Air Quality Permit

Issued to: Central Montana Crematorium, Inc.
P.O. Box 882
Lewistown, MT 59457

Permit #: 3220-00
Application Complete: 09/06/02
Preliminary Determination Issued: 09/25/02
Department Decision Issued: 10/11/02
Permit Final: 10/29/02
AFS#: 027-0007

An air quality permit, with conditions, is hereby granted to Central Montana Crematorium, Inc. (CMC), pursuant to Sections 75-2-204, 211, and 215 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.701, *et seq*., as amended, for the following:

Section I: Permitted Facilities

A. Permitted Equipment:

On September 6, 2002, CMC submitted a complete permit application to construct a pathological incinerator to be used as a human crematorium. A complete list of the permitted equipment is located in Section I.A of the permit analysis.

B. Plant Location:

CMC's proposed human crematorium would be located in the Southeast ¼ of the Southeast ¼ of Section 11, Township 14 North, Range 18 East, in Fergus County, Montana. The facility is located on US Highway 87, approximately ½ mile east of Lewistown, Montana.

Section II: Conditions and Limitations

A. Operational Requirements

1. CMC shall operate the crematorium as specified in their Montana Air Quality Permit Application and all supporting documentation (ARM 17.8.710).

2. CMC shall not incinerate/cremate any material other than human remains and corresponding containers unless otherwise approved by the Department of Environmental Quality (Department) (ARM 17.8.710).

3. CMC shall provide written notice to the Department and obtain approval from the Department if material other than what would normally be termed "human remains and corresponding container," is to be incinerated (ARM 17.8.710).

4. The secondary chamber operating temperature of the cremation unit shall be maintained above 1500°F. The operating temperature shall be maintained during operation and for ½ hour after the feed has stopped (ARM 17.8.710 and ARM 17.8.715).

B. Emission Limitations

CMC shall not cause or authorize to be discharged into the atmosphere from the cremation unit:

1. Any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.715); and

2. Any particulate emissions in excess of 0.10 gr/dscf corrected to 12% CO_2 (ARM 17.8.715).

C. Monitoring Requirements

CMC shall install, calibrate, maintain and operate continuous monitoring and recording equipment on the cremation unit for the secondary chamber exit temperature. CMC shall also record the daily quantity of material incinerated/cremated and daily hours of operation for the cremation unit (ARM 17.8.710).

D. Operational Reporting Requirements

1. CMC 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 covered by this permit.

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

2. CMC shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.705(1)(r), that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.705(1)(r)(iv) (ARM 17.8.705).

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

E. Testing Requirements

1. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

2. The Department may require testing (ARM 17.8.105).

F. Notification

CMC shall provide the Department with written notification of the following dates within the specified time periods.

1. Commencement of construction of the cremation unit within 30 days after commencement of construction; and

2. Actual start-up date of the cremation unit within 15 days after the actual start-up date.

Section III: General Conditions

A. Inspection - CMC 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 (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if CMC fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving CMC of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.701, *et seq.* (ARM 17.8.717).

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

E. Appeals - Any person or persons, jointly or severally, adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department's decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department's decision until the conclusion of the hearing and issuance of a final decision by the Board.

F. Permit Inspection - As required by ARM 17.8.716, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.

G. Permit Fee - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by CMC 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 17.8.731).

Permit Analysis
Central Montana Crematorium, Inc.
Permit #3220-00

I. Introduction/Process Description

A. Permitted Equipment

The Central Montana Crematorium, Inc. (CMC) facility consists of a 100-pound-per-hour (lb/hr) American Crematory Equipment Company, A-200 HT Crematory Furnace to be used as a human crematorium.

B. Source Description

On September 6, 2002, the Department of Environmental Quality (Department) received a complete application from CMC for the installation and operation of a human crematorium. The CMC facility will be located in the Southeast ¼ of the Southeast ¼ of Section 11, Township 14 North, Range 18 East, in Fergus County, Montana. The facility is located on US Highway 87, approximately ½ mile east of Lewistown, Montana.

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

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

1. ARM 17.8.101 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).

CMC 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 in 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 that a public nuisance is created.

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

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 Standard for PM_{10}

CMC must maintain compliance with the applicable ambient air quality standards. As part of the risk assessment required for this project, the Department completed a screening level ambient air impact analysis using an EPA-approved dispersion model (SCREEN3). This analysis was also used to demonstrate that the proposed project would comply with all applicable ambient air quality standards.

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

1. ARM 17.8.308 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.

2. 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 set forth by this rule.

3. 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 section does not apply to the American Crematory Equipment Company incinerator because CMC has applied for and received an air quality permit in accordance with ARM 17.8.706(5) and MCA 75-2-215.

4. ARM 17.8.340 Standard of Performance for New Stationary Sources (NSPS) and Emission Guidelines for Existing Sources. The owner and operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the standards and provisions of 40 CFR Part 60. There is currently no existing NSPS requirement for incinerators of this type.

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. CMC 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 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 17.8.701 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.704 General Procedures for Air Quality Preconstruction Permitting. This air quality preconstruction permit contains requirements and conditions applicable to both construction and subsequent use of the permitted equipment.

3. ARM 17.8.705 When Permit Required--Exclusions. This rule requires a facility to obtain an air quality permit or permit alteration if they construct, alter, or use an air contaminant source that has the potential to emit more than 25 tons per year of any pollutant. While CMC does not have the potential to emit more than 25 tons per year of any pollutant, an air quality permit must be obtained under the requirements of MCA 75-2-215. Because CMC must obtain an air quality permit, all normally applicable requirements apply in this case.

4. ARM 17.8.706 New or Altered Sources and Stacks--Permit Application Requirements. This rule requires an application for an air quality permit to be submitted for a new or altered source or stack. CMC submitted their application for an air quality permit.

5. ARM 17.8.707 Waivers. ARM 17.8.706 requires the permit application be submitted 180 days before construction begins. This rule allows the Department to waive this time limit. The Department hereby waives this limit.

6. ARM 17.8.710 Conditions for Issuance of Permit. This rule requires CMC to demonstrate compliance with applicable rules and standards before a permit can be issued. Also, a permit may be issued with such conditions as are necessary to ensure compliance with all applicable rules and standards. CMC demonstrated compliance with applicable rules and standards as required for permit issuance.

7. ARM 17.8.715 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability, which 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 17.8.716 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.717 Compliance with Other Statutes and Rules. This rule states that nothing in the permit shall be construed as relieving CMC of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.701, *et seq.*

10. ARM 17.8.720 Public Review of Permit Applications. This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. CMC submitted an affidavit of publication from the September 11, 2002, issue of the *Lewistown News-Argus*, a newspaper of general circulation in the Town of Lewistown, in Fergus County, as proof of compliance with the public notice requirements.

11. ARM 17.8.731 Duration of Permit. An air quality permit shall be valid until revoked or modified as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1-year after the permit is issued.

12. ARM 17.8.733 Modification of Permit. An air quality permit may be modified for changes in any applicable rules or 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 in emissions because of the changed conditions of operation. A source may not increase its emissions beyond those found in its permit unless the source applies for and receives another permit.

13. ARM 17.8.734 Transfer of Permit. This section 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.

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 Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

CMC is not a major stationary source because the facility is not a listed source and the facility's potential to emit 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 source having:

a. Potential to Emit (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. Sources with the PTE > 70 tons/year of PM_{10} in a serious PM_{10} 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 Air Quality Permit #3220-00 for CMC, 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 any current NESHAP standards.

f. This source is not a Title IV affected source, nor a solid waste combustion unit.

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

Based on these facts, the Department determined that CMC will be a minor source of emissions as defined under Title V.

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 non-putrescible 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. CMC will, therefore, have to 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 HAP, from the incineration of solid waste. The Department determined the information submitted in this application is sufficient to fulfill this requirement.

3. MCA 75-2-215 requires the Department reach a determination that the projected emissions and ambient concentrations constitute a negligible risk to public health, safety, and welfare. The Department completed a health risk assessment based on the emission inventory and ambient air quality modeling for this proposal. Based on the results of the emission inventory, modeling, and the health risk assessment, the Department determined that CMC'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 Department determined that the proposed incinerator constitutes BACT.

III. BACT Analysis

A BACT determination is required for each new or altered source. CMC shall install on the new or altered source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized. In addition, MCA 75-2-215 requires a BACT determination for all pollutants, not just criteria pollutants.

The Department reviewed other BACT analysis as part of this permit. Previous research conducted by the Department indicates that very few crematoriums have been required to install additional air pollution control equipment beyond that provided by the design of the incinerator. With the estimated total particulate emissions being approximately 1.76 tons per year, 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 permit to 0.10 gr/dscf for particulate matter and to 10% for opacity. Therefore, the Department determined that compliance with the particulate and opacity emission limits, with no additional controls required, constitutes BACT for this source.

BACT for products of combustion (CO, NO_x, VOCs) and HAPs is good combustion. The operating procedures and minimum temperature requirements contained in the permit will ensure good combustion and will constitute BACT.

The control options selected as part of this review have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory

An emission inventory was completed for CMC'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 Department also used emission factors from AFSSCC 1-02-006-03 for the combustion of natural gas.

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

	Ton/Year					
	PM	PM_{10}	SO_x	NO_x	VOC	CO
A-200 HT Crematory Furnace	1.75	1.30	1.75	0.66	0.66	0.00
Natural Gas	0.01	0.01	0.00	0.44	0.02	0.09
Total	1.76	1.31	1.75	1.10	0.68	0.09

American Crematory Equipment Co. A-200 HT Crematory Furnace (100 lb/hr)

Maximum Fuel Consumption = 100 lb/hr
= 100 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 438.0 ton/yr

PM Emissions
- Emission Factor: 8.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 438.0 ton/year * 8.0 lb/ton * 0.0005 ton/lb = 1.75 ton/yr

PM_{10} Emissions:
- Emission Factor: 5.92 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 438.0 ton/year * 5.92 lb/ton * 0.0005 ton/lb = 1.30 ton/yr

SO_x Emissions:
- Emission Factor: 8.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 438.0 ton/year * 8.00 lb/ton * 0.0005 ton/lb = 1.75 ton/yr

NO_x Emissions:
- Emission Factor: 3.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 438.0 ton/year * 3.00 lb/ton * 0.0005 ton/lb = 0.66 ton/yr

VOC Emissions:
- Emission Factor: 3.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 438.0 ton/year * 3.00 lb/ton * 0.0005 ton/lb = 0.66 ton/yr

CO Emissions:
- Emission Factor: 0.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 438.0 ton/year * 0.00 lb/ton * 0.0005 ton/lb = 0.00 ton/yr

Natural Gas

Heat Content: 1050 Btu/scf
Maximum Rated Design Capacity: 1.0 MMBtu/hr
1.0 MMBtu/hr * 1 scf/1050 Btu * 10^6 Btu/MMBtu = 952 scf/hr
1500 scf/hr * 1 MMscf/10^6 scf = 0.0010 MMscf/hr

PM Emissions
- Emission Factor: 3.0 lb/MMscf {AFSSCC 1-02-006-03, pg 23}
- Control Efficiency: 0.0%
- Calculations: 0.0010 MMscf/hr * 3.0 lb/MMscf = 2.9E-3 lb/hr
2.9E-3 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.013 ton/yr

PM_{10} Emissions:

Emission Factor:	3.0 lb/MMscf	{AFSSCC 1-02-006-03, pg 23}
Control Efficiency:	0.0%	
Calculations:	0.0010 MMscf/hr * 3.0 lb/MMscf = 3.0E-3 lb/hr	
	3.0E-3 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.013 ton/yr	

SO_x Emissions:

Emission Factor:	0.6 lb/MMscf	{AFSSCC 1-02-006-03, pg 23}
Control Efficiency:	0.0%	
Calculations:	0.0010 MMscf/hr * 0.6 lb/MMscf = 6.0E-4 lb/hr	
	6.0E-4 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.003 ton/yr	

NO_x Emissions:

Emission Factor:	100 lb/MMscf	{AFSSCC 1-02-006-03, pg 23}
Control Efficiency:	0.0%	
Calculations:	0.0010 MMscf/hr * 100.0 lb/MMscf = 1.0E-1 lb/hr	
	1.0E-1 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.44 ton/yr	

VOC Emissions:

Emission Factor:	5.3 lb/MMscf	{AFSSCC 1-02-006-03, pg 23}
Control Efficiency:	0.0%	
Calculations:	0.0010 MMscf/hr * 5.3 lb/MMscf = 5.3E-3 lb/hr	
	5.3E-3 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.023 ton/yr	

CO Emissions:

Emission Factor:	20.0 lb/MMscf	{{AFSSCC 1-02-006-03, pg 23}
Control Efficiency:	0.0%	
Calculations:	0.0010 MMscf/hr * 20.0 lb/MMscf = 2.0E-2 lb/hr	
	2.0E-2 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.088 ton/yr	

HAPs

Maximum Fuel Consumption = 100 lb/hr
= 100 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 438.0 ton/yr

Bromoform

Emission Factor:	2.90E-05 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	438.0 ton/yr * 0.000029 lb/ton * 0.0005 ton/lb = 6.35E-06 ton/yr	

Carbon Tetrachloride

Emission Factor:	5.74E-05 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	438.0 ton/yr * 0.0000574 lb/ton * 0.0005 ton/lb = 1.26E-05 ton/yr	

Chloroform

Emission Factor:	5.45E-05 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	438.0 ton/yr * 0.0000545 lb/ton * 0.0005 ton/lb = 1.19E-05 ton/yr	

1,3-Dichloropropene

Emission Factor:	1.32E-03 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	438.0 ton/yr * 0.00132 lb/ton * 0.0005 ton/lb = 3.0E-04 ton/yr	

Ethyl Benzene

Emission Factor:	1.61E-03 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	438.0 ton/yr * 0.00161 lb/ton * 0.0005 ton/lb = 4.0E-04 ton/yr	

Naphthalene

Emission Factor:	1.16E-02 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	438.0 ton/yr * 0.0116 lb/ton * 0.0005 ton/lb = 2.5E-03 ton/yr	

Tetrachloroethylene

Emission Factor:	4.03E-05 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	

Calculations: 438.0 ton/yr * 0.0000403 lb/ton * 0.0005 ton/lb = 8.83E-06 ton/yr

1,1,2,2-Tetrachloroethane
Emission Factor: 1.10E-04 lb/ton {FIRE SCC Code 50200505}
Control Efficiency: 0.0%
Calculations: 438.0 ton/yr * 0.000110 lb/ton * 0.0005 ton/lb = 2.41E-05 ton/yr

Toluene
Emission Factor: 4.62E-03 lb/ton {FIRE SCC Code 50200505}
Control Efficiency: 0.0%
Calculations: 438.0 ton/yr * 0.00462 lb/ton * 0.0005 ton/lb = 1.0E-03 ton/yr

Vinylidene Chloride
Emission Factor: 7.10E-05 lb/ton {FIRE SCC Code 50200505}
Control Efficiency: 0.0%
Calculations: 438.0 ton/yr * 0.0000710 lb/ton * 0.0005 ton/lb = 1.55E-05 ton/yr

Xylene
Emission Factor: 2.20E-03 lb/ton {FIRE SCC Code 50200505}
Control Efficiency: 0.0%
Calculations: 438.0 ton/yr * 0.00220 lb/ton * 0.0005 ton/lb = 5.0E-04 ton/yr

V. Air Quality Impacts

The Department ran SCREEN3, an EPA-approved screening model, using information obtained from the permit application and an emission rate of 0.000139 grams per second, which is the sum of all the hazardous air pollutant emissions. The individual 1-hour results for each pollutant were then calculated prorating the actual emission rate in grams per second against the 0.000139 gram-per-second ambient impact of 0.02874 $\mu g/m^3$. The maximum 1-hour concentrations were then converted to an annual average and used in the risk assessment.

SCREEN3 Model Run

Simple Terrain Inputs:

Source Type	=	POINT
Emission Rate (G/S)	=	0.139E-03
Stack Height (M)	=	5.2 (approximately)
Stack Inside Diam (M)	=	0.509
Stack Exit Velocity (M/S)	=	5.1206
Stack Gas Exit Temp (K)	=	894.3
Ambient Air Temp (K)	=	293
Receptor Height (M)	=	1.0000
Urban/Rural Option	=	Rural
Building Height (M)	=	0.0000
Minimum Horizontal Building Dimension (M)	=	0.0000
Maximum Horizontal Building Dimension (M)	=	0.0000

Summary of Screen Model Results

Calculation Procedure	Maximum 1 Hour Concentration ($\mu g/m^3$)	Distance of Maximum (M)	Terrain Height (M)
Simple Terrain	0.02874	100	0

VI. Health Risk Assessment

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

Chemical Compound	Annual Conc $\mu g/m^3$	Cancer ELCR Chronic	Non-Cancer Hazard Quotient	
			Chronic	Acute
Bromoform	3.74E-08	4.11E-14	ND	ND
Carbon Tetrachloride	7.47E-08	1.12E-12	3.11E-08	3.93E-11
Chloroform	7.19E-08	1.66E-12	2.05E-09	4.79E-10
1,3-Dichloropropene	1.80E-06	2.88E-11	9.00E-08	ND
Ethyl Benzene	2.39E-06	ND	2.39E-09	ND
Naphthalene	1.50E-05	ND	1.07E-06	ND
1,1,2,2-Tetrachloroethane	1.44E-07	8.35E-12	ND	ND
Tetrachloroethylene	5.17E-08	3.05E-13	1.48E-09	2.59E-12
Toluene	5.98E-06	ND	1.49E-08	ND
Vinylidene Chloride	9.20E-08	4.60E-12	2.88E-09	ND
Xylene	2.99E-6	ND	9.96E-09	1.34E-10
Total Risks =		4.49E-11	1.22E-6	6.55E-10

ELCR = Excess lifetime cancer risks
ND = Not Determined, No Available Information

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

VII. Taking or Damaging Implication Analysis

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

VIII. Environmental Assessment

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

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air and Waste Management Bureau
1520 East Sixth Avenue
P.O. Box 200901, Helena, Montana 59620-0901
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FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued For: Central Montana Crematorium, Inc.
P.O. Box 882
Lewistown, Montana 59457

Permit Number: 3220-00

Preliminary Determination Issued: 09/25/02
Department Determination Issued: 10/11/02
Permit Final: 10/29/02

1. *Legal Description of Site*: The proposed human crematorium would be located on US Highway 87, approximately ½ mile East of Lewistown, Montana. The legal description of the proposed site is the Southeast ¼ of the Southeast ¼ of Section 11, Township 15 North, Range 18 East, in Fergus County, Montana.

2. *Description of Project*: CMC proposes to build a human crematory facility. The total site area of the facility would be 2.5 acres with ¼ acre expected to be disturbed to construct the facility. The site would include a building (1920 square feet), a gravel access road, parking for six cars, landscaping, and a facility sign. The building would include the cremation unit, a family viewing and witness room, a chapel, a conference room, storage rooms, and administrative offices.

3. *Objectives of Project*: The proposed project would provide the community of Lewistown and the surrounding area with a facility for human cremation. The proposed project would also provide the owners of CMC with a business and revenue opportunity. The facility would provide crematory services to local funeral homes as well as other retail customers.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the “no-action” alternative. The "no action" alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because CMC demonstrated compliance with all applicable rules and regulations as required for permit issuance. 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 Permit #3220-00.

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 all applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. *The following table summarizes the potential physical and biological effects of the proposed project on the human environment.* The "no-action" alternative was discussed previously.

Potential Physical and Biological Effects							
		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Terrestrial and Aquatic Life and Habitats			X			yes
B.	Water Quality, Quantity, and Distribution			X			yes
C.	Geology and Soil Quality, Stability, and Moisture			X			yes
D.	Vegetation Cover, Quantity, and Quality			X			yes
E.	Aesthetics			X			yes
F.	Air Quality			X			yes
G.	Unique Endangered, Fragile, or Limited Environmental Resource			X			yes
H.	Demands on Environmental Resource of Water, Air, and Energy			X			yes
I.	Historical and Archaeological Sites			X			yes
J.	Cumulative and Secondary Impacts			X			yes

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

Terrestrials would use the same area as the facility. While deposition of pollutants would occur, as explained in Section 7.F. of this EA, due to the small size of the facility, the relatively small amount of air emissions that would be generated by the facility, dispersion characteristics of pollutants and the atmosphere, and conditions that would be placed in Permit #3220-00, the Department determined that any impacts from the deposition of pollutants would be minor. Terrestrial habitats may also be impacted by the construction of the proposed facility. However, based on the small size of the facility and the fact that the land was previously used for farming, the Department determined that any impacts from facility construction would be minor. Aquatic life and habitat would not be impacted by the construction or operation of the facility because the nearest aquatic life habitat is Boyd Creek, which is located approximately 250 feet from the proposed site. Overall, any impacts to terrestrial and aquatic life and habitats would be minor.

B. Water Quality, Quantity, and Distribution

Although there would be a slight increase in air emissions from the proposed facility, there would be little, if any impacts on the water quality, quantity, and distribution in the area of the facility. As explained in Section 7.F of this EA, due to the small size of the facility, the relatively small amount of air emissions that would be generated by the facility, dispersion characteristics of pollutants and the atmosphere, and conditions that would be placed in Permit #3220-00, the Department determined that any impacts from the deposition of pollutants would be minor. Therefore, the chance of the proposed projects operation impacting the quality, quantity, and distribution of water would be minor.

C. Geology and Soil Quality, Stability, and Moisture

There would be minor impacts on the geology and soil quality, stability, and moisture from the proposed incinerator because initial construction activity would be required for the proposed project. In addition, deposition of pollutants would also occur. However, as explained in Section 7.F of this EA, the Department determined that any impacts from the deposition of pollutants would be minor due to the small size of the facility, the relatively small amount of air emissions that would be generated by the facility, dispersion characteristics of pollutants and the atmosphere, and conditions that would be placed in Permit #3220-00. Overall, any impacts to the geology and soil quality, stability, and moisture would be minor.

D. Vegetation Cover, Quantity, and Quality

There would be minor impacts on the vegetation cover, quantity, and quality because small amounts of vegetation would likely be removed for the initial construction of the proposed project. In addition, pollutant deposition would also occur on the surrounding vegetation. However, as explained in Section 7.F of this EA, the Department determined that any impacts from the deposition of pollutants would be minor due to the small size of the facility, the relatively small amount of air emissions that would be generated by the facility, dispersion characteristics of pollutants and the atmosphere, and conditions that would be placed in Permit #3220-00. Overall, any impacts to vegetation cover, quantity, and quality would be minor.

E. Aesthetics

The facility would be visible and may create additional noise and additional traffic in the area. However, little, if any impacts would result on the aesthetics of the area because conditions would be placed in Permit #3220-00 to limit opacity and particulate matter emissions from the cremation unit.

F. Air Quality

Air quality impacts from the cremation facility would be minor because the emissions from the facility would be relatively small. Deposition of pollutants would occur as a result of operating the cremation unit. However, the Department determined that any air quality impacts from deposition of pollutants would be minor due to the small size of the facility, the relatively small amount of air emissions that would be generated by the facility, dispersion characteristics of pollutants (stack height, stack temperature, etc.), the atmosphere (wind speed, wind direction, ambient temperature, etc.), and conditions placed in Permit #3208-00. In addition, air emissions from the facility would be minimized by conditions that would be

placed in Permit #3220-00 to limit opacity and particulate emissions. Further, CMC would be required to maintain the secondary operating temperature of the cremation unit above 1500°F to ensure proper combustion. Furthermore, a health risk assessment was conducted to determine if the proposed human crematorium complied with the negligible risk requirement of MCA 75-2-215. The health risk assessment demonstrated that air emissions from the facility would constitute a negligible risk to human health and the environment.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to identify any unique endangered, fragile, or limited environmental resources in the area, the Department contacted the Montana Natural Heritage Program, Natural Resource Information System (NRIS). The NRIS search did not identify any species of special concern in the project area. In this case, the area was defined by the section, township, and range of the proposed location with an additional 1-mile buffer zone. Due to the small size of the facility, the relatively small amount of emissions that would be generated by the facility, dispersion characteristics of pollutants and the atmosphere, conditions that would be placed in Permit #3220-00, and the fact that the NRIS search did not identify any species of special concern near the proposed location, the chance that any species of special concern would be impacted by the construction and operation of the proposed facility would be minor.

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

The proposed project would impact the demands on the environmental resources of air and water due to the air emissions and associated deposition of pollutants from the proposed crematory. However, as described in Section 7.F of this EA, the Department determined that any impacts from the deposition of pollutants would be minor due to the small size of the facility, the relatively small amount of air emissions that would be generated by the facility, dispersion characteristics of pollutants and the atmosphere, and conditions that would be placed in Permit #3220-00. In addition, the proposed facility would impact the demand on the environmental resource of energy. While no new utilities would be required for the proposed facility, existing utilities would be utilized to operate the proposed facility. However, any impacts on the demand on the environmental resource of energy would be minor due to the small size of the facility. Overall, any impacts on the demands on the environmental resources of water, air, and energy would be minor.

I. Historical and Archaeological Sites

In an effort to identify any historical and archaeological sites near the proposed project area, the Department contacted the Montana Historical Society, State Historic Preservation Office (SHPO). According to the SHPO records, there has been one previously recorded historic site (The Great Northern Railroad New Rockford Cutoff Line) within the search locale (Section, Township, and Range). In addition to the previously recorded historic site, there have been two previously conducted cultural resource inventories done in the area. However, the reports did not cover the proposed location; therefore, SHPO recommended that a cultural resource inventory be conducted to determine whether or not sites exist and if they will be impacted. Because of the small size of the proposed facility, the relatively small amount of land expected to be disturbed (¼ acre), and the fact that the land was previously used for farming, the Department determined that the chance of the proposed project impacting any historical or archaeological sites would be minor.

J. Cumulative and Secondary Impacts

The proposed facility would cause minor effects on the physical and biological aspects of the human environment because the facility would generate emissions of particulate matter, PM_{10}, NO_x, CO, SO_x, and VOC. Conditions that would be placed in Permit #3220-00 would ensure that no air quality impacts, other than minor air quality impacts, would occur. Limitations would be established in Permit #3220-00 to minimize impacts to air, soil, and water quality from air emissions. Noise impacts would be minor due to the small size of the facility. Overall, the cumulative and secondary impacts from this project would be minor due to the small size of the proposed facility and the relatively small amount of air emissions that would result from operating the cremation unit.

8. The following table summarizes the potential social and economic effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

Potential Social and Economic Effects							
		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Social Structures and Mores				X		yes
B.	Cultural Uniqueness and Diversity				X		yes
C.	Local and State Tax Base and Tax Revenue				X		yes
D.	Agricultural or Industrial Production				X		yes
E.	Human Health			X			yes
F.	Access to and Quality of Recreational and Wilderness Activities				X		yes
G.	Quantity and Distribution of Employment				X		yes
H.	Distribution of Population				X		yes
I.	Demands for Government Services			X			yes
J.	Industrial and Commercial Activity				X		yes
K.	Locally Adopted Environmental Plans and Goals				X		yes
L.	Cumulative and Secondary Impacts			X			yes

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

A. Social Structures and Mores

The proposed facility would cause no disruption to native or traditional lifestyles or communities (social structures and mores) because cremation is generally an accepted method to prepare human remains for burial. In addition, the cremation facility is small by industrial standards and the cremation unit would be operated intermittently due to the nature of the business.

B. Cultural Uniqueness and Diversity

The cultural uniqueness and diversity of the area would remain unchanged from this project (no impact) because cremation is generally an accepted method to prepare human remains for burial. In addition, the facility is small and is located approximately ½ mile from the City of Lewistown.

C. Local and State Tax Base and Tax Revenue

The proposed project would result in no significant impacts to the local and state tax base and tax revenue due to the relatively small size of the proposed project. The proposed facility would only be expected to create one additional permanent job.

D. Agricultural or Industrial Production

The proposed project would result in no impacts to agricultural or industrial production because the crematory would be built on private land that is not used for agricultural or industrial production. While the proposed location is agricultural land, the land is not currently used for farming. The total site area of the facility would be 2.5 acres with ¼ acre expected to be disturbed to construct the facility.

E. Human Health

Permit #3220-00 would incorporate conditions to ensure that the proposed cremation facility would be operated in compliance with all applicable rules and regulations. These rules and regulations are designed to be protective of human health. As described in Section 7.F of this EA, the Department determined that any impact from deposition of pollutants would be minor due to the small size of the facility, the relatively small amount of air emissions that would be generated by the facility, dispersion characteristics of pollutants and the atmosphere, and conditions that would be placed in Permit #3220-00. In addition, a health risk assessment was performed for this project to ensure that the project posed no more than a negligible risk to human health and the environment. The Department considers the risks estimated in the risk assessment contained in Section VI of the permit analysis to be in compliance with the requirement to demonstrate negligible risk to human health and the environment.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would not affect access to and quality of recreation and wilderness activities because the crematory would be built on privately owned land that does not restrict access to recreational and wilderness activities. The quality of any nearby recreational and wilderness activities would not be affected due to the small size of the facility and the relatively small amount of emissions that would be generated by the facility. Overall, access to and quality of recreational and wilderness activities would not be affected by the proposed facility.

G. Quantity and Distribution of Employment

The proposed project would not affect quantity and distribution of employment because only 1 new employee would be hired as a result of the proposed project.

H. Distribution of Population

The proposed project would not affect the distribution of population in the area because cremation is generally an accepted method to prepare human remains for burial. In addition, the proposed location is located approximately ½ mile from Lewistown. The project would not cause people to leave, or attract people to the area.

I. Demands of Government Services

Demands on government services would be minimal from the proposed project because additional government time would be spent verifying the compliance of the CMC facility with applicable rules, standards, and Permit #3220-00. In addition, vehicle traffic may slightly increase in the area as a result of activities such as funeral services. However any impact to regulate increased vehicle traffic would be minor due to the nature of the proposed business (Intermittent operation). Overall, any impacts to the demands of government services would be minor.

J. Industrial and Commercial Activity

No impacts would be expected on the local industrial and commercial activity because the crematory would not create or inhibit any industrial or commercial activity. In addition, the cremation facility is small by industrial standards and the cremation unit would be operated intermittently due to the nature of the business.

K. Locally Adopted Environmental Plans and Goals

The Department is not aware of any locally adopted environmental plans and goals that would be affected by the proposed project.

L. Cumulative and Secondary Impacts

Overall, the social and economic cumulative and secondary impacts from the proposed project would be minor because cremation is generally an accepted method to prepare human remains for burial. In addition, the cremation facility is small by industrial standards and the cremation unit would be operated intermittently due to the nature of the business. Further, new businesses would not be drawn to the area and jobs would not be lost due to the proposed crematory. Only one new employee would be expected to be hired to operate the proposed facility. Therefore, there would be no economic impacts from new employees. Overall, any social and economic cumulative and secondary impacts resulting from the proposed project would be minor.

Recommendation: An EIS is not required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permit action is for the construction and operation of a human crematorium. Permit #3220-00 would include conditions and limitations to ensure the facility would 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, - Montana Natural Heritage Program, Natural Resource Information System

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

EA prepared by: Dave Aguirre
Date: September 19, 2002