

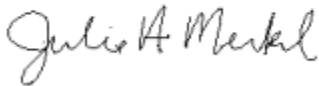
September 20, 2019

Steve Schnider
O'Connor Funeral Home
2425 8th Avenue N.
Great Falls, MT 59401


Dear Mr. Schnider:

Montana Air Quality Permit #5227-00 is deemed final as of September 20, 2019, by the Department of Environmental Quality (Department). This permit is for a crematorium. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,



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



Ed Warner (for John Proulx)
Lead Engineer – Permitting Services Section
Air Quality Bureau
(406) 444-2467

JM:JP:EW
Enclosure

Montana Department of Environmental Quality
Air, Energy & Mining Division

Montana Air Quality Permit #5227-00

O'Connor Funeral Home
2425 8th Avenue North
Great Falls, Montana 59401

September 20, 2019



MONTANA AIR QUALITY PERMIT

Issued To: O'Connor Funeral Home
2425 8th Avenue N.
Great Falls, MT 59401

MAQP: #5227-00
Application Complete: 6/17/2019
Preliminary Determination Issued: 7/23/2019
Department's Decision Issued: 9/4/2019
Permit Final: 9/20/2019

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to O'Connor Funeral Home (OFH), pursuant to Sections 75-2-204, 211 and 215 of the 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. Permitted Equipment

OFH proposes to install and operate a 2.35 million British thermal unit (MMBtu) natural gas-fired multi-chambered B&L cremation unit rated for a maximum cremation rate of 150 pounds per hour (lbs/hr).

B. Plant Location

The physical location of the proposed facility is 2425 8th Avenue N., Great Falls, Montana with the geographical coordinates of 47.5142° latitude, -111.2645° longitude. The legal description is Section 6, Township 20 North, Range 4 East, Cascade County, Montana.

Section II: Conditions and Limitations

A. Emission Limitations

1. OFH shall not incinerate/cremate any material other than human remains and/or any corresponding container or other crematory related materials unless approved in writing by the Department, furthermore, OFH shall provide written notice to the Department and obtain approval from the Department if material other than what would normally be termed "human remains or its container" is to be incinerated (ARM 17.8.749).
2. The cremation unit shall be equipped with auxiliary fuel burners designed to preheat a secondary chamber to the minimum required operating temperature prior to igniting the primary chamber burner. OFH shall maintain an average temperature of at least 1,500 degrees Fahrenheit and a minimum temperature of 1,450-degree Fahrenheit in the secondary chamber during cremation (ARM 17.8.752).

3. OFH shall develop operational procedures for the crematorium, print those procedures in a crematorium operational procedure manual, and require all personnel who operate the unit to become familiar with the operating procedures. The operating procedures manual shall be readily available to all personnel who operate the unit. DCBS shall keep training records and supply training records and a copy of the operations manual to the Department upon request (AMR 17.8.752).
4. OFH shall not cause or authorize to be discharged into the atmosphere:
 - a. Visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.752); and
 - b. Any particulate emissions in excess of 0.10 grains per dry standard cubic feet (gr/dscf) of exhaust flow, corrected to 12% carbon dioxide (CO₂) (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. The Department of Environmental Quality (Department) may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. OFH shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. OFH shall notify the Department of any construction or improvement projects conducted, pursuant to ARM 17.8.745, that would include the addition of a new emitting units, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation.

The notice must be submitted to the Department, in writing, 10 days prior to startup 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(l)(d) (ARM 17.8.745).

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

These records may be stored at a location other than the plant site upon approval by the Department (ARM 17.8.749).

D. Monitoring Systems

1. OFH shall install, calibrate, maintain, and operate continuous monitoring and recording equipment on the permitted cremation unit to measure the secondary chamber exit gas temperature (ARM 17.8.749).
2. OFH shall record the daily quantity (mass) of material incinerated and the daily hours of operation of the crematorium (date, start time, end time, and operator) (ARM 17.8.749).

E. Notification

1. OFH shall provide the Department with written notification of the commencement of construction of the incinerator within 30 days after commencement of construction (ARM 17.8.749).
2. OFH shall provide the Department with written notification of the actual start-up date of the incinerator within 15 days after the actual start-up date (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – OFH shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment 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 OFH fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving OFH 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 Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by OFH 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 (MAQP) Analysis
O'Connor Funeral Home
MAQP #5227-00

I. Introduction/Process Description

O'Connor Funeral Home (OFH) owns and operates a 2.35 million British thermal unit (MMBtu) incinerator. The facility is located 2425 8th Avenue N, Great Falls, MT.

A. Permitted Equipment

Natural gas-fired multi-chambered Cremation Systems CFS2300 unit rated for a maximum incineration rate of 150 pound per hour (lb/hr).

B. Source Description

The crematorium has a maximum incineration design capacity of 150 lbs/hr of human remains. The crematorium will utilize pipeline quality natural gas for combustion in the primary and secondary auxiliary burner with a rating of 2.35 MMBtu per hour (MMBtu/hr).

C. Additional Information

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

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department of Environmental Quality (Department). Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

OFH shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means 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 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀
11. ARM 17.8.230 Fluoride in Forage

OFH must maintain compliance with the applicable ambient air quality standards.

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

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 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. (2) Under this rule, OFH shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
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. This rule does not apply to the Cremation Systems CFS2300 unit because OFH 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 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.
8. ARM 17.8.340 Standard of Performance 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 any NSPS subpart defined in 40 CFR Part 60.
10. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This facility is not an NESHAP affected source because it does not meet the definition of any NESHAP subpart defined in 40 CFR Part 63.

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

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. OFH submitted the appropriate permit application fee for the current permit 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 Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate 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. OFH has a PTE less than 25 tons per year of any contaminant; however, in accordance with MCA 75-2-215, an air permit must be obtained prior to the construction and operation of an incinerator, regardless of potential incinerator emissions. Because OFH must obtain an air quality permit, all normally applicable requirements apply.
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. OFH 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. OFH submitted an affidavit of publication of public notice for the June 20, 2019 issue of the *Great Falls Tribune*, a newspaper of general circulation in the Town of Great Falls, MT in Cascade 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 the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving OFH of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.
12. 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.

13. 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).
 14. 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.
 15. 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 Department.
 16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, Montana Code Annotated (MCA).
 17. ARM 17.8.771 Mercury Emission Standards for Mercury-Emitting Generating Units. This rule identifies mercury emission limitation requirements, mercury control strategy requirements, and application requirements for mercury-emitting generating units.
- 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 (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 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 Department may establish by rule; or
 - c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program. (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 #5227-00 for OFH, 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 PM₁₀ nonattainment area.
 - d. This facility is not subject to any current NSPS.
 - e. This facility is not subject to any current NESHAP.
 - 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, the Department determined that OFH will be a minor source of emissions as defined under Title V.

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

1. "Incinerator" means any single or multi chambered combustion device that burns combustible material, alone or with a supplemental fuel or catalytic combustion assistance, primarily for the purpose of removal, destructions, disposal, or volume reduction of all or any portion of the input material.
2. "Solid waste" means all putrescible and not putrescible solid, semisolid, liquid or gaseous waste, 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 solid waste incinerators; therefore, OFH must obtain an air quality permit.
2. MCA 75-2-215 requires the applicant to provide, to the Department's satisfaction, a characterization and estimate of emissions and ambient concentrations of air pollutants, including hazardous air pollutants, from the incineration of solid waste. The information in the initial permit application fulfilled this requirement.
3. MCA 75-2-215 requires that the Department reach a determination the projected emissions and ambient concentrations constitute a negligible risk to public health, safety, and welfare. The Department completed a health risk assessment, based on an emissions inventory and ambient air quality modeling, for this MAQP application. Based on the results of the emission inventory, modeling, and health risk assessment, the Department determined that OFH complies with this requirement.
4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed BACT. The Department determined that operating the incinerator (crematorium) according to the manufacturer-recommended operation procedures constitutes BACT.

III. BACT Determination

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

OFH proposes to install and operate a crematorium equipped with a secondary chamber designed specifically to reduce the amount of pollutants, including HAPs, emitted from the incinerator. Previous research conducted by the Department indicates crematoriums of this size have not been required to install additional air pollution control equipment beyond that provided by the controlled air design of the incinerator, which maintains an appropriate and stable unit temperature and retention of combustion gases within the secondary chamber to maximize pollutant destruction. With the estimated particulate matter emissions being approximately 0.5 tpy, the incremental cost per ton of additional control would be very high and not in line with control costs of other similar sources. In addition, the incinerator is limited by its MAQP to 0.10 grains per dry standard cubic foot for particulate matter and to 10% opacity (visible emissions). Furthermore, the health risk assessment shows negligible risks from the small amount of HAP emissions from this incinerator as proposed.

BACT for products of combustion/incineration (carbon monoxide (CO), oxides of nitrogen (NO_x), volatile organic compounds (VOC), and sulfur dioxide (SO₂) and HAPs) resulting from crematorium operations is proper crematorium design and operation. Proper design includes relying on good turbulence, high temperature and the residence time within the secondary chamber. Turbulence is achieved with proper introduction of air into the combustion chambers. Temperature is achieved by including the requirement that the

secondary chamber must be maintained at an operating temperature of 1,500 °F with no single reading less than 1,450 °F. Residence time is achieved by sizing the secondary chamber large enough to support final combustion within the secondary combustion chamber. This design incorporates no heat recovery from the secondary combustion chamber and therefore, the stack volume operates effectively as an extension of the secondary combustion chamber volume. When the volume of the secondary combustion chamber and stack are combined the average residence time is over 1 second.

Furthermore, natural gas or propane combustion inherently results in low emissions of air pollutants due to characteristics of the fuel fired. Potential PM₁₀, PM_{2.5}, NO_x, CO, VOC, and SO₂ emissions from the combustion of natural gas or propane to operate the crematorium are each less than 2.13 tpy. Because potential emissions of all regulated pollutants resulting from natural gas or propane combustion are low, incorporation of available pollutant-specific control technologies would result in high cost per ton removed values thereby making pollutant-specific add-on controls for PM₁₀, PM_{2.5}, NO_x, CO, VOC, and SO₂ economically infeasible in this case.

Based on these conclusions, the Department determined that proper unit design, along with the combustion of natural gas, and proper operation and maintenance of the crematorium with no additional control constitutes BACT.

The BACT conclusions prescribed under MAQP #5227-00 provide comparable controls and control cost to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory – emissions are based on continuous operation for 8,760 hours per year

PTE from Natural Gas Combustion			
Pollutant	Emission Factor (lb/MMft ³)	Annual (lb/yr)	Annual (Ton/yr)
PM10 & PM2.5 (including condensable)	7.6	153.39	0.08
NO _x	100	2018.24	1.01
CO	84	1695.32	0.85
SO ₂	0.6	12.11	0.01
VOC	5.5	111.00	0.06

$$\frac{\left(\frac{MMBTU}{hr}\right)}{\left(\frac{BTU}{ft^3}\right)} \times \frac{hr}{yr} \times \frac{lb}{MMft^3} \times \frac{Ton}{lb} = \frac{Ton}{yr} \text{ (Annual TPY)}$$

PTE from Cremation of Body (including case wrappings and assuming 150 lbs/hr for 8,760 hrs)			
Pollutant	Emission Factor (lb/150 lb body)	Annual (lb/yr)	Annual (Ton/yr)
PM10 & PM2.5 (including condensable)	8.50E-02	744.60	0.37
NOx	2.57E-01	2251.32	1.13
CO	2.21E-01	1935.96	0.97
SO2	1.63E-01	1427.88	0.71
VOC	2.24E-01	1962.24	0.98

$$\frac{lb}{150 lb body} \times \frac{150 lb body}{hr} \times \frac{hr}{yr} \times \frac{Tons}{lb} = \frac{Ton}{yr} \text{ (Annual TPY)}$$

Total Criteria Pollutant Emissions			
Pollutant	Nat. Gas (Tons/yr)	Cremation (Tons/yr)	Annual (Tons/yr)
PM10 & PM2.5	0.08	0.37	0.45
NOx	1.01	1.13	2.13
CO	0.85	0.97	1.82
SO2	0.01	0.71	0.72
VOC	0.06	0.98	1.04

V. Existing Air Quality

OFH is located at 2425 8th Avenue N., Great Falls, Montana. The immediate area in which the proposed facility is located is designated as non-attainment. OFH's maximum potential emissions of any pollutant are not expected to have an impact on existing air quality.

VI. Ambient Air Impact Analysis

The Department conducted SCREEN3 Modeling, an EPA-approved screening model, using the indicated inputs obtained from the emission inventory and a HAP emission rate of 0.04473 grams per second (g/s), which is the sum of all toxic pollutant and/or HAP emissions from the proposed crematorium. The maximum 1-hour modeled concentration was then converted to an annual average and used in the risk assessment. The individual one-hour results for each pollutant were calculated by multiplying the maximum modeled annual concentration of toxic and/or HAP's in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), by the percentage of each individual pollutant identified within the emission inventory. The emission factors employed in development of the emission inventory were derived from stack test data; as such include pollutant contributions of fuel utilized in firing the crematory.

As shown by the Health Risk Assessment located in Section VII of this permit analysis, the Department determined that there is a negligible human health risk associated with the proposed project. With consideration of the modeling accomplished for the Health Risk Assessment, and the small potential to emit of criteria pollutants, the Department determined that the impacts from this permitting action will be minor, and that the proposed action will not cause or contribute to a violation of any ambient air quality standard.

VII. Human Health Risk Assessment

A health risk assessment was conducted to determine if the proposed crematorium complies with the negligible risk requirement of MCA 75-2-215.

The environmental effects unrelated to human health were not considered in determining compliance with the negligible risk standard, but were evaluated as required by the Montana Environmental Policy Act, in determining compliance with all applicable rules or other requirements requiring protection of public health, safety, welfare, and the environment.

Pursuant to ARM 17.8.770(1)(c), pollutants may be excluded from the human health risk assessment if the Department determines that exposure from inhalation is the only appropriate pathway to consider in the human health risk assessment and if the ambient concentrations of the pollutants (calculated using the potential to emit; enforceable limits or controls) are less than the levels specified in Table 1 or Table 2 of ARM 17.8.770.

The proposed OFH incinerator has a stack height of 21.5 feet (ft) (6.55 meters) with vertical discharge, a stack exit temperature of ~1000 °F (810 degrees kelvin), and a flow rate of 3,807 actual cubic feet per minute (ACFM) (8.382 meters per second) with a 1.67 ft. diameter stack (0.509 meter). Ambient air modeling was accomplished using SCREEN3 software; an EPA approved ambient air dispersion. The SCREEN3 Modeling results are provided below:

Screen3 Modeling			
Calculation Procedure	Max Concentration ($\mu\text{g}/\text{m}^3$)	Distance to Max (m)	Terrain Height (m)
Simple Terrain	4.783	107	0
Distance to nearest structure (m)		10	

Although not all pollutants exceeded the levels specified in Table 1 or Table 2 of ARM 17.8.770, the Department conducted a full risk assessment. The Department included those pollutants for which emissions factors are available for crematory operations. Although additional species of pollutants have been identified in documented emission factors for the combustion of natural gas and/or propane, prior analyses indicate those pollutants would pass the human health risk assessment. Therefore, emission factors based on stack test data specific to crematory emissions were used. For those pollutants reviewed, the calculated cancer risks demonstrate there is not more than a negligible health, safety, and welfare risk to the public and to the environment, as defined in ARM 17.8.740(16).

As documented in the Negligible Risk Assessment table and in accordance with the Department's negligible risk requirement, as defined in ARM 17.8.740(16), no individual pollutant concentration exceeds the Cancer Risk threshold of 1.00E-06, the sum of all the Cancer Risk concentrations (1.5095E-6) does not exceed 1.00E-05. Further, the sum of the Chronic Non-cancer Reference Exposure Level (CNCREL) hazard quotient of 0.1074 is less than 1.0 as required to demonstrate compliance with the negligible risk requirement.

VIII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VIII. Environmental Assessment

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

DEPARTMENT OF ENVIRONMENTAL QUALITY
Air, Energy & Mining Division
Air Quality Bureau
P.O. Box 200901, Helena, Montana 59620
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ENVIRONMENTAL ASSESSMENT (EA)

Issued To: O'Connor Funeral Home

Montana Air Quality Permit number (MAQP): 5227-00

EA Draft: July 23, 2019

EA Final: September 4, 2019

Permit Final: September 20, 2019

1. *Legal Description of Site:* Section 6, Township 20 North, Range 4 East, Cascade County, Montana.
2. *Description of Project:* O'Connor Funeral Home (OFH) proposes to install and operate a new 2.35 million British thermal unit per hour (MMBtu/hr) natural gas-fired multi-chambered incinerator at their existing location.
3. *Objectives of Project:* Install and operate a new, more efficient incinerator.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the "no-action" alternative. OFH submitted a complete application which included an affidavit of publication of public notice in a local newspaper and the appropriate application permit fee. The Department determined that the proposed emitting unit would not violate any state or national air quality standards. Therefore, the "no-action" alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #5227-00.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.
7. *SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS:* The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

Emissions from the proposed project would potentially affect terrestrial and aquatic life and habitats in the proposed project area outside of normal construction operations.

However, as detailed in Sections V and VI of the permit analysis, any emissions and resulting impacts from the project would be minor due to the low concentrations of the pollutants emitted.

B. Water Quality, Quantity and Distribution

The project would not be expected to affect water quality or distribution. The crematorium would operate within an existing structure and does not discharge or use water during normal operation.

C. Geology and Soil Quality, Stability and Moisture

The project would not be expected to affect the geology, soil quality, stability, or moisture of the immediate area outside of normal construction operations. The crematorium would operate inside an existing structure.

D. Vegetation Cover, Quantity, and Quality

Airborne emissions from the project may potentially affect vegetative cover, quantity, and quality in the project area outside on normal construction operations. However, any emissions and resulting impacts from the project would be expected to be minor due to the dispersion characteristics and the low concentration of emitted pollutants.

E. Aesthetics

The project would cause a minor affect to the aesthetics of the existing area outside of normal construction operations. The “stack” from the facility would be partially hidden and present a minimal view to the general public.

F. Air Quality

The project would cause a minor affect to air quality due to emissions of pollutants from the crematorium. Section VII of the MAQP Analysis contains a detailed list of pollutants including Hazardous Air Pollutants (HAPs). The Department has conducted air dispersion modeling to determine the ambient air quality impacts from HAPs and determined that the maximum concentration of airborne pollutants from the crematorium would be located approximately 347 feet from the facility.

Stack parameters and emission rates used in the SCREEN3 model are contained in Section VII of the permit analysis and are on file with the Department. Stack velocity and gas temperature were taken from data provided by the manufacturer of the crematorium.

Due to the dispersion characteristics and low levels of pollutants that would be emitted from the proposed project the Department determined that any impacts to air quality would be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The Department conducted an investigation of unique, endangered, fragile, or limited environmental resources for the project location and identified 5 species of concern. The species of concern include the Spiny Softshell turtle, Many-headed Sedge, Chaffweed, Pale-yellow Jewel-weed, and the Silver Bladderpod. As discussed in Section VI of the permit analysis, any emissions and resulting impacts from the project would be minor due to the low concentration of those pollutants emitted. Overall, any impact to the unique endangered, fragile, or limited environmental resource of the proposed project area would be expected to be negligible.

H. Sage Grouse Executive Order

The Department recognizes the site location is not within Greater Sage Grouse Habitat Area as defined by Executive Order No. 12-2015

I. Demands on Environmental Resource of Water, Air and Energy

The proposed project would result in minor demands on environmental resources of water and air. Project impacts on air resources in the proposed project area would be minor due to dispersion characteristics and the low concentration of those pollutants emitted. Little to no impacts to water resources would be expected due to the small nature of the project. Because the project is small by industry standards, relatively little energy would be required for operation, resulting in minor impact.

J. Historical and Archaeological Sites

The Department contacted the Montana Historical Society - State Historical Preservation Office (SHPO) in an effort to identify any historical and/or archaeological sites that may be present in the proposed area of construction/operation. Search results concluded that there are no previously recorded sites within the area proposed for the project. According to correspondence from SHPO, there is a low likelihood cultural properties will be impacted. Therefore, a recommendation for a cultural resource inventory is unwarranted at this time. However, should cultural materials be inadvertently discovered during this project the SHPO office must be contacted, and the site investigated.

K. Cumulative and Secondary Impacts

The cumulative and secondary impacts from this project on the environment in the immediate area are expected to be minor. This facility is within an urban area and the air pollution emissions from this facility are negligible. The Department believes that this facility would be expected to operate in compliance with all applicable rules and regulations as outlined in MAQP #5227-00.

8. *SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS:*
The following comments have been prepared by the Department.

A. Social Structures and Mores

OFH is proposing to operate a natural gas fired multiple chambered cremation unit with a maximum design capacity of 150 pounds per hour (lb/hr). The incinerator emissions would be extremely low on an industrial scale and opacity limitations would require 10% or less while operating.

The proposed project would be installed and operated in an existing structure and cremation services do not represent a change in the social structures or mores of the area.

B. Cultural Uniqueness and Diversity

The proposed project would not cause any change in the cultural uniqueness and diversity of the area as the incinerator would be installed and operated in an existing structure.

C. Local and State Tax Base and Tax Revenue

The impact on local and state tax base and tax revenue would be minor because the project would not require additional employees.

D. Agricultural or Industrial Production

The proposed project would not cause any change in the agricultural or industrial production of the area as the proposed project is to provide cremation services for Great Falls and surrounding areas.

E. Human Health

As described in Section VI of the MAQP Analysis, modeling and analysis of hazardous air pollutants showed negligible risk to human health. Furthermore, the potential to emit of conventional air pollutants would be negligible. Impacts to human health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would not affect access to any wilderness activities or quality of recreational activities.

G. Quantity and Distribution of Employment

The proposed project would have minor impacts on quantity and distribution of employment. New employees would most likely be hired from the surrounding local communities.

H. Distribution of Population

The proposed project would have no effect on the distribution of population.

I. Demands for Government Services

The proposed project would have a minor impact on demands for government services through permitting activities and compliance inspections.

J. Industrial and Commercial Activity

The proposed project would result in minor commercial activity because the crematorium would require installation. There would be no impacts to industrial activities in the proposed project area.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans and goals that this project would impact. The State standards would be protective of the proposed project area.

L. Cumulative and Secondary Impacts

Overall, cumulative and secondary impacts from this project would expect result in minor impacts to the economic and social environment in the immediate area due to the relatively small size of the operation. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in MAQP #5227-00.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the installation and operation of a new incinerator. MAQP #5227-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program – Montana Sage Grouse Conservation Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Quality Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

EA prepared by: John P. Proulx

Date: 7/12/2019