February 14, 2024

Robert Hume
K & L – IFP, LLC
Whitehall Crematory
2889 Ashton Blvd. Suite 175
Lehi, UT 84040

Sent via email: josh@impactfuneral.com

RE: Final Permit Issuance for MAQP #3882-01

Dear Mr. Hume:

Montana Air Quality Permit (MAQP) #3882-01 is deemed final as of February 14, 2024, by DEQ. This permit is for K&L – IFP, LLC, a Crematory in Whitehall, Montana. All conditions of the Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For DEQ,

Craig Henrikson

Troy Burrows

Craig Henrikson
Permitting Services Section Supervisor (Acting)
Air Quality Bureau
(406) 444-6711

Troy Burrows
Air Quality Scientist
Air Quality Bureau
(406) 444-1452

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

Montana Air Quality Permit #3882-01

K & L – IFP, LLC
Whitehall Crematory
109 2nd Avenue West
Whitehall, MT 59759

February 14, 2024

MONTANA AIR QUALITY PERMIT

Issued to: K&L - IFP, LLC
2889 Ashton Blvd Ste 175
Lehi, UT 84040

Permit #3882-01
Application Complete: 01/09/2024
Department Decision Issued: 01/29/24
Permit Final: 02/14/24
AFS #043-0004

An air quality permit, with conditions, is hereby granted to K&L – IFP, LLC. (K&L), 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 K&L facility is located at 109 2nd Avenue West in Whitehall, Montana. The legal description of the site is Section 4, Township 1 North, Range 4 West, Jefferson County, Montana.

B. Current Permit Action

On January 9, 2024, K&L – IFP, LLC submitted a complete application for an Administrative Amendment to change the name of the company from K&L Mortuaries, Inc. to K&L – IFP, LLC.

SECTION II: Limitations and Conditions

A. Operational Requirements

1. K&L shall not incinerate/cremate any material other than human remains and/or any corresponding container unless otherwise approved in writing by the Department of Environmental Quality (DEQ) (ARM 17.8.749).

2. The K&L 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, as follows:

The secondary chamber operating temperature of the crematorium shall be maintained above 1500 degrees Fahrenheit (°F) for any one-hour averaging period with no single reading less than 1400 °F (ARM 17.8.752).

3. K&L shall operate the crematorium as specified in the application for Permit #3882-00. Further, K&L 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 the DEQ upon request (ARM 17.8.752).

B. Emission Limitations

K&L shall not cause or authorize to be discharged into the atmosphere from the crematorium:

1. Visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (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_2) (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 DEQ may require testing (ARM 17.8.105).

D. Monitoring Requirements

K&L shall install, calibrate, maintain, and operate continuous monitoring and recording equipment on the crematorium to measure the secondary chamber exit gas temperature. K&L shall also record the daily quantity of material incinerated/cremated and the daily hours of operation of the crematorium (ARM 17.8.749).

E. Operational Reporting Requirement

1. K&L shall supply the DEQ with annual production information for all emission points, as required by the 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 the DEQ by the date required in the emission inventory request. Information shall be in units as required by the DEQ (ARM 17.8.505).

2. K&L shall notify the DEQ of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the 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 K&L as a permanent business record for at least 5 years following the date of the measurement, shall be submitted to the DEQ upon request, and shall be available at the plant site for inspection by the DEQ (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection – K&L 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 (CEMS, 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 K&L fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving K&L 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 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 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, as amended by the 1991 Legislature, failure to pay the annual operation fee by K&L may be grounds for

revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Construction Commencement – Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Montana Air Quality Permit Analysis
K&L – IFP. LLC
Permit #3882-01

I. Introduction

A. Permitted Equipment

K&L – IFP, LLC (K&L) operates a 2007 Mathews Cremation Division, Model IE43-Power-Pak II human crematory (crematorium). The K&L facility is located at 109 2nd Avenue West in Whitehall, Montana. The legal description of the site is Section 4, Township 1 North, Range 4 West, Jefferson County, Montana.

B. Source Description

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

C. Permit History

On September 8, 2006, K&L Mortuaries, Inc. (K&L) submitted a complete application for a Montana Air Quality Permit to install and operate a 2007 Mathews Cremation Division, Model IE43-Power-Pak II human crematory (crematorium). **MAQP #3882-00** was issued on 11/27/2006.

D. Current Permit Action

On January 9, 2024, K&L – IFP, LLC submitted a complete application for an Administrative Amendment to change the name of the company from K&L Mortuaries, Inc. to K&L – IFP, LLC. **MAQP #3882-01** replaces MAQP #3882-00.

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 Administrative Rules of Montana (ARM) and are available upon request from the Department of Environmental Quality (DEQ). Upon request, the 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 the 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 the DEQ.

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

   K&L 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 DEQ upon request.

4. ARM 17.8.110 Malfunctions. (2) The 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}

K&L must comply with all applicable ambient air quality standards. As part of the risk assessment required for this project, the DEQ conducted Screen 3 modeling, an 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. 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 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. 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 rule does not apply to the crematorium because K&L 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 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 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. K&L 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 DEQ. K&L is not required to submit a fee for the current Administrative Action.

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 DEQ by each source of air contaminants holding an air quality permit, excluding an

open burning permit, issued by the DEQ; and the air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

The annual assessment and collection of the air quality operation fee, as described above, shall take place on a calendar-year basis. The 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 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, alter, or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. K&L does not have the PTE greater than 25 tons per year of any pollutant; however, in accordance with 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 K&L 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, alteration, or use of a source. A permit application was not required for the current permit action because the permit change 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 of public notice was not required for the current permit action because the permit change is considered an administrative permit change.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the 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 BACT analysis is not required for the current permit action because the permit change is considered an administrative permit change.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the 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 K&L 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 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 the DEQ.

15. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the 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 since this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

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 the DEQ may establish by rule; or

c. PTE > 70 tons/year of 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 Air Quality Permit #3882-01 for K&L, 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 of 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 current NESHAP standards.

f. This source is not a Title IV affected source.

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

Based on these facts, the DEQ determined that K&L will be a minor source of emissions as defined under the Title V operating permit program.

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, K&L must obtain an air quality permit.

2. MCA 75-2-215 requires the applicant to provide, to the 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. The DEQ determined that the information submitted in this application is sufficient to fulfill this requirement.

3. MCA 75-2-215 requires that the DEQ reach a determination that the projected emissions and ambient concentrations constitute a negligible risk to public health, safety, and welfare. The 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, the DEQ determined that K&L's proposal complies with this requirement.

4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed BACT. The DEQ determined that the proposed incinerator constitutes BACT.

III. Best Available Control Technology Analysis

A BACT analysis was not required for the current permit action because the current permit action is considered an administrative permit action.

IV. Emission Inventory

An emission inventory was completed for K&L's proposal. 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, the 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.

The 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. The DEQ considered only those HAPs for which emission factors were available and that have been analyzed for other permitted similar sources.

Criteria Pollutant Emissions (tons/year)						
Source	**PM**	**PM_{10}**	**NOx**	**VOC**	**CO**	**SOx**
Crematorium	2.63	1.94	0.99	0.99	0.00	2.63
Natural Gas Fuel Combustion	NA	0.08	1.10	0.06	0.92	0.01
Total Criteria Pollutant Potential Emissions	**2.63**	**2.02**	**2.09**	**1.05**	**0.92**	**2.64**

Crematorium Hazardous Air Pollutant Emissions	
HAP	**tons/year**
Bromoform	9.53E-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	**7.14E-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: 8.00 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

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: 2.5 MMBtu/hr (Company Information)
Hours of Operation: 8760 hr/yr
Fuel Heating Value: 0.001 MMscf/MMBtu

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 * 2.5 MMBtu/hr * 0.001 lb/MMscf = 0.02 lb/hr
0.019 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.08 ton/yr

NO_X Emissions:
Emission Factor: 100 lb/MMscf (AP42, Table 1.4-2, 07/98)

Calculations:	100 lb/MMscf * 2.5 MMBtu/hr * 0.001 lb/MMscf =	0.25 lb/hr
	0.25 lb/hr * 8760 hr/yr * 0.0005 ton/lb =	1.10 ton/yr

VOC Emissions:

Emission Factor:	5.5 lb/MMscf (AP42, Table 1.4-2, 07/98)	
Calculations:	5.5 lb/MMscf * 2.5 MMBtu/hr * 0.001 lb/MMscf =	0.01 lb/hr
	0.014 lb/hr * 8760 hs/yr * 0.0005 ton/lb =	0.06 ton/yr

CO Emissions:

Emission Factor:	84 lb/MMscf (AP42, Table 1.4-2, 07/98)	
Calculations:	84 lb/MMscf * 2.5 MMBtu/hr * 0.001 lb/MMscf =	0.21 lb/hr
	0.21 lb/hr * 8760 hr/yr * 0.0005 ton/lb =	0.92 ton/yr

SO_X Emissions:

Emission Factor:	0.6 lbs/MMscf (AP42, Table 1.4-2, 07/98)	
Calculations:	0.6 lb/MMscf * 2.5 MMBtu/hr * 0.001 lb/MMscf =	0.002 lb/hr
	0.002 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 =	2.74E-07 g/sec
	2.74E-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 =	5.42E-07 g/sec
	5.42E-07 g/sec * 1 lb/453.6 g * 60 sec/min * 60 min/hr =	4.31E-06 lb/hr
	4.31E-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 =	5.15E-07 g/sec
	5.15E-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 min/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 =	3.81E-07 g/sec
	3.81E-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 =	6.71E-07 g/sec
	6.71E-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

V. Air Quality Impacts

The DEQ conducted SCREENVIEW, an EPA-approved screening model, using the indicated inputs obtained from the permit application and an emission rate of 2.05E-04 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 2.58E-02 $\mu g/m^3$ 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.

SCREENVIEW Model Run

Simple Terrain Inputs:

Source Type	=	POINT
Emission Rate (G/S)	=	2.05E-04
Stack Height (M)	=	5.18
Stack Inside Diam (M)	=	0.50
Stack Exit Velocity (M/S)	=	9.94
Stack Gas Exit Temp (K)	=	933.15
Ambient Air Temp (K)	=	293
Receptor Height (M)	=	0.0000
Urban/Rural Option	=	RURAL

Stack exit velocity was provided by K&L.

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	2.58E-02	108	0

VI. Health Risk Assessment

A health risk assessment was conducted with the original permit application to determine if the proposed 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 the DEQ's list of pollutants for which non-inhalation impacts must be considered; therefore, the 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.

Negligible Risk Assessment[1]					
Hazardous Air Pollutant	Modeled Concentration	Cancer URF[2] $(ug/m^3)^{-1}$	Cancer Risk[3]	CNCREL[6] (ug/m^3)	CNCREL Hazard Quotient[7]
Bromoform	2.74E-06	1.10E-06	3.01E-12	ND	NA
Carbon Tetrachloride	5.42E-06	1.50E-05	8.13E-11	1.90E+02	2.85E-08
Chloroform	5.15E-06	2.30E-05	1.18E-10	9.80E+01	5.25E-08
1,2-Dichloropropane[4]	1.25E-04	1.90E-05	2.37E-09	4.00E+00	3.12E-05
Ethyl Benzene	1.52E-04	ND	ND	1.00E+03	1.52E-07
Naphthalene	1.10E-03	3.40E-05	3.72E-8	3.00E+00	3.65E-04
Tetrachloroethylene[5]	3.81E-06	5.90E-06	2.24E-11	2.70E+02	1.41E-08
1,1,2,2-Tetrachloroethane	1.04E-05	5.80E-05	6.02E-11	ND	NA
Toluene	4.36E-04	ND	ND	4.00E+02	1.09E-06
Vinylidene Chloride	6.70E-06	5.00E-05	3.35E-10	2.00E+02	3.35E-08
Xylene	2.08E-04	ND	ND	1.00E+02	2.08E-06
Total Risks	----------	----------	4.08E-08	----------	4.00E-04
A copy of the Screen View modeling conducted for this project is on file with the DEQ.					

1) Source of chronic dose-response values is from Table 1: Prioritized Chronic Dose Response Values for Screening Risk Assessments (www.epa.gov/ttn/atw/toxsource/table1.pdf, 2/28/06).
2) Cancer Chronic Inhalation Risk Factor $(1/ug/m^3)$.
3) Cancer Risk is unitless and is calculated by multiplying the predicted concentration by the URF.
4) AKA Propylene dichloride.
5) AKA Tetrachloroethene, Perchloroethylene.
6) Chronic Noncancer Reference Exposure Level.
7) The CNCREL hazard quotient is determined by calculating the modeled HAP concentration by the CNCREL.

The 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 CNCREL hazard quotient is 4.00E-04, which is less than 1.0 as required to demonstrate compliance with the negligible risk requirement.

VII. Taking or Damaging Implication Analysis

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

VIII. Environmental Assessment

This permitting action will not result in an increase of emissions from the facility and is considered an administrative action; therefore, an Environmental Assessment is not required.

Analysis Prepared By: Troy Burrows 1/29/2024