamber vary depending on the heating value and moisture content of the waste, the amount and types of HAPs and other products of incomplete combustion entering the secondary chamber, and the required emissions performance.

The afterburners are usually fired to produce a temperature higher than achieved in the primary combustion chamber. A minimum 1600 °F temperature is recommended to reduce organic HAP emissions, including combustion formed dioxin emissions. Increased temperatures also increase destruction efficiency of other components of incomplete combustion including HAPs, VOC, CO, and PM. Quickly cooling the combustion gases after secondary combustion is further found to minimize thermally formed dioxin emissions.

Residence time is achieved by appropriate sizing of the secondary chamber. Such size should provide a residence time long enough to support complete combustion within the secondary combustion chamber given secondary chamber temperatures. Increased secondary chamber size results in increased residence time and increased destruction efficiency, assuming good turbulence. Higher secondary combustion chamber volume, temperature, and turbulence results in increased initial and ongoing operating costs.

Additional control of acid gases created during incineration can be made by use of a wet scrubber. Acid gases can be expected when burning components which include chlorine, such as plastic. However, based on the limited amount of chlorine expected to be charged, additional wet scrubber control for crematory operations is not commonly found to represent BACT as the additional cost is not warranted compared to the amount of emissions created.

Control of heavy metals can be accomplished by use of a fabric filter or wet scrubber. However, based on the limited amount of heavy metals expected from a crematory, addition of a fabric filter for heavy metal control was determined beyond the requirements of BACT. Combustion related emissions can also be minimized via fuel selection.

Natural gas combustion is inherently low in emissions of air pollutants due to characteristics of the fuel. The smaller fuel molecule sizes, lack of fuel bound nitrogen and other impurities, and the inherently low sulfur content of commercially available natural gas and propane lead to more complete combustion and therefore less emissions of PM, CO, VOC, NOX, and SO2 compared to other fuels.

A properly designed crematory normally has essentially no visible emissions during proper operation. The presence of visible emissions may be an indicator that the unit is not functioning properly.

Therefore, while a BACT-derived visible emissions standard has not been included, a visible emissions performance requirement has been assigned as another indicator of performance. MVC has proposed a design capable of reaching at least 1600 °F in the secondary chamber with a residence time of a minimum of 1 second. DEQ concurs such control represents BACT for this source category.

IV. Emission Inventory

An emission inventory was previously completed for the MVC. 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 application indicated that the fuel used would be natural gas; therefore, DEQ also used emission factors from AP-42, Section 1.4, Natural Gas Combustion, to estimate project-specific emissions from the combustion of natural gas.

DEQ developed a hazardous air pollutant emission inventory using those emission factors contained in FIRE (the EPA emission factor repository) under SCC 5-02-005-05, pathological incineration. DEQ considered only those HAPs for which an emission factor was available and that have been analyzed for other permitted similar sources.

Combined Emissions	**tons/year**									
Emission Source	**$PM_{Tot.}$**	**PM_{10}**	**$PM_{2.5}$**	**$PM_{Cond.}$**	**$PM_{Filt.}$**	**NO_X**	**CO**	**VOC**	**SO_2**	**HAPs**
Crematorium*[2]	2.63	1.94	--	--	--	0.99	0.00	0.99	2.63	7.13E-03
Natural Gas Fuel Combustion*[2]	--	0.07	--	--	--	0.05	0.74	0.05	0.01	--
Power Pak I Incinerator*[3]	0.66	0.66	0.66	--	--	0.50	0.41	0.00	0.31	0.04
Power Pak I Natural Gas*[3]	4.27E-08	--	--	3.20E-08	1.07E-08	5.62E-07	4.72E-07	3.09E-02	3.37E-09	6.18E-08
Total Emissions	**3.29**	**2.67**	**0.66**	**0.00**	**0.00**	**1.54**	**1.15**	**1.07**	**2.95**	**0.04**

Notes:
1. Values in table reflect "controlled" cells from subsequent worksheets
2. Emissions calculations from MAQP 3887-00.
3. Emission based on 3,744 hours per year, or 12 hours per day, 6 days per week, 52 weeks a year.

Crematorium Hazardous Air Pollutant Emissions	
HAP	**tons/year**
Bromoform	9.50E-06
Carbon Tetrachloride	1.89E-05
Chloroform	1.79E-05
1,2-Dichloropropane	4.34E-04
Ethyl Benzene	5.29E-04
Naphthalene	3.81E-03
Tetrachloroethylene	1.32E-05
1,1,2,2-Tetrachloroethane	3.61E-05
Toluene	1.52E-03
Vinylidine Chloride	2.33E-05
Xylene	7.23E-04
Total HAP Potential Emissions	**7.13E-03**

CRITERIA POLLUTANT EMISSION CALCULATIONS

Crematorium

Maximum Rated Design Capacity: 150 lb/hr
Operating Hours: 8760 hr/yr
Conversion: 150 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 657.0 ton/yr

PM Emissions

Emission Factor: 8.0 lb/ton (AFSSCC 5-02-005-05, 03/90, Page 227)
Fuel Consumption: 657.0 ton/year (Maximum Rated Design)
Calculations: 657.0 ton/year * 8 lb/ton * 0.0005 ton/lb = 2.63 ton/yr

PM_{10} Emissions:

Emission Factor:	5.92 lb/ton	(AFSSCC 5-02-005-05, 03/90, Page 227)
Fuel Consumption:	657.0 ton/year	(Maximum Rated Design)
Calculations:	657.0 ton/year * 5.92 lb/ton * 0.0005 ton/lb = 1.94 ton/yr	

NO_X Emissions:

Emission Factor:	3.00 lb/ton	(AFSSCC 5-02-005-05, 03/90, Page 227)
Fuel Consumption:	657.0 ton/year	(Maximum Rated Design)
Calculations:	657.0 ton/year * 3 lb/ton * 0.0005 ton/lb = 0.99 ton/yr	

VOC Emissions:

Emission Factor:	3.00 lb/ton	(AFSSCC 5-02-005-05, 03/90, Page 227)
Fuel Consumption:	657.0 ton/year	(Maximum Rated Design)
Calculations:	657.0 ton/year * 3 lb/ton * 0.0005 ton/lb = 0.99 ton/yr	

CO Emissions:

Emission Factor:	0.00 lb/ton	(AFSSCC 5-02-005-05, 03/90, Page 227)
Fuel Consumption:	657.0 ton/year	(Maximum Rated Design)
Calculations:	657.0 ton/year * 0 lb/ton * 0.0005 ton/lb = 0.00 ton/yr	

SO_X Emissions:

Emission Factor:	8.00 lb/ton	(AFSSCC 5-02-005-05, 03/90, Page 227)
Fuel Consumption:	657.0 ton/year	(Maximum Rated Design)
Calculations:	657.0 ton/year * 8 lb/ton * 0.0005 ton/lb = 2.63 ton/yr	

Natural Gas Fuel Combustion

Heat Input Value: 0.002 MMscf/hr (Maximum Capacity - Company Information)
Hours of Operation: 8760 hr/yr

PM Emissions

All PM emissions assumed to be PM_{10} emissions (AP-42, Table 1.4-2, 07/98)

PM_{10} Emissions:

Emission Factor:	7.6 lb/MMscf	(AP42, Table 1.4-2, 07/98)
Calculations:	7.6 lb/MMscf * 0.002 MMscf/hr = 0.015 lb/hr	
	0.015 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.07 ton/yr	

NO_X Emissions:

Emission Factor:	100 lb/MMscf	(AP42, Table 1.4-2, 07/98)
Calculations:	100 lb/MMscf * 0.002 MMscf/hr = 0.200 lb/hr	
	0.200 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.88 ton/yr	

VOC Emissions:

Emission Factor:	5.5 lb/MMscf	(AP42, Table 1.4-2, 07/98)
Calculations:	5.5 lb/MMscf * 0.002 MMscf/hr = 0.011 lb/hr	
	0.011 lb/hr * 8760 hrs/yr * 0.0005 ton/lb = 0.05 ton/yr	

CO Emissions:

Emission Factor:	84 lb/MMscf	(AP42, Table 1.4-2, 07/98)
Calculations:	84 lb/MMscf * 1.5 MMBtu/hr * 0.001 lb/MMscf = 0.168 lb/hr	
	0.168 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.74 ton/yr	

SO_X Emissions:

Emission Factor:	0.6 lb/MMscf	(AP42, Table 1.4-2, 07/98)
Calculations:	0.6 lb/MMscf * 0.002 MMscf/hr = 0.001 lb/hr	
	0.0012 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr	

HAZARDOUS AIR POLLUTANT EMISSION CALCULATIONS

Bromoform

Emission Factor: 2.90E-05 lb/ton (AFSSCC 5-02-005-05)
Operating Capacity: 150 lb/hr or 0.075 ton/hr
Calculations: 2.90 E-05 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 2.70E-07 g/sec
2.70E-07 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 2.18E-06 lb/hr
2.18E-06 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 9.53E-06 ton/yr

Carbon Tetrachloride

Emission Factor: 5.74E-05 lb/ton (AFSSCC 5-02-005-05)
Operating Capacity: 150 lb/hr or 0.075 ton/hr
Calculations: 5.74E-05 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 5.40E-07 g/sec
5.40E-07 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 4.30E-06 lb/hr
4.30E-06 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 1.89E-05 ton/yr

Chloroform

Emission Factor: 5.45E-05 lb/ton (AFSSCC 5-02-005-05)
Operating Capacity: 150 lb/hr or 0.075 ton/hr
Calculations: 5.45E-05 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 5.20E-07 g/sec
5.20E-07 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 4.09E-06 lb/hr
4.09E-06 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 1.79E-05 ton/yr

1,2-Dichloropropane

Emission Factor: 1.32E-03 lb/ton (AFSSCC 5-02-005-05)
Operating Capacity: 150 lb/hr or 0.075 ton/hr
Calculations: 1.32E-03 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 1.25E-05 g/sec
1.25E-05 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 9.90E-05 lb/hr
9.90E-05 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 4.34E-04 ton/yr

Ethyl Benzene

Emission Factor: 1.61E-03 lb/ton (AFSSCC 5-02-005-05)
Operating Capacity: 150 lb/hr or 0.075 ton/hr
Calculations: 1.61E-03 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 1.52E-05 g/sec
1.52E-05 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 1.21E-04 lb/hr
1.21E-04 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 5.29E-04 ton/yr

Naphthalene

Emission Factor: 1.16E-02 lb/ton (AFSSCC 5-02-005-05)
Operating Capacity: 150 lb/hr or 0.075 ton/hr
Calculations: 1.16E-02 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 1.10E-04 g/sec
1.10E-04 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 8.70E-04 lb/hr
8.70E-04 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.81E-03 ton/yr

Tetrachloroethylene

Emission Factor: 4.03E-05 lb/ton (AFSSCC 5-02-005-05)
Operating Capacity: 150 lb/hr or 0.075 ton/hr
Calculations: 4.03E-05 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 3.80E-07 g/sec
3.80E-07 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 3.02E-06 lb/hr
3.02E-06 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 1.32E-05 ton/yr

1,1,2,2-Tetrachloroethane

Emission Factor: 1.10E-04 lb/ton (AFSSCC 5-02-005-05)
Operating Capacity: 150 lb/hr or 0.075 ton/hr
Calculations: 1.10E-04 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 1.04E-06 g/sec
1.04E-06 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 8.25E-06 lb/hr
8.25E-06 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.61E-05 ton/yr

Toluene

Emission Factor:	4.62E-03 lb/ton	(AFSSCC 5-02-005-05)
Operating Capacity:	150 lb/hr or 0.075 ton/hr	
Calculations:	4.62E-03 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 4.37E-05 g/sec	
	4.37E-05 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 3.47E-04 lb/hr	
	3.47E-04 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 1.52E-03 ton/yr	

Vinylidene Chloride

Emission Factor:	7.10E-05 lb/ton	(AFSSCC 5-02-005-05)
Operating Capacity:	150 lb/hr or 0.075 ton/hr	
Calculations:	7.10E-05 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 6.70E-07 g/sec	
	6.70E-07 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 5.33E-06 lb/hr	
	5.33E-06 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 2.33E-05 ton/yr	

Xylene

Emission Factor:	2.20E-03 lb/ton	(AFSSCC 5-02-005-05)
Operating Capacity:	150 lb/hr or 0.075 ton/hr	
Calculations:	2.20E-03 lb/ton * 0.075 ton/hr * 453.6 g/lb * 1 hr/3600 sec = 2.08E-05 g/sec	
	2.08E-05 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr = 1.65E-04 lb/hr	
	1.65E-04 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 7.23E-04 ton/yr	

Crematory Unit

Hours of Operation = 8,760.00 hours	8760	**hours**
pounds per ton = 0.000500 lb/ton	0.0005	**lb/ton**
Control Efficiency	0%	**percent reduction**
PM Emissions:		
PM Emissions = 1.534 ton/yr (AP-42, Table 2.4-4)	1.53	**ton/yr**
PM-10 Emissions:		
Emission Factor = 0.3502 lb/hr Manufacturers Data	0.350	**lb/hr**
Calculation: ((0.350 lb/hr) * (8,760 hours) * (ton/2000 lb) = 1.534 ton/yr	1.53	**ton/yr**
PM2.5 Emissions		
Emission Factor = 0.3502 lb/hr Manufacturers Data	0.350	**lb/hr**
Calculation: ((0.350 lb/hr) * (8,760 hours) * (ton/2000 lb) = 1.534 ton/yr	1.53	**ton/yr**
NOx Emissions:		
Emission Factor = 0.267 lb/hr Manufacturers Data	0.267	**lb/hr**
Calculation: ((0.267 lb/hr) * (8,760 hours) * (ton/2000 lb) = 1.169 ton/yr	1.17	**ton/yr**
CO Emissions:		
Emission Factor = 0.2212 lb/hr Manufacturers Data	0.221	**lb/hr**
Calculation: ((0.221 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.969 ton/yr	0.97	**ton/yr**
VOC Emissions:		
Emission Factor = 0.0224 lb/hr Manufacturers Data	0.022	**lb/hr**
Calculation: ((0.022 lb/hr) * (8,760 hours) * (ton/2000 lb) * (1-.98) = 0.002 ton/yr	0.00	**ton/yr**
SOx Emissions:		
Emission Factor = 0.163 lb/hr Manufacturers Data	0.163	**lb/hr**
Calculation: ((0.163 lb/hr) * (8,760 hours) * (ton/2000 lb) = 0.714 ton/yr	0.71	**ton/yr**

HAPs Emissions:		
Emission Factor = 0.02 lb/hr Health Risk Assessment Value	0.020	**lb/hr**
Calculation: ((0.020 lb/hr) * (8,760 hours) * (ton/2000 lb) * (1-.98) = 0.088 ton/yr	0.09	**ton/yr**

Natural Gas Emissions – Crematory Unit

Hours of Operation = 2,496.00 hours	2496	**hours**
pounds per ton = 0.000500 lb/ton	0.0005	**lb/ton**
British thermal units per hour	3.06	**mmBtu/hr**
British thermal units per scf	0.0010	**scf/btu**
PM_{Total} Emissions:		
Assumes PM_{Total} is the sum of $PM_{Cond.}$ and PM_{Filt}.	2.85E-08	**ton/yr**
PMCond. Emissions:		
Emission Factor = 5.7 lb/mmscf AP-42, Table 1.4-2	5.70	**lb/mmscf**
Calculation: ((5.70 lb/mmscf) * (0.0010 scf/btu) * (3.06 MMBtu/hr) * (2,496 hours) * (ton/2000 lb) = 0.000 ton/yr	2.13E-08	**ton/yr**
PMFilt. Emissions:		
Emission Factor = 1.9 lb/mmscf AP-42, Table 1.4-2	1.90	**lb/mmscf**
Calculation: ((5.70 lb/mmscf) * (0.0010 scf/btu) * (3.06 MMBtu/hr) * (2,496 hours) * (ton/2000 lb) = 0.000 ton/yr	7.11E-09	**ton/yr**
NOx Emissions:		
Emission Factor = 100 lb/mmscf Vendor Guarantee	100.00	**lb/mmscf**
Calculation: ((100.00 lb/mmscf) * (0.0010 scf/btu) * (3.06 MMBtu/hr) * (2,496 hours) * (ton/2000 lb) = 0.000 ton/yr	3.74E-07	**ton/yr**
CO Emissions:		
Emission Factor = 84 lb/mmscf Vendor Guarantee	84.00	**lb/mmscf**
Calculation: ((84.00 lb/mmscf) * (0.0010 scf/btu) * (3.06 MMBtu/hr) * (2,496 hours) * (ton/2000 lb) = 0.000 ton/yr	3.14E-07	**ton/yr**
VOC Emissions:		
Emission Factor = 5.5 lb/mmscf Vendor Guarantee	5.50	**lb/mmscf**
Calculation: ((5.50 lb/mmscf) * (0.0010 scf/btu) * (3.06 MMBtu/hr) * (2,496 hours) * (ton/2000 lb) = 0.021 ton/yr	2.06E-02	**ton/yr**
SO2 Emissions:		
Emission Factor = 0.6 lb/mmscf AP-42, Table 1.4-2	0.60	**lb/mmscf**
Calculation: ((0.60 lb/mmscf) * (0.0010 scf/btu) * (3.06 MMBtu/hr) * (2,496 hours) * (ton/2000 lb) = 0.000 ton/yr	2.25E-09	**ton/yr**
Total Organic Compound Emissions:		
Emission Factor = 11 lb/mmscf AP-42, Table 1.4-2	11.00	**lb/mmscf**
Calculation: ((11.00 lb/mmscf) * (0.0010 scf/btu) * (3.06 MMBtu/hr) * (2,496 hours) * (ton/2000 lb) = 0.000 ton/yr	4.12E-08	**ton/yr**

V. Existing Air Quality

The MVC is located within an area of Lewis and Clark County that is designated as an Unclassifiable/Attainment area for the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants.

The limitations and conditions in MAQP #3887-02 ensure the facility would not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS).

VI. Ambient Air Quality Impacts

DEQ determined, based on the information provided by MVC, and the attached Environmental Assessment, that the impacts from this permitting action will be minor. DEQ believes it will not cause or contribute to a violation of any ambient air quality standard.

VII. Health Risk Assessment

DEQ previously conducted SCREEN3, an EPA-approved screening model, using the indicated inputs obtained from the permit application and an emission rate of 0.50399E-02 gram per second, which is the sum of all the hazardous air pollutant emissions from the proposed crematorium. The individual one-hour results for each pollutant were then calculated by multiplying the modeled impact of 1.083 micrograms per cubic meter ($\mu g/m^3$) by the percentage of each individual HAP making up the total of the HAP emissions. The maximum 1-hour concentrations were then converted to an annual average and used in the risk assessment. The results are contained in Section VI, Health Risk Assessment of the permit analysis.

SCREEN3 Model Run

Simple Terrain Inputs:

Source Type	=	POINT
Emission Rate (G/S)	=	0.50399E-02
Stack Height (M)	=	5.18
Stack Inside Diam (M)	=	0.50
Stack Exit Velocity (M/S)	=	5.335
Stack Gas Exit Temp (K)	=	866.5
Ambient Air Temp (K)	=	293.15
Receptor Height (M)	=	0.0000
Urban/Rural Option	=	RURAL

Summary of Screen View Model Results

Calculation Procedure	Maximum 1 Hour Concentration ($\mu g/m^3$)	Distance of Maximum (M)	Terrain Height (M)
Simple Terrain	1.083	74	0

A health risk assessment was conducted to determine if the proposed MVC incinerator/crematorium complies with the negligible risk requirement of MCA 75-2-215. The emission inventory did not contain sufficient quantities of any pollutant on DEQ's list of pollutants for which non-inhalation impacts must be considered; therefore, DEQ determined that inhalation risk was the only necessary pathway to consider. Only those hazardous air pollutants for which there were established emission factors were considered in the emission inventory.

HAP Category / Pollutant Name	CAS #	Fraction of all HAPS	Calculated HAP Concentration (ug/m3)	Negligible Risk Assessment (1)						
				Table 1 Cancer Annual (ug/m3)	Table 2 Noncancer Chronic Annual (ug/m3)	Table 2 Noncancer Acute Annual (ug/m3)	Cancer URF (2)	Cancer Risk (3)	CNCREL (4) (ug/m3)	CNCREL Quotient (5)
Heavy Metals										
Antimony (less than)	7440360	0.00E+00	0.00E+00	N/A	2.00E-03	N/A	N/A	N/A	N/A	N/A
Arsenic (less than)	7440382	0.00E+00	0.00E+00	2.33E-05	5.00E-03	N/A	0.0043	1.63E-06	0.015	0.025246
Beryllium	7440417	0.00E+00	0.00E+00	4.17E-05	N/A	N/A	0.0024	8.3E-08	0.02	0.001729
Cadmium	7440439	0.00E+00	0.00E+00	5.56E-05	N/A	N/A	0.0018	5E-07	0.01	0.02777
Chromium	7440473	0.00E+00	0.00E+00	8.33E-06	N/A	N/A	N/A	N/A	N/A	N/A
Chromium, hx	18540299	0.00E+00	0.00E+00	N/A	N/A	N/A	0.012	4.09E-06	0.1	0.003408
Cobalt (less than)	7440484	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	0.1	0.000221
Lead	7439921	0.00E+00	0.00E+00	N/A	1.50E-02	N/A	N/A	N/A	0.15	0.011142
Mercury	7439976	0.00E+00	0.00E+00	N/A	3.00E-03	3.00E-01	N/A	N/A	0.3	0.286118
Nickel	7440020	0.00E+00	0.00E+00	0.000385	2.40E-03	1.00E-02	N/A	N/A	0.09	0.010715
Selenium	7782492	0.00E+00	0.00E+00	N/A	5.00E-03	2.00E-02	N/A	N/A	20	5.5E-05
Zinc	7440666	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Polycyclic Organic Matter (POM)										
2-methylnaphthalene	91576	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3-methylchloranthrene (less than)	56495	0.00E+00	0.00E+00	N/A	N/A	N/A	0.0063	5.26E-10	N/A	N/A
7,12 Dibenz(a)anthracene (less than)		0.00E+00	0.00E+00	N/A	N/A	N/A	0.071	5.27E-08	N/A	N/A
Anthracene (less than)	120127	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	71432	0.00E+00	0.00E+00	1.20E-02	7.10E-01	N/A	0.0000078	1.52E-09	30	6.5E-06
Dichlorobenzene	25321226	0.00E+00	0.00E+00	0.009091	8.00E+00	N/A	0.000011	1.23E-09	800	1.39E-07
Hexane	110543	0.00E+00	0.00E+00	N/A	2.00E+00	N/A			700	0.000239
Napthalene	91203	0.00E+00	0.00E+00	N/A	0.14	N/A	0.000034		3	1.89E-05
Phenanthrene	85018	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	108883	0.00E+00	0.00E+00	N/A	4	N/A			5000	6.31E-08
Acenaphthene	83329	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acenaphthylene	208968	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benz(a)anthracene (less than)	56553	0.00E+00	0.00E+00	5.88E-05	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene (less than)	50328	0.00E+00	0.00E+00	5.88E-05	N/A	N/A	0.0011	4.04E-10	N/A	N/A
Benzo(b)fluoranthene (less than)	205992	0.00E+00	0.00E+00	5.88E-05	N/A	N/A	0.00011	2.21E-11	N/A	N/A
Benzo(g,h,i)perylene (less than)	191242	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene (less than)	207089	0.00E+00	0.00E+00	5.88E-05	N/A	N/A	0.00011	1.97E-11	N/A	N/A
Chrysene (less than)	218019	0.00E+00	0.00E+00	N/A	N/A	N/A	0.000011	7.5E-12	N/A	N/A
Dibenz(a,h)anthracene (less than)	53703	0.00E+00	0.00E+00	5.88E-05	N/A	N/A	0.00011	1.76E-11	N/A	N/A
Fluorene	86737	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fluoranthene	206440	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)pyrene (less than)	193395	0.00E+00	0.00E+00	5.88E-05	N/A	N/A	0.00011	2.14E-11	N/A	N/A
Phenanthrene	85018	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pyrene	129000	0.00E+00	0.00E+00	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzofurans			0.00E+00	2.63E-09	3.5E-08	N/A				
1,2,3,4,6,7,8-Heptachlorodebenzofuran (less than)	67562394	0.00E+00	0.00E+00	N/A	N/A	N/A				
1,2,3,4,7,8,9-Heptachlofodibenzofuran (less than)	55673897	0.00E+00	0.00E+00	N/A	N/A	N/A				
1,2,3,4,7,8-Hexachlorodibenzofuran	70648269	0.00E+00	0.00E+00	N/A	N/A	N/A				
1,2,3,6,7,8-Hexachlorodibenzofuran	57117449	0.00E+00	0.00E+00	N/A	N/A	N/A				
1,2,3,7,8,9-Hexachlorodibenzofuran	72918219	0.00E+00	0.00E+00	N/A	N/A	N/A				
2,3,4,6,7,8-Hexachlorodibenzofuran	60851345	0.00E+00	0.00E+00	N/A	N/A	N/A				
1,2,3,7,8-Pentachlorodibenzofuran (less than)	57117416	0.00E+00	0.00E+00	N/A	N/A	N/A				
2,3,4,7,8-Pentachlorodibenzofuran (less than)	57117314	0.00E+00	0.00E+00	N/A	N/A	N/A				
2,3,7,8-Tetrachlorodibenzofuran	51207319	0.00E+00	0.00E+00	N/A	N/A	N/A				
Listed Non-POM Organic HAPs										
Acetaldehyde	75070	0.00E+00	0.00E+00	4.55E-02	9.00E-02	N/A	N/A	N/A	9	0.000365
Formaldehyde	50000	0.00E+00	0.00E+00	0.007692	0.036	3.7	0.000013	1.12E-08	9.8	8.76E-05
Listed Acids										
Hydrogen chloride (hydrochloric acid)	7647010	0.00E+00	0.00E+00	N/A	2.00E-01	3.00E+01	N/A	N/A	20	0.090884
Hydrogen fluoride (hydrofluoric acid)	7664393	0.00E+00	0.00E+00	N/A	0.059	5.8	N/A	N/A	14	0.00119
Dioxins										
2,3,7,8-tetrachlorodibenzo-p-dioxin	1746016	0.00E+00	0.00E+00	N/A	N/A	N/A	33	6.61E-08	0.00004	5.01E-05
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	35822469	0.00E+00	0.00E+00	N/A	N/A	N/A				
SUM of Hexachlorodibenzo-p-dioxin		0.00E+00	0.00E+00	N/A	N/A	N/A	1.3	3.82E-08	N/A	N/A
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	39227286	0.00E+00	0.00E+00	N/A	N/A	N/A				
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	57653857	0.00E+00	0.00E+00	N/A	N/A	N/A				
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	19408743	0.00E+00	0.00E+00	N/A	N/A	N/A				
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	40321764	0.00E+00	0.00E+00	N/A	N/A	N/A				
								6.47E-06		0.459245

(1) Source of chronic dose-response values is from USEPA Table 1: Prioritized Chronic Dose-Response Values for Screening Risk Assessments
(2) Cancer Chronic Inhalation Unit Risk Factor, units 1/µg/m3
(3) Cancer Risk is unit less and is calculated by multiplying the predicted concentration by the URF.
(4) Chronic Noncancer Reference Exposure Level
(5) CNCREL Quotient Value is calculated by dividing the modeled HAP concentration by the CNCREL.

DEQ determined that the risks estimated in the risk assessment are in compliance with the requirement to demonstrate negligible risk to human health and the environment. As documented in the above table and in accordance with the negligible risk requirement, no single HAP concentration results in Cancer Risk greater than 1.00E-06 and the sum of all HAPs results in a Cancer Risk of less than 1.00E-05. Further, the sum of the Chronic Noncancer Reference Exposure Level (CNCREL) hazard quotient is .4592, which is less than 1.0 as required to demonstrate compliance with the negligible risk requirement.

VIII. Taking or Damaging Implication Analysis

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

IX. Environmental Assessment

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

Mountain Valley Crematory

Final Environmental Assessment for the

Final Montana Air Quality Permit #3887-02

Montana Department of Environmental Quality
Air Quality Bureau
Air Permitting Services Section
ENVIRONMENTAL ASSESSMENT

APPLICANT: Mountain Valley Crematory		
PROPOSED PERMIT NUMBER: Montana Air Quality Permit Number #3887-02		
APPLICATION DATE: August 11, 2023		
APPLICATION COMPLETE DATE: August 11, 2023		
LOCATION: Section 28, Township 10 North, Range 3 West		**COUNTY: Lewis and Clark**
PROPERTY OWNERSHIP:	**FEDERAL ____ STATE ____ PRIVATE _X___**	
EA PREPARER:	**John P. Proulx – Air Quality Engineering Scientist**	
EA Draft Date	**EA Final Date**	**Permit Final Date**
September 15, 2023	**October 23, 2023**	**November 8, 2023**

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT

The Montana Department of Environmental Quality (DEQ) prepared this Environmental Assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to determine the need to prepare an EIS through an initial evaluation and determination of the significance of impacts associated with the proposed action. However, an agency is required to prepare an EA whenever statutory requirements do not allow sufficient time for the agency to prepare an EIS. This document may disclose impacts over which DEQ has no regulatory authority.

COMPLIANCE WITH THE CLEAN AIR ACT OF MONTANA

The state law that regulates air quality permitting in Montana is the Clean Air Act of Montana (§ 75-2-201, et seq., Montana Code Annotated (MCA). DEQ may not approve a proposed project contained in an application for an air quality permit unless the project complies with the requirements set forth in the Clean Air Act of Montana and the administrative rules adopted thereunder. DEQ's approval of an air quality permit application does not relieve Mountain Valley Crematory (MVC) (from complying with any other applicable federal, state, or county laws, regulations, or ordinances. MVC is responsible for obtaining any other permits, licenses, approvals, that are required for any part of the proposed project. DEQ will decide whether to approve the permit in accordance with the requirements of the Clean Air Act of Montana. DEQ may not withhold, deny, or impose conditions on the permit based on the information contained in this Environmental Assessment. § 75-1-201(4), MCA.

SUMMARY OF THE PROPOSED ACTION: MVC has applied for a new Montana Air Quality Permit under the Clean Air Act of Montana for the installation of one (1) human remains incinerator/crematorium. The proposed action would be located in Section 28, Township 10 North, Range 3 West, Lewis and Clark County. All information included in the EA is derived from the permit application, discussions with the applicant, analysis of aerial photography, topographic maps, and other research tools.

PURPOSE AND BENEFIT FOR PROPOSED ACTION: DEQ's purpose in conducting this environmental review is to act upon MVC's air quality permit application to authorize one (1) human remains incinerator/crematorium and associated air emissions. DEQ's action on the permit application is governed by the Clean Air Act of Montana, § 75-2-201, et seq., MCA and the Administrative Rules of Montana (ARM) 17.8.740, *et seq*.

The benefits of the proposed action include: The proposed permit action will increase operational capacity for MVC and reduce travel distances between separate locations.

REGULATORY RESPONSIBILITIES: In accordance with ARM 17.4.609(3)(c), DEQ must list any federal, state, or local authorities that have concurrent or additional jurisdiction or environmental review responsibility for the proposed action and the permits, licenses, and other authorizations required.

MVC must conduct its operations according to the terms of its permit. MVC further agrees to be legally bound by the permit, The Clean Air Act of§ 75-2-201, et seq., MCA and ARM 17.8.740, *et seq*.

MVC must cooperate fully with, and follow the directives of any federal, state, or local entity that may have authority over MVC's operations. These permits, licenses, and other authorizations may include: Lewis and Clark County and DEQ Air Quality Bureau (AQB). For this permit, since the air quality permit being issued is a minor source, Montana DEQ has jurisdiction to issue this permit.

Table 1: Proposed Action Details

Summary of Proposed Action	
General Overview	The MVC air quality permit application consists of the following equipment: One (1) human remains incinerator/crematorium The facility would be permitted to operate until MVC requested permit revocation or until the permit were revoked by DEQ due to gross non-compliance with the permit conditions.
Proposed Action Estimated Disturbance	
Disturbance	The project requires the installation of one (1) human remains incinerator/crematorium. The disturbance is within a parcel currently owned by Mountain Valley Crematories, LLC. The disturbance area is considered minimal.
Proposed Action	
Duration	**Construction:** Construction or commencement would start within three years of issuance of the final air quality permit. **Construction Period:** The construction period could begin as soon as the air quality permit (and any other permits identified in this EA) were in place. **Operation Life:** Until permit is either revoked at the request of the permittee or DEQ has determined the need for revocation.
Construction Equipment	Cranes, delivery trucks, various other types of smaller equipment
Personnel Onsite	**Construction:** Various number of installation personnel depending on which piece of equipment is being installed. **Operations:** No new employees
Location and Analysis Area	**Location**: The new processing equipment would be located in Section 35, Township 22 North and Range 4 East. **Analysis Area**: The area being analyzed as part of this environmental review includes the immediate project area (Figure 1), as well as neighboring lands surrounding the analysis area, as reasonably appropriate for the impacts being considered.
Air Quality	This EA will be attached to the Air Quality Permit which would include all enforceable conditions for operation of the emitting units
Conditions incorporated into the Proposed Action	The conditions developed in the Preliminary Determination of the Montana Air Quality Permit dated July 14, 2023, set forth in Sections II.A-D, and updated in the Decision Air Quality Permit if needed.

Figure 1: Map of general location of the proposed project.

EVALUATION AND SUMMARY OF POTENTIAL IMPACTS TO THE PHYSICAL AND HUMAN ENVIRONMENT IN THE AREA AFFECTED BY THE PROPOSED PROJECT:

The impact analysis will identify and evaluate direct and secondary impacts. Direct impacts are those that occur at the same time and place as the action that triggers the effect. Secondary impacts means "a further impact to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action." ARM 17.4.603(18). Where impacts are expected to occur, the impacts analysis estimates the duration and intensity of the impact.

The duration of an impact is quantified as follows:

- **Short-term**: Short-term impacts are defined as those impacts that would not last longer than the proposed operation of the site.
- **Long-term**: Long-term impacts are defined as impacts that would remain or occur following shutdown of the proposed facility.

The severity of an impact is measured using the following:

- **No impact**: There would be no change from current conditions.
- **Negligible**: An adverse or beneficial effect would occur but would be at the lowest levels of detection.
- **Minor**: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.
- **Moderate**: The effect would be easily identifiable and would change the function or integrity of the resource.
- **Major**: The effect would alter the resource.

1. TOPOGRAPHY, GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

The site is located on flat terrain at an elevation of approximately 3,915 ft above sea level. The climatology is cold semi-arid climate with long, cold and moderately snowy winters, hot and dry summers, and short springs and autumns. The area has an average annual precipitation of 11.4 inches per year.

Helena lies within the Northern Rocky Mountains physiographic province. The Continental Divide, which separates the Columbia and Missouri River drainages, is located 15 miles west of the valley. Quaternary-age sediments (0 to 10,000 years old) up to 6,000 feet thick fill the valley and form a northeast-sloping alluvial plain measuring roughly 64 square miles. The sediments originated from erosion of the mountains surrounding the valley. Lake Helena, the lowest point within the valley at 3,650 feet, overlies the thickest zone of these sediments. This sedimentary plain is bounded by broad erosional surfaces called pediments and alluvial fans of the Elkhorn Mountains, the Boulder batholith, the Scratchgravel Hills, and the Big Belt Mountains (including the Spokane Bench). (various, n.d.)

The project will take place on privately owned land that is already developed for use as a human remains crematory. Construction activities would involve vehicle travel for delivery and some construction activity to install the new incinerator/crematory.

Direct Impacts:

Proposed Action: Negligible impacts are expected with the proposed permit action. The approach to the facility and parking lot is asphalt pavement and would be the primary way to deliver the new incinerator/crematorium.

Secondary Impacts:

Proposed Action: No secondary impacts to topography, geology, stability, and moisture are anticipated with the proposed action.

2. WATER QUALITY, QUANTITY, AND DISTRIBUTION:

Operation of the incinerator/crematorium does not required water for any operational needs.

Direct Impacts:

Proposed Action: Negligible impacts to water quality, quantity, and distribution would be expected because the proposed project does not involve the use of water in any of the processes.

Secondary Impacts:
Proposed Action: No secondary impacts are anticipated with the proposed action.

3. AIR QUALITY:

Emissions from the incinerator/crematory unit would be minor. The incinerator/crematory unit would operate at a temperature of no less than 1600 °F and would ensure near complete destruction of the material being incinerated, producing minor amounts of pollutants. An emissions inventory for the proposed incinerator/crematory unit is located in Section IV of the Montana Air Quality Permit Analysis.

Direct Impacts:

Proposed Action: Minor impacts to air quality are expected with the proposed permit action. Only small amounts of pollutants would be emitted from the site. The emissions associated with the new incinerator/crematory unit assume 12 hours of operation per day, 6 days a week, 52 weeks a year.

Secondary Impacts:
Proposed Action: Negligible impacts could be expected with the proposed action in the event of equipment malfunction.

4. VEGETATION COVER, QUANTITY AND QUALITY:

The project will take place on privately owned land that is already developed for use as a human remains crematory. Construction activities would involve vehicle travel for delivery and some construction activity to install the new incinerator/crematory unit with no new work being done to prepare the ground immediately surrounding the facility.

Direct Impacts:
Proposed Action: Minor impacts to vegetative cover, quantity, and quality is possible because the proposed project is located in an already existing and fully developed site that requires delivery of the new incinerator/crematory unit. If the proposed equipment cannot be delivered to the installation area from the parking lot, it will need to be delivered to either the sides or back of the facility which could cause a temporary disturbance to the vegetative cover surrounding the building.

Secondary Impacts:
Proposed Action: Negligible impacts to land disturbance at the site may result in propagation of noxious weeds.

5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

The project will take place on privately owned land that is already developed for use as a human remains crematory.

Direct Impacts:
Proposed Action: Negligible impacts to avian and aquatic habitats would be expected because the proposed project is located in an already existing and fully developed site with any new construction activities being conducted on already developed land and within the existing facility.

Impacts to terrestrial habitats are possible depending on where the proposed incinerator/crematory unit would be delivered prior to installation. Any impact from the delivery would be minor and temporary.

Secondary Impacts:
Proposed Action: No secondary impacts to terrestrial, avian and aquatic life and habitats stimulated or induced by the direct impacts analyzed above would be anticipated for the proposed action.

6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Direct Impacts:
Proposed Action: According to a Montana Natural Heritage Program, there are twenty-three (23) species of concern;

Bird – Green-tailed Towhee, Long-billed Curlew, Evening Grosbeak, Veery, Great Blue Heron, Lewis's Woodpecker, Cassin's Finch, Clark's Nutcracker, Bobolink, Pileated Woodpecker, Pinyon Jay, Brown Creeper, Gray-crowned Rosy-Finch, Brewer's Sparrow, Flammulated Owl

Invertebrates – Monarch, Suckley Cuckoo Bumble Bee

Mammals – Spotted Bat, Hoary Bat

Vascular Plant – Lesser Rushy Milkvetch, Wedge-leaf Saltbush, Small Yellow Lady's slipper

No impacts to unique, endangered, fragile, or limited environmental resources would be expected because the proposed project is located in an already existing and fully developed site with minimal possible new disturbances occurring.

Secondary Impacts:
Proposed Action: No secondary impacts to unique, endangered, fragile, or limited environmental resources are anticipated for the proposed action.

7. HISTORICAL AND ARCHAEOLOGICAL SITES:

The Montana State Historic Preservation Office (SHPO) was notified of the application. SHPO conducted a file search and provided a letter dated September 6, 2023.

Montana State Historical Preservation investigation records show that there are two previously recorded sites within the designated search locale.

Site Type 1	Time Period	Owner	NR Status
Historic Railroad	Historic More Than One Decade	Other	Eligible
Historic Railroad	1910-1919	Private	Eligible

Direct Impacts:
Proposed Action: It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places.

If any structures are within the Area of Potential Effect, and are over fifty years old, we would recommend that they be recorded, and a determination of their eligibility be made prior to any disturbance taking place. The MVC facility is less than 50 years old and there is no disturbance outside the parcel boundary or alteration to structures over fifty years of age.

Secondary Impacts:
Proposed Action: No secondary impacts to historical and archaeological sites are anticipated.

8. SAGE GROUSE EXECUTIVE ORDER:

The project would not be in core, general or connectivity sage grouse habitat, as designated by the Sage Grouse Habitat Conservation Program (Program) at: http://sagegrouse.mt.gov.

Direct Impacts:
Proposed Action: The proposed action is not located within Sage Grouse habitat, no direct impacts would occur.

Secondary Impacts:
Proposed Action: No secondary impacts to sage grouse or sage grouse habitat would be expected.

9. AESTHETICS:

Installation of the proposed incinerator/crematory unit would add an additional stack to the building.

Direct Impacts:
Proposed Action: Minor impacts are expected with the installation of the proposed equipment. The area is located along Bozeman Avenue in the city of Helena, MT in an area that is mostly commercial properties with other business located in the immediate area. The nearest facility is 415 feet to the northwest of the proposed project location while the nearest residential facility is approximately 3,071 feet, west/southwest from the facility. The only change to the aesthetics of the facility would be the addition of a single stack associated with the incinerator/crematory unit.

Secondary Impacts:
Proposed Action: No secondary impacts to aesthetics and noise are anticipated with the proposed action.

10. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

The proposed incinerator/crematory unit will use natural gas as an energy source.

Direct Impacts:
Proposed Action: Negligible impacts on environmental resources of land, water, or air. Minor impacts to energy would be expected due to the incinerator/crematory unit utilizing pipeline quality natural gas as a fuel source.

Secondary Impacts:
Proposed Action: No secondary impacts to land, water, air or energy resources are anticipated with the proposed action.

11. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:

Direct Impacts:
Proposed Actions: The incinerator/crematory unit would be located in an existing, developed facility and the current permit action will not have any impacts on environmental resources outside those already identified in this EA.

Secondary Impacts:
Proposed Action: No secondary impacts to other environmental resources are anticipated as a result of the proposed action.

12. HUMAN HEALTH AND SAFETY:

A complete human health risk assessment was conducted for the crematory unit and is included in the MAQP Analysis, Section VII.

Direct Impacts:
Proposed Action: Impacts to human health and safety are anticipated to be short-term and minor as a result of this project.

Secondary Impacts:
Proposed Action: No secondary impacts to human health and safety are anticipated as a result of the proposed action.

13. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:

Direct Impacts:
Proposed Action: Negligible impacts to industrial, commercial, and agricultural activities are expected. The proposed permit action is small on a commercial scale and is not considered industrial or agricultural activities.

Secondary Impacts:
Proposed Action: No secondary impacts to industrial, commercial, water conveyance structures, and agricultural activities and production are anticipated as a result of the proposed action.

14. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

The incinerator/crematory unit will not require any additional personnel to operate.

Direct Impacts:
Proposed Action: No to quantity and distribution of employment are anticipated for the proposed action because the site can be located with the same personnel as the existing crematory unit.

Secondary Impacts:
Proposed Action: Negligible increases in distribution of employment are anticipated as a result of the proposed action.

15. LOCAL AND STATE TAX BASE AND TAX REVENUES:

Direct Impacts:
Proposed Action: Local, state and federal governments would be responsible for appraising the property, setting tax rates, collecting taxes, from the companies, employees, or landowners benefitting from this operation.

Secondary Impacts:
Proposed Action: No secondary impacts to local and state tax base and tax revenues are anticipated as a result of the proposed action.

16. DEMAND FOR GOVERNMENT SERVICES:

Direct Impacts:
Proposed Action: Minor impacts are anticipated for demand for government services. The air quality permit and physical site associated with the current permit action would require inspections from state government representatives to ensure the facility is operating within the limits and conditions listed in the air quality permit. The facility would be available for inspection at the same time as the existing crematory unit located on site.

Secondary Impacts:
Proposed Action: No secondary impacts are anticipated with the proposed action.

17. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

Direct Impacts:
Proposed Action: Negligible impacts to the locally adopted environmental plans and goals are anticipated as a result of the proposed action.

Secondary Impacts:
Proposed Action: No secondary impacts to the locally adopted environmental plans and goals are anticipated as a result of the proposed action.

18. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

Direct Impacts:
Proposed Action: Negligible impacts to access and quality of recreational and wilderness activities are anticipated as a result of the proposed action. The MVC facility is located in an area that is primarily used for commercial businesses.

Secondary Impacts:
Proposed Action: No secondary impacts to access and quality of recreational and wilderness activities are anticipated as a result of the proposed action.

19. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

Direct Impacts:
Proposed Action: Negligible impacts to density and distribution of population and housing are anticipated as a result of the current permit action.

Secondary Impacts:
Proposed Action: No secondary impacts to density and distribution of population and housing are anticipated as a result of the proposed action.

20. SOCIAL STRUCTURES AND MORES:

Direct Impacts:
Proposed Action: Negligible impacts are anticipated to social structures and mores are anticipated as a result of the current permit action.

Secondary Impacts:
Proposed Action: No secondary impacts to social structures and mores are anticipated as a result of the proposed action.

21. CULTURAL UNIQUENESS AND DIVERSITY:

Direct Impacts:
Proposed Action: Negligible impacts anticipated to cultural uniqueness and diversity are anticipated from the current permit action.

Secondary Impacts:
Proposed Action: No secondary impacts to cultural uniqueness and diversity are anticipated as a result of the proposed action.

22. **PRIVATE PROPERTY IMPACTS:**
The proposed processing equipment would be located in Section 28, Township 10 North, and Range 3 West and is within a 1.95 acre parcel owned by Mountain Valley Crematories, LLC.

The proposed action would take place on privately-owned land. The analysis below in response to the Private Property Assessment Act indicates no impact. DEQ does not plan to deny the application or impose conditions that would restrict the regulated person's use of private property so as to constitute a taking. Further, if the application is complete, DEQ must take action on the permit pursuant to § 75-2-218(2), MCA. Therefore, DEQ does not have discretion to take the action in another way that would have less impact on private property—its action is bound by a statute.

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)

23. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:
Due to the nature of the proposed action, no further direct or secondary impacts are anticipated from this project.

ADDITIONAL ALTERNATIVES CONSIDERED:

No Action Alternative: In addition to the proposed action, DEQ is considering a "no action" alternative. The "no action" alternative would deny the approval of the proposed action. The applicant would lack the authority to conduct the proposed activity. Any potential impacts that would result from the proposed action would not occur. The no action alternative forms the baseline from which the impacts of the proposed action can be measured.

If the applicant demonstrates compliance with all applicable rules and regulations as required for approval, the "no action" alternative would not be appropriate. Pursuant to, § 75-1-201(4)(a), (MCA) DEQ "may not withhold, deny, or impose conditions on any permit or other authority to act based on" an environmental assessment.

CUMULATIVE IMPACTS:

Cumulative impacts are the collective impacts on the human environment within the borders of Montana of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location and generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through preimpact statement studies, separate impact statement evaluation, or permit processing procedures.

This environmental review analyzes the proposed action submitted by MVC.

DEQ considered potential impacts related to this project and potential secondary impacts. Due to the limited activities in the analysis area, cumulative impacts related to this project would be minor and short-term.

PUBLIC INVOLVEMENT:

Scoping for this proposed action consisted of internal efforts to identify substantive issues and/or concerns related to the proposed operation. Internal scoping consisted of internal review of the environmental assessment document by DEQ Air Permitting staff.

Internal efforts also included queries to the following websites/ databases/ personnel:
• Montana State Historic Preservation Office
• Montana Department of Environmental Quality (DEQ)
• Montana Natural Heritage Program

OTHER GOVERNMENTAL AGENCIES WITH JURSIDICTION:

The proposed project would be fully located on privately-owned land. All applicable local, state, and federal rules must be adhered to, which, at some level, may also include other local, state, federal, or tribal agency jurisdiction. Other governmental agencies which may have overlapping or sole jurisdiction include but may not be limited to: Lewis and Clark County, OSHA (worker safety), DEQ AQB (air quality) and MDT (road access).

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS

Under ARM 17.4.608, DEQ is required to determine the significance of impacts associated with the proposed action. This determination is the basis for the agency's decision concerning the need to prepare an environmental impact statement and also refers to DEQ's evaluation of individual and cumulative impacts. DEQ is required to consider the following criteria in determining the significance of each impact on the quality of the human environment:

1. The severity, duration, geographic extent, and frequency of the occurrence of the impact;

   "Severity" is analyzed as the density of the potential impact while "extent" is described as the area where the impact is likely to occur. An example could be that a project may propagate ten noxious weeds on a surface area of 1 square foot. In this case, the impact may be a high severity over a low extent. If those ten noxious weeds were located over ten acres there may be a low severity over a larger extent.

   "Duration" is analyzed as the time period in which the impact may occur while "frequency" is analyzed as how often the impact may occur. For example, an operation that occurs throughout the night may have impacts associated with lighting that occur every night (frequency) over the course of the one season project (duration).

2. The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur;

3. Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts;

4. The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values;

5. The importance to the state and to society of each environmental resource or value that would be affected;

6. Any precedent that would be set as a result of an impact of the proposed action that would commit DEQ to future actions with significant impacts or a decision in principle about such future actions; and

7. Potential conflict with local, state, or federal laws, requirements, or formal plans.

The significance determination is made by giving weight to these criteria in their totality. For example, impacts with moderate or major severity may be determined to be not significant if the duration of the impacts is considered to be short-term. As another example, however, moderate or major impacts of short-term duration may be considered to be significant if the quantity and quality of the resource is limited and/or the resource is considered to be unique or fragile.

As a final example, moderate or major impacts to a resource may be determined to be not significant if the quantity of that resource is high or the quality of the resource is not unique or fragile.

Pursuant to ARM 17.4.607, preparation of an environmental assessment is the appropriate level of environmental review under MEPA if statutory requirements do not allow sufficient time for an agency to prepare an environmental impact statement. An agency determines whether sufficient time is available to prepare an environmental impact statement by comparing statutory requirements that establish when the agency must make its decision on the proposed action with the time required to obtain public review of an environmental impact statement plus a reasonable period to prepare a draft environmental review and, if required, a final environmental impact statement.

SIGNIFICANCE DETERMINATION

The severity, duration, geographic extent and frequency of the occurrence of the impacts associated with the proposed action would be limited. MVC proposes to construct and operate the proposed action on private land located in Section 28, Township 10 North and Range 3 West, in Lewis and Clark County**,** Montana.

DEQ has not identified any significant impacts associated with the proposed action for any environmental resource. Approving MVC' Air Quality Application would not set precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. If MVC submits another permit application, DEQ is not committed to approve those applications. DEQ would conduct a new environmental review for any subsequent air quality permit applications sought by MVC. DEQ would make a decision on MVC' subsequent application based on the criteria set forth in the Clean Air Act of Montana.

DEQ's issuance of an Air Quality Permit to MVC for this proposed operation does not set a precedent for DEQ's review of other applications, including the level of environmental review. The level of environmental review decision is made based on a case-specific consideration of the criteria set forth in ARM 17.4.608.

DEQ does not believe that the proposed action has any growth-inducing or growth-inhibiting aspects or that it conflicts with any local, state, or federal laws, requirements, or formal plans. Based on a consideration of the criteria set forth in ARM 17.4.608, the proposed state action is not predicted to significantly impact the quality of the human environment. Therefore, at this time, preparation of an environmental assessment is determined to be the appropriate level of environmental review under the Montana Environmental Protection Act.

Environmental Assessment and Significance Determination Prepared By:

John P. Proulx	Air Quality Engineer
Name	Title

EA Reviewed By:

Julie A. Merkel	Permitting Services Section Supervisor
Name	Title

References

Montana Air Quality Permit Application 3887-02_2023_08_11_APP

State Historical Preservation Office

Montana Natural Heritage Program, https://mtnhp.org/mapviewer/?t=4

AP-42, https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors

Montana Cadastral - http://svc.mt.gov/msl/mtcadastral

Geolex, Geology & Geophysics – Helena-geo, http://www.geolexmt.com/helena-geo