Montana Department of
ENVIRONMENTAL QUALITY

Judy H. Martz, Governor

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April 17, 2001

Dennis H. Schoepp
Hillside Crematory
P.O. Box 118
Columbia Falls, MT 59912

Dear Mr. Schoepp:

Air Quality Permit #3144-00 is deemed final as of April 15, 2001, by the Department of Environmental Quality. This permit is for a human 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,

David L. Klemp
Air Permitting Section Supervisor
Air & Waste Management Bureau
(406) 444-3490

DK:jw

Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Air Quality Permit #3144-00

Hillside Crematory
P.O. Box 118
Columbia Falls, Montana 59912

April 15, 2001

Air Quality Permit

Issued to: Hillside Crematory
P.O. Box 118
Columbia Falls, MT 59912

Permit #: 3144-00
Application Complete: 02/09/01
Preliminary Determination Issued: 03/14/01
Department Decision Issued: 03/30/01
Final Permit Issued: 04/15/01
AFS #029-0032

An air quality permit, with conditions, is hereby granted to Hillside Crematory (Hillside), 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. Plant Location:

Hillside's proposed human crematorium would be located in the SW¼ of the SE¼ of Section 1, Township 30 North, Range 22 West, Flathead County, Montana. The physical address is 6200 Highway 93 South, Whitefish, Montana.

B. Permitted Facility:

On February 9, 2001, Hillside submitted a 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 of the permit analysis.

Section II: Limitations and Conditions

A. Operational Requirements

1. Hillside shall not incinerate/cremate any material other than human remains and corresponding containers (ARM 17.8.710).

2. Hillside shall provide written notice to the Department of Environmental Quality (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 17.8.710).

3. 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).

B. Emission Limitations

Hillside 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

Hillside shall install, calibrate, maintain and operate continuous monitoring and recording equipment on the cremation unit for the secondary chamber temperature. Hillside 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. Hillside 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 in the units required by the department (ARM 17.8.505).

2. The records compiled in accordance with this permit shall be maintained by Hillside 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).

3. Hillside 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).

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

Hillside 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 – Hillside 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 Hillside fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Hillside 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 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 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 Hillside 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
Hillside Crematory
Permit #3144-00

I. Introduction/Process Description

A. Source Description

On February 9, 2001, the Department of Environmental Quality (department) received an application from Hillside Crematory (Hillside) for the operation of a human crematorium. The Hillside facility will be located in the SW¼ of the SE¼ of Section 1, Township 30 North, Range 22 West in Flathead County, Montana. The physical address will be 6200 Highway 93 South in Whitefish, Montana.

B. Permitted Equipment

The Hillside facility consists of a 150-pound-per-hour (lb/hr) Industrial Equipment & Engineering Company (IEEC) pathological incinerator for use as a human crematorium.

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 17.8.105 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.

2. 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).

Hillside 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.

3. ARM 17.8.110 Malfunctions. 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.

4. ARM 17.8.111 Circumvention. No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. 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

Hillside must comply 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 section requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate.

2. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This section 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 section.

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. Also, no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator, emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes. This section does not apply to the IEEC pathological incinerator because Hillside 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 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 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. Hillside shall submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the department. Hillside 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 17.8.704 General Procedures for Air Quality Preconstruction Permitting. An air quality preconstruction permit shall contain requirements and conditions applicable to both construction and subsequent use.
2. 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 which has the potential to emit more than 25 tons per year of any pollutant. While Hillside 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 Hillside must obtain an air quality permit, all normally applicable requirements apply in this case.

3. 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. Hillside submitted their application for an air quality permit as required.

4. 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.

5. ARM 17.8.710 Conditions for Issuance of Permit. This rule requires Hillside 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 assure compliance with all applicable rules and standards. Hillside demonstrated compliance with applicable rules and standards as required for permit issuance.

6. ARM 17.8.715 Emission Control Requirements. Hillside is required to install on the new or altered source 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 the permit analysis.

7. 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.

8. ARM 17.8.717 Compliance with Other Statutes and Rules. This rule states that nothing in the permit shall be construed as relieving Hillside of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.101, *et seq.*

9. ARM 17.8.720 Public Review of Permit Applications. This rule requires Hillside to notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Hillside submitted an affidavit of publication from the January 31, 2001, *Daily Inter Lake*, a daily newspaper of general circulation printed and published in the City of Kalispell, as proof of compliance with the public notice requirements.

10. 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.

11. 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.

12. ARM 17.8.734 Transfer of Permit. This section states 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.

Hillside is not defined as a "major stationary source" because it is not a listed source and does not have the potential to emit more than 250 tons per year of any pollutant.

G. 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...

H. 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. Hillside 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 hazardous air pollutants from the incineration of solid waste. The department has 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 has completed a health risk assessment based on an emissions inventory and ambient air quality modeling for this proposal. Based on the results of the emission inventory, modeling, and the health risk assessment, the department has determined that Hillside'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 has determined that the proposed incinerator constitutes BACT.

III. BACT Analysis

A BACT determination is required for each new or altered source. Hillside 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 analyses as part of this permit. Previous research conducted by the department indicates 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 2.7 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 has 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 hazardous air pollutants 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 that have been selected as part of this review have controls and control costs similar to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory

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

	Tons/Year					
	TSP	PM-10	SO_x	NO_x	VOC	CO
IEEC Power-Pak II	2.63	1.95	2.63	0.99	0.99	0.00
Natural Gas	0.03	0.03	0.01	0.83	0.04	0.17
Total	2.66	1.98	2.64	1.82	1.03	0.17

IEEC Power-Pak II 150 lb/hr Cremation Unit

Maximum Fuel Consumption = 150 lb/hr
= 150 lb/hr * 8760 hr/yr * 0.0005 tons/lb = 657.0 tons/yr

TSP Emissions
- Emission Factor: 8.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 657.0 tons/year * 8.0 lb/ton * 0.0005 ton/lb = 2.63 tons/yr

PM-10 Emissions:
- Emission Factor: 5.92 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 657.0 tons/year * 5.92 lb/ton * 0.0005 ton/lb = 1.95 tons/yr

SO_x Emissions:
- Emission Factor: 8.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 657.0 tons/year * 8.00 lb/ton * 0.0005 tons/lb = 2.63 tons/yr

NO_x Emissions:
- Emission Factor: 3.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 657.0 tons/year * 3.00 lb/ton * 0.0005 ton/lb = 0.99 tons/yr

VOC Emissions:
- Emission Factor: 3.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 657.0 tons/year * 3.00 lb/ton * 0.0005 ton/lb = 0.99 tons/yr

CO Emissions:
- Emission Factor: 0.00 lb/ton {AFSSCC 5-02-005-05, pg 227}
- Control Efficiency: 0.0%
- Calculations: 657.0 tons/year * 0.00 lb/ton * 0.0005 ton/lb = 0.00 tons/yr

Natural Gas

Heat Content: 1000 Btu/scf
Maximum Rated Design Capacity: 19 therms/hr * 100,000 Btu/therm = 1.9 MMBtu/hr
1.9 MMBtu/hr * 1 scf/1000 Btu * 10^6 Btu/MMBtu = 1900 scf/hr
1900 scf/hr * 1 MMscf/10^6 scf = 0.0019 MMscf/hr

TSP Emissions
Emission Factor: 3.0 lb/MMscf {AFSSCC 1-02-006-03, pg 23}
Control Efficiency: 0.0%
Calculations: 0.0019 MMscf/hr * 3.0 lb/MMscf = 5.75e-3 lb/hr
5.75e-3 lb/hr * 8760 hr/yr * 0.0005 tons/lb = 0.025 tons/yr

PM-10 Emissions:
Emission Factor: 3.0 lb/MMscf {AFSSCC 1-02-006-03, pg 23}
Control Efficiency: 0.0%
Calculations: 0.0019 MMscf/hr * 3.0 lb/MMscf = 5.75e-3 lb/hr
5.75e-3 lb/hr * 8760 hr/yr * 0.0005 tons/lb = 0.025 tons/yr

SO_x Emissions:
Emission Factor: 0.6 lb/MMscf {AFSSCC 1-02-006-03, pg 23}
Control Efficiency: 0.0%
Calculations: 0.0019 MMscf/hr * 0.6 lb/MMscf = 1.14e-3 lb/hr
1.14e-3 lb/hr * 8760 hr/yr * 0.0005 tons/lb = 0.0050 tons/yr

NO_x Emissions:
Emission Factor: 100 lb/MMscf {AFSSCC 1-02-006-03, pg 23}
Control Efficiency: 0.0%
Calculations: 0.0019 MMscf/hr * 100.0 lb/MMscf = 1.90e-1 lb/hr
1.90e-1 lb/hr * 8760 hr/yr * 0.0005 tons/lb = 0.83 tons/yr

VOC Emissions:
Emission Factor: 5.3 lb/MMscf {AFSSCC 1-02-006-03, pg 23}
Control Efficiency: 0.0%
Calculations: 0.0019 MMscf/hr * 5.3 lb/MMscf = 1.01e-2 lb/hr
1.01e-2 lb/hr * 8760 hr/yr * 0.0005 tons/lb = 0.044 tons/yr

CO Emissions:
Emission Factor: 20.0 lb/MMscf {{AFSSCC 1-02-006-03, pg 23}
Control Efficiency: 0.0%
Calculations: 0.0019 MMscf/hr * 20.0 lb/MMscf = 3.80e-2 lb/hr
3.80e-2 lb/hr * 8760 hr/yr * 0.0005 tons/lb = 0.17 tons/yr

HAZARDOUS AIR POLLUTANTS

Maximum Fuel Consumption = 150 lb/hr
= 150 lb/hr * 8760 hr/yr * 0.0005 tons/lb = 657.0 tons/yr

Bromoform
Emission Factor: 2.90e-05 lb/ton {FIRE SCC Code 50200505}
Control Efficiency: 0.0%
Calculations: 657.0 ton/yr * 0.000029 lb/ton * 0.0005 tons/lb = 9.53e-06 tons/yr

Carbon Tetrachloride
Emission Factor: 5.74e-05 lb/ton {FIRE SCC Code 50200505}
Control Efficiency: 0.0%
Calculations: 657.0 ton/yr * 0.0000574 lb/ton * 0.0005 ton/lb = 1.89e-05 tons/yr

Chloroform
Emission Factor: 5.45e-05 lb/ton {FIRE SCC Code 50200505}
Control Efficiency: 0.0%
Calculations: 657.0 ton/yr * 0.0000545 lb/ton * 0.0005 ton/lb = 1.79e-05 tons/yr

1,3-Dichloropropene
Emission Factor: 1.32e-03 lb/ton {FIRE SCC Code 50200505}
Control Efficiency: 0.0%
Calculations: 657.0 ton/yr * 0.00132 lb/ton * 0.0005 ton/lb = 4.34e-04 tons/yr

Ethyl Benzene

Emission Factor:	1.61e-03 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	657.0 ton/yr * 0.00161 lb/ton * 0.0005 ton/lb = 5.29e-04 tons/yr	

Naphthalene

Emission Factor:	1.16e-02 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	657.0 ton/yr * 0.0116 lb/ton * 0.0005 ton/lb = 3.81e-03 tons/yr	

Tetrachloroethylene

Emission Factor:	4.03e-05 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	657.0 ton/yr * 0.0000403 lb/ton * 0.0005 tons/lb = 1.32e-05 tons/yr	

1,1,2,2-Tetrachloroethane

Emission Factor:	1.10e-04 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	657.0 ton/yr * 0.000110 lb/ton * 0.0005 tons/lb = 3.61e-05 tons/yr	

Toluene

Emission Factor:	4.62e-03 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	657.0 ton/yr * 0.00462 lb/ton * 0.0005 ton/lb = 1.52e-03 tons/yr	

Vinylidene Chloride

Emission Factor:	7.10e-05 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	657.0 ton/yr * 0.0000710 lb/ton * 0.0005 ton/lb = 2.33e-05 tons/yr	

Xylene

Emission Factor:	2.20e-03 lb/ton	{FIRE SCC Code 50200505}
Control Efficiency:	0.0%	
Calculations:	657.0 ton/yr * 0.00220 lb/ton * 0.0005 ton/lb = 7.23e-04 tons/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 0.00020525 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 0.00020525 gram-per-second ambient impact of 0.04676 $\mu g/m^3$. 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)	=	0.20525E-03
Stack Height (M)	=	5.2 (approximately)
Stack Inside Diam (M)	=	0.5200
Stack Exit Velocity (M/S)	=	4.88
Stack Gas Exit Temp (K)	=	755.4
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	0.04676	111	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 has determined that inhalation risk was the only necessary pathway to consider. Only those hazardous air pollutants for which there were established emission factors were considered in the emission inventory.

Chemical Compound	Annual Conc $\mu g/m^3$	Cancer ELCR Chronic	Non-Cancer Hazard Quotient	
			Chronic	Acute
Bromoform	6.08E-06	6.69E-12	0.00	0.0000
Carbon Tetrachloride	1.22E-05	1.83E-10	0.00	0.0000
Chloroform	1.17E-05	2.69E-10	0.00	0.0000
1,3-Dichloropropene	2.84E-04	0.00	1.42E-5	0.0000
Ethyl Benzene	3.46E-04	0.00	3.46E-7	0.0000
Naphthalene	2.50E-03	0.00	0.00	0.0000
1,1,2,2-Tetrachloroethane	2.38E-05	1.38E-9	0.00	0.0000
Tetrachloroethylene	8.88E-06	0.00	0.00	0.0000
Toluene	9.95E-04	0.00	2.49E-6	0.0000
Vinylidene Chloride	1.54E-05	7.70E-10	0.00	0.0000
Xylene	4.74E-04	0.00	0.00	0.0000
Total Risks =		2.61E-09	1.71E-5	0.0000

ELCR = Excess lifetime cancer risks

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 has conducted a private property taking and damaging assessment and has 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: Hillside Crematory
P.O. Box 118
Columbia Falls, Montana 59912

Permit Number: 3144-00

Preliminary Determination Issued: March 14, 2001
Department Decision Issued: March 30, 2001
Final Permit Issued: April 15, 2001

1. Legal Description of Site: The proposed human crematorium would be located on 6200 Highway 93 South in the SW¼ of the SE¼ of Section 1, Township 30 North, Range 22 West, Flathead County, Montana.

2. Description of Project: Hillside proposes to install a crematorium at their facility near Whitefish to cremate human remains.

3. Objectives of Project: This project would provide the community with a facility for human cremation and the owners of Hillside with a business and revenue opportunity.

4. Alternatives Considered: The "no-action" alternative would consist of not issuing the permit to Hillside. The "no-action" alternative is not appropriate because Hillside has demonstrated compliance with all applicable rules and regulations as required for permit issuance.

5. A Listing of Mitigation, Stipulations, and Other Controls: A listing of the enforceable permit conditions and a permit analysis, including a Best Available Control Technology analysis, would be contained in permit #3144-00.

6. Regulatory Effects on Private Property: The department has considered alternatives to the conditions imposed in this permit as part of the permit development. The department has determined 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. 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 that used by the facility. However, based on the small size of the facility and the relatively small amount of emissions generated by the facility, the department has determined that any impacts on 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 crematory, there would be little, if any impacts on the water quality, quantity, and distribution in the area of the facility.

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. Some initial construction activity would be required for the proposed project.

D. Vegetation Cover, Quantity, and Quality

There would be minor impacts on the vegetation cover, quantity, and quality. Small amounts of vegetation would likely be removed for the initial construction of the proposed project.

E. Aesthetics

Little, if any impacts would result on the aesthetics of the area. Conditions would be placed in permit #3144-00 to limit opacity and particulate matter emissions from the cremation unit.

F. Air Quality

The air quality of the area would have minor impacts from the proposed project. However, air emissions from the facility would be minimized by the conditions placed in permit #3144-00 to limit opacity and particulate emissions. Furthermore, Hillside would be required to maintain the secondary operating temperature of the cremation unit above 1500°F to ensure proper combustion.

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 Natural Resource Information System – Montana Natural Heritage Program (Heritage Program). The Heritage Program identified the following species of special concern in the project area: felis lynx (lynx), canis lupus (gray wolf), salvelinus confluentus pop 2 (bull trout – Columbia River), ursus arctos horribilis (grizzly bear), enallagma optimolocus (last best place damselfly), salix bebbiana shrubland, carex lasiocarpa herbaceous vegetation, brasenia schreberi (watershield), nymphaea tetragona ssp leibergii (pygmy water-lily), scirpus subterminalis (water bulrush), typha latifolia western herbaceous vegetation, ammodramus leconteii (le conte's sparrow), gavia immer (common loon), picea/lysichiton americanus forest, picea/clintonia uniflora forest, and cypripedium parviflorum (small yellow lady's slipper). Due to the relatively small size of the proposed project and the conditions that would be placed in permit #3144-00, the department determined that impacts from the proposed project on the above species would be minor.

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

The proposed project would have minor impacts on air and energy resources and no impacts on water resources. Air impacts would be minimized by conditions in permit #3144-00. Due to the somewhat limited demand for this type of facility, energy impacts would be minimized because the cremation unit would not be used continuously.

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 - Historic Preservation Office (SHPO). According to the SHPO records, there are no previously recorded cultural properties within the designated search locale. Furthermore, SHPO identified one cultural resource inventory that was previously conducted within the search area titled *Kalispell - Whitefish 1.6-Mile Extension*. SHPO indicated that the proposed project would have a low likelihood of impacting cultural properties, but recommended that they be contacted if cultural properties are identified during the course of the project.

J. Cumulative and Secondary Impacts

Overall, the cumulative and secondary impacts from this project would be minor. No additional equipment or facilities are expected to result from this project. Impacts to air quality would be minimized by conditions placed in the air quality permit (#3144-00).

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

No impacts would result on the social structures or mores of the area as a result of the proposed project.

B. Cultural Uniqueness and Diversity

The cultural uniqueness and diversity of the area would remain unchanged from this project (no impact).

C. Local and State Tax Base and Tax Revenue

The proposed project would result in no impacts to the local and state tax base and tax revenue.

D. Agricultural or Industrial Production

The proposed project would result in no impacts to agricultural or industrial production.

E. Human Health

The proposed project would result in minor impacts to human health. The project, permitted by permit #3144-00, would comply with all applicable rules, regulations, and standards. These rules, regulations, and standards are designed to be protective of human health. Furthermore, a risk assessment was performed for this project to ensure that the project posed no more than a negligible risk.

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.

G. Quantity and Distribution of Employment

The proposed project would not affect quantity and distribution of employment.

H. Distribution of Population

The proposed project would not affect distribution of population.

I. Demands of Government Services

Demands on government services would be minimal from the proposed project. Additional government time would be spent verifying the compliance of Hillside with applicable rules, standards, and permit #3144-00.

J. Industrial and Commercial Activity

No impacts are expected for the local industrial and commercial activity.

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 cumulative and secondary impacts from this project would be minor. No additional equipment or facilities are expected to result from this project. Impacts to air quality would be minimized by conditions placed in the air quality permit (#3144-00).

Recommendation: No 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 construction and operation of a human crematorium. Permit #3144-00 includes 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, Natural Resource Information System - Montana Natural Heritage Program

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: Dan Walsh
Date: March 12, 2001