



Montana Department of  
**E**NVIRONMENTAL **Q**UALITY

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April 22, 2009

Steve & Denise Schnackenberg  
Schnackenberg & Nelson Funeral Home  
P.O. Box 750  
Libby, MT 59923-0750

Dear Mr. or Ms. Schnackenberg:

Air Quality Permit #3881-01 is deemed final as of April 22, 2009, by the Department of Environmental Quality (Department). 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,

Vickie Walsh  
Air Permitting Program Supervisor  
Air Resources Management Bureau  
(406) 444-9741

Ed Warner  
Environmental Engineer  
Air Resources Management Bureau  
(406) 444-2467

VW:EW  
Enclosure

Montana Department of Environmental Quality  
Permitting and Compliance Division

Air Quality Permit #3881-01

Schnackenberg & Nelson Funeral Home  
P.O. Box 750  
Libby, Montana 59923-0750

April 22, 2009



## MONTANA AIR QUALITY PERMIT

Issued to: Schnackenberg & Nelson Funeral Home      Permit #3881-01  
P.O. Box 750      Administrative Amendment (AA)  
Libby, MT 59923      Request Received: March 19, 2009  
Department Decision on AA: April 6, 2009  
Permit Final: April 22, 2009  
AFS #053-0017

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

### SECTION I: Permitted Facilities

#### A. Plant Location

The SNFH facility is located at 422 West 2<sup>nd</sup> Street in Libby, Montana. The Legal Description of the site is in the Northwest ¼ of Section 3, Township 30 North, Range 31 West, at Block 18, Libby Amended Plat, Lots 6 through 17, in Lincoln County, Montana.

#### B. Current Permit Action

On January 23, 2009, the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) received a letter from SNFH to inform the Department of a change in ownership and a request to change the name on MAQP #3881-00 from Vial Funeral Home Inc. to SNFH. On March 19, 2009, in accordance with ARM 17.8.765(2), the Department received a signed notice from a responsible official of Vial Funeral Home Inc. confirming the sale of business to SNFH. The current permit action changes the company name on MAQP #3881-00, updates the Emission Inventory to reflect propane gas as the incinerator fuel source, and updates the permit to reflect the current language and rule references used by the Department.

### SECTION II: Limitations and Conditions

#### A. Operational Requirements

1. SNFH shall not incinerate/cremate any material other than human remains and/or any corresponding container unless otherwise approved by the Department in writing (ARM 17.8.749).
2. The SNFH crematorium shall be equipped with auxiliary fuel burners. The auxiliary fuel burners shall be used to preheat the secondary chamber of the crematorium to the minimum required operating temperature prior to igniting the primary chamber burner. The operating temperatures shall be maintained during operation and for one-half hour after waste feed has stopped, as follows:

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

3. SNFH shall operate the crematorium as specified in the application for MAQP #3881-00. Further, SNFH shall develop crematorium operation procedures, print those procedures in a crematorium operation procedures manual, and require all personnel who operate the crematorium to familiarize themselves with the operating procedures. A copy of this manual shall be supplied to the Department upon request (ARM 17.8.752).

B. Emission Limitations

SNFH shall not cause or authorize to be discharged into the atmosphere from the crematorium:

1. Visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.752); and
2. Any particulate emissions in excess of 0.10 grains per dry standard cubic foot corrected to 12% carbon dioxide (ARM 17.8.752).

C. Testing Requirements

1. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. The Department may require testing (ARM 17.8.105).

D. Monitoring Requirements

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

E. Operational Reporting Requirement

1. SNFH 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 units as required by the Department (ARM 17.8.505).

2. SNFH shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include *the addition of a new emissions unit*, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to 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 17.8.745(1)(d) (ARM 17.8.745).

3. The records compiled in accordance with this permit shall be maintained by SNFH 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 17.8.749).

### SECTION III: General Conditions

- A. Inspection – SNFH 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 or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if SNFH fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving SNFH of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department’s decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department’s decision on the application is final 16 days after the Department’s decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by SNFH may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.
- H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Permit Analysis  
Schnackenberg & Nelson Funeral Home.  
Permit #3881-01

I. Introduction

Schnackenberg & Nelson Funeral Home (SNFH) owns and operates a human crematorium/incinerator. The facility is located at 422 West 2<sup>nd</sup> Street in Libby, Montana. The Legal Description of the site is in the Northwest ¼ of Section 3, Township 30 North, Range 31 West, at Block 18, Libby Amended Plat, Lots 6 through 17, in Lincoln County, Montana.

A. Permitted Equipment

SNFH operates a Matthews Cremation Division – Power Pak II human crematory (crematorium) and associated equipment.

B. Source Description

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

C. Permit History

On September 25, 2006, Vial Funeral Home Inc. submitted a complete application for a Montana Air Quality Permit (MAQP) to install and operate a human crematorium and associated equipment. On November 29, 2006, the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) issued **MAQP #3880-00** to Vial Funeral Home Inc.

On January 23, 2009, the Department received a letter from SNFH to inform the Department of a change in ownership and a request to change the name on MAQP #3881-00 from Vial Funeral Home Inc. to SNFH. On March 19, 2009, in accordance with Administrative Rule of Montana (ARM) 17.8.765(2), the Department received a signed notice from a responsible official of Vial Funeral Home Inc. confirming the sale of business to SNFH. The current permit action changes the company name on MAQP #3881-00, updates the Emission Inventory to reflect propane gas as the incinerator fuel source, and updates the permit to reflect the current language and rule references used by the Department. **MAQP #3881-01** replaces MAQP #3881-00.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the 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).  
  
SNFH shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.
  
4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
  
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

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

1. ARM 17.8.210, 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 PM
6. ARM 17.8.223, Ambient Air Quality Standard for PM<sub>10</sub>

SNFH must comply with all applicable ambient air quality standards. As part of the risk assessment required for issuance of the initial MAQP, the Department conducted SCREEN3 modeling, an Environmental Protection Agency (EPA)-approved air dispersion model. The screening analysis demonstrated that the SNFH facility, as permitted, would comply with all applicable ambient air quality standards and demonstrated negligible risk to human health as required for permit issuance.

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

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

2. ARM 17.8.308 Particulate Matter, Airborne. This rule requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter (PM).
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.
5. ARM 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel had been used. 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. While SNFH is required to comply with the Emission Limitations specified in Section II.B of MAQP #3881-01, this rule does not apply to the crematorium because SNFH operates under an air quality permit received in accordance with ARM 17.8.770 and MCA 75-2-215.
6. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this rule.
7. ARM 17.8.340 New Source Performance Standards. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of an affected facility under any NSPS subpart defined in 40 CFR Part 60.

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

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. No fee was required for the current permit action because it is considered an administrative amendment.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.



An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

- E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:
1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
  2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a facility to obtain an air quality permit or permit modification if the facility proposes to construct, modify, or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year (TPY) of any pollutant. SNFH does not have the PTE greater than 25 TPY of any pollutant; however, in accordance with the MCA 75-2-215, an air quality permit must be obtained prior to the construction and operation of any incinerator, regardless of potential incinerator emissions. Because SNFH must obtain an air quality permit, all normally applicable requirements apply in this case.
  3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
  4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
  5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. A permit application was not required for the current permit action because it is considered an administrative permit change. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. An affidavit of publication was not required because the current permit action is considered an administrative change.
  6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
  7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that Best Available Control Technology

(BACT) shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
  9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving SNFH of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
  10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
  11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
  12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
  13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
  14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names and signatures of the transferor and the transferee, is sent to the Department.
  15. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, MCA.
- F. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications-- Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source since this facility is not a listed source and the facility's PTE is below 250 TPY of any pollutant (excluding fugitive emissions).

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

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
  - a. PTE > 100 TPY of any pollutant
  - b. PTE > 10 TPY of any one Hazardous Air Pollutant (HAP), PTE > 25 TPY of a combination of all HAPs, or lesser quantity as the Department may establish by rule, or
  - c. PTE > 70 TPY of particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) in a serious PM<sub>10</sub> nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #3881-01 for SNFH, the following conclusions were made:
  - a. The facility's PTE is less than 100 TPY for any pollutant.
  - b. The facility's PTE is less than 10 TPY for any one HAP and less than 25 TPY of all HAPs.
  - c. This source is not located in a serious PM<sub>10</sub> nonattainment area. The town of Libby is designated as a PM<sub>10</sub> nonattainment area; however, this designation does not meet the criteria of a serious PM<sub>10</sub> nonattainment area.
  - d. This facility is not subject to any current NSPS.
  - e. This facility is not subject to and current National Emission Standards for Hazardous Air Pollutants (NESHAP) standards.
  - f. This source is not a Title IV affected source or a solid waste combustion unit.
  - g. This source is not an EPA designated Title V source.

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

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

1. "Incinerator" means any single or multiple-chambered combustion device that

burns combustible material, alone or with a supplemental fuel or catalytic combustion assistance, primarily for the purpose of removal, destruction, disposal, or volume reduction of all or any portion of the input material.

2. "Solid waste" means all putrescible and nonputrescible solid, semisolid, liquid, or gaseous wastes, including, but not limited to...air pollution control facilities...

I. MCA 75-2-215, Solid or hazardous waste incineration - additional permit requirements:

1. MCA 75-2-215 requires air quality permits for all new commercial solid waste incinerators; therefore, SNFH must obtain an air quality permit.
2. MCA 75-2-215 requires the applicant to provide, to the Department's satisfaction, a characterization and estimate of emissions and ambient concentrations of air pollutants, including hazardous air pollutants from the incineration of solid waste. The Department determined that the information submitted in the initial MAQP application was sufficient to fulfill this requirement.
3. MCA 75-2-215 requires that 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 an emissions inventory and ambient air quality modeling for the initial MAQP application. Based on the results of the emission inventory, modeling, and the health risk assessment, the Department determined that SNFH 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 incinerator constitutes BACT.

III. Best Available Control Technology Analysis

A BACT determination is required for each new or modified source of emissions. SNFH shall install on the new or modified source the maximum air pollution control capability that 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 resulting from crematorium operations, not only criteria pollutants.

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

IV. Emission Inventory

The current permit action is an administrative amendment and actual emissions from the facility will remain the same. The emission inventory has been updated to reflect propane combustion in the incinerator. The Department used emission factors from AP-42, Section 1.5, Liquefied Petroleum Gas Combustion, to estimate project-specific emissions from the combustion of propane gas. The emission inventory for criteria pollutants was based on emission factors from the AIRS FACILITY SUBSYSTEM SOURCE CLASSIFICATION CODES (AFSSCC) manual dated March 1990.

The Department developed a hazardous air pollutant emission inventory using those emission factors contained in FIRE (the EPA emission factor repository) under SCC 5-02-005-05, pathological incineration. The Department considered only those HAPs for which an emission

factor was available and that have been analyzed for other permitted similar sources.

Criteria Pollutant Emissions (TPY)						
Source	PM	PM <sub>10</sub>	NO <sub>x</sub>	VOC	CO	SO <sub>x</sub>
Crematorium	2.63	1.94	0.99	0.99	0.00	2.63
Propane Combustion	---	0.07	1.31	0.05	0.74	0.15
<b>Total Criteria Pollutant Potential Emissions</b>	<b>2.63</b>	<b>2.01</b>	<b>2.30</b>	<b>1.04</b>	<b>0.74</b>	<b>2.78</b>

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

#### CRITERIA POLLUTANT EMISSION CALCULATIONS

##### Crematorium

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

##### PM Emissions

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

##### PM<sub>10</sub> Emissions:

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

##### NO<sub>x</sub> Emissions:

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

##### VOC Emissions:

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

##### CO Emissions:

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

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

Propane Combustion

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

PM Emissions

All PM emissions assumed to be PM<sub>10</sub> emissions (AP-42, Table 1.4-2, 07/98)

PM<sub>10</sub> Emissions:  
 Emission Factor: 7.6 lb/MMscf (AP42, Table 1.5-1 Note a, 07/098)  
 Calculations: 7.6 lb/MMscf \* 0.002 MMscf/hr = 0.015 lb/hr  
 0.015 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.07 ton/yr

NO<sub>x</sub> Emissions:  
 Emission Factor: 150 lb/MMscf (AP42, Table 1.5-1 Note a, 07/08)  
 Calculations: 150 lb/MMscf \* 0.002 MMscf/hr = 0.300 lb/hr  
 0.300 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 1.31 ton/yr

VOC Emissions:  
 Emission Factor: 5.5 lb/MMscf (AP42, Table 1.4-2, 07/98, assumed same as natural gas)  
 Calculations: 5.5 lb/MMscf \* 0.002 MMscf/hr = 0.011 lb/hr  
 0.011 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.05 ton/yr

CO Emissions:  
 Emission Factor: 84 lb/MMscf (AP42, Table 1.5-1 Note a, 07/08)  
 Calculations: 84 lb/MMscf \* 0.002 MMscf/hr = 0.168 lb/hr  
 0.168 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.74 ton/yr

SO<sub>x</sub> Emissions:  
 Emission Factor: 0.10S lb/10<sup>3</sup> gallons (AP42, 1.5-1, 07/08)  
 Where: S = sulfur content expressed in gr/100ft<sup>3</sup> gas vapor, assume S = 15 gr/100ft<sup>3</sup>  
 Calculations: 0.10(15) / (91.5 MMBtu/10<sup>3</sup> gallons) \* (1020 MMBtu/MMscf) = 16.72 lb/MMscf  
 16.72 lb/MMscf \* 0.002 MMscf/hr = 0.033 lb/hr  
 0.033 lb/hr \* 8760 hr/yr \* 0.0005 ton/lb = 0.15 ton/yr

HAZARDOUS AIR POLLUTANT EMISSION CALCULATIONS

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

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

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

1,2-Dichloropropane			
Emission Factor:	1.32E-03 lb/ton	(AFSSCC 5-02-005-05)	
Operating Capacity:	150 lb/hr or 0.075 ton/hr		
Calculations:	$1.32\text{E-}03 \text{ lb/ton} * 0.075 \text{ ton/hr} * 453.6 \text{ g/lb} * 1 \text{ hr}/3600 \text{ sec} =$		1.25E-05 g/sec
	$1.25\text{E-}05 \text{ g/sec} * 1 \text{ lb}/453.6 \text{ g} * 60 \text{ sec/min} * 60 \text{ min/hr} =$		9.90E-05 lb/hr
	$9.90\text{E-}05 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} =$		4.34E-04 ton/yr
Ethyl Benzene			
Emission Factor:	1.61E-03 lb/ton	(AFSSCC 5-02-005-05)	
Operating Capacity:	150 lb/hr or 0.075 ton/hr		
Calculations:	$1.61\text{E-}03 \text{ lb/ton} * 0.075 \text{ ton/hr} * 453.6 \text{ g/lb} * 1 \text{ hr}/3600 \text{ sec} =$		1.52E-05 g/sec
	$1.52\text{E-}05 \text{ g/sec} * 1 \text{ lb}/453.6 \text{ g} * 60 \text{ sec/min} * 60 \text{ min/hr} =$		1.21E-04 lb/hr
	$1.21\text{E-}04 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} =$		5.29E-04 ton/yr
Naphthalene			
Emission Factor:	1.16E-02 lb/ton	(AFSSCC 5-02-005-05)	
Operating Capacity:	150 lb/hr or 0.075 ton/hr		
Calculations:	$1.16\text{E-}02 \text{ lb/ton} * 0.075 \text{ ton/hr} * 453.6 \text{ g/lb} * 1 \text{ hr}/3600 \text{ sec} =$		1.10E-04 g/sec
	$1.10\text{E-}04 \text{ g/sec} * 1 \text{ lb}/453.6 \text{ g} * 60 \text{ sec/min} * 60 \text{ min/hr} =$		8.70E-04 lb/hr
	$8.70\text{E-}04 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} =$		3.81E-03 ton/yr
Tetrachloroethylene			
Emission Factor:	4.03E-05 lb/ton	(AFSSCC 5-02-005-05)	
Operating Capacity:	150 lb/hr or 0.075 ton/hr		
Calculations:	$4.03\text{E-}05 \text{ lb/ton} * 0.075 \text{ ton/hr} * 453.6 \text{ g/lb} * 1 \text{ hr}/3600 \text{ sec} =$		3.80E-07 g/sec
	$3.80\text{E-}07 \text{ g/sec} * 1 \text{ lb}/453.6 \text{ g} * 60 \text{ sec/min} * 60 \text{ min/hr} =$		3.02E-06 lb/hr
	$3.02\text{E-}06 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} =$		1.32E-05 ton/yr
1,1,2,2-Tetrachloroethane			
Emission Factor:	1.10E-04 lb/ton	(AFSSCC 5-02-005-05)	
Operating Capacity:	150 lb/hr or 0.075 ton/hr		
Calculations:	$1.10\text{E-}04 \text{ lb/ton} * 0.075 \text{ ton/hr} * 453.6 \text{ g/lb} * 1 \text{ hr}/3600 \text{ sec} =$		1.04E-06 g/sec
	$1.04\text{E-}06 \text{ g/sec} * 1 \text{ lb}/453.6 \text{ g} * 60 \text{ sec/min} * 60 \text{ min/hr} =$		8.25E-06 lb/hr
	$8.25\text{E-}06 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} =$		3.61E-05 ton/yr
Toluene			
Emission Factor:	4.62E-03 lb/ton	(AFSSCC 5-02-005-05)	
Operating Capacity:	150 lb/hr or 0.075 ton/hr		
Calculations:	$4.62\text{E-}03 \text{ lb/ton} * 0.075 \text{ ton/hr} * 453.6 \text{ g/lb} * 1 \text{ hr}/3600 \text{ sec} =$		4.37E-05 g/sec
	$4.37\text{E-}05 \text{ g/sec} * 1 \text{ lb}/453.6 \text{ g} * 60 \text{ sec/min} * 60 \text{ min/hr} =$		3.47E-04 lb/hr
	$3.47\text{E-}04 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} =$		1.52E-03 ton/yr
Vinylidene Chloride			
Emission Factor:	7.10E-05 lb/ton	(AFSSCC 5-02-005-05)	
Operating Capacity:	150 lb/hr or 0.075 ton/hr		
Calculations:	$7.10\text{E-}05 \text{ lb/ton} * 0.075 \text{ ton/hr} * 453.6 \text{ g/lb} * 1 \text{ hr}/3600 \text{ sec} =$		6.70E-07 g/sec
	$6.70\text{E-}07 \text{ g/sec} * 1 \text{ lb}/453.6 \text{ g} * 60 \text{ sec/min} * 60 \text{ min/hr} =$		5.33E-06 lb/hr
	$5.33\text{E-}06 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} =$		2.33E-05 ton/yr
Xylene			
Emission Factor:	2.20E-03 lb/ton	(AFSSCC 5-02-005-05)	
Operating Capacity:	150 lb/hr or 0.075 ton/hr		
Calculations:	$2.20\text{E-}03 \text{ lb/ton} * 0.075 \text{ ton/hr} * 453.6 \text{ g/lb} * 1 \text{ hr}/3600 \text{ sec} =$		2.08E-05 g/sec
	$2.08\text{E-}05 \text{ g/sec} * 1 \text{ lb}/453.6 \text{ g} * 60 \text{ sec/min} * 60 \text{ min/hr} =$		1.65E-04 lb/hr
	$1.65\text{E-}04 \text{ lb/hr} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} =$		7.23E-04 ton/yr

## V. Existing Air Quality

SNFH is located at 422 West 2<sup>nd</sup> Street in Libby, Lincoln County, Montana. The town of Libby and some of the immediate surrounding area is classified as nonattainment for the EPA-established National Ambient Air Quality Standards (NAAQS) for PM<sub>10</sub> and particulate matter with an aerodynamic diameter of 2.5 microns or less (PM<sub>2.5</sub>). A nonattainment classification means that an area does not meet one or more of the primary or secondary NAAQS for the criteria pollutants

designated in the FCAA. SNFH is a source of PM<sub>10</sub> and PM<sub>2.5</sub> emissions; however, the Department concludes that the PTE quantities of these pollutants are low enough that they do not negatively impact the ambient air quality in Libby. The screening analysis performed during the initial MAQP application demonstrated that the facility complies with all applicable ambient air quality standards and poses a negligible risk to human health as required for permit issuance. Additionally, MAQP #3881-01 contains operating and monitoring requirements that would ensure that proper operation of the facility would not result in air emissions that violate any ambient air quality standards.

## VI. Air Quality Impacts

The current permitting action is considered an administrative amendment and does not change the ambient air impact from the facility. During the permit analysis of the original MAQP application, the Department utilized SCREEN3, an EPA-approved screening model, using the indicated inputs obtained from the permit application and an emission rate of 2.05E-04 gram per second, which is the sum of all the hazardous air pollutant emissions from the proposed crematorium. The individual one-hour results for each pollutant were then calculated by multiplying the modeled impact of 2.785E-01 µg/m<sup>3</sup> by the percentage of each individual HAP making up the total of the HAP emissions. The maximum 1-hour concentrations were then converted to an annual average and used in the risk assessment. The results are contained in Section VI, Health Risk Assessment, of the permit analysis

### SCREENVIEW Model Run

#### Simple Terrain Inputs:

Source Type	=	POINT
Emission Rate (G/S)	=	2.05E-04
Stack Height (M)	=	5.18
Stack Inside Diam (M)	=	0.50
Stack Exit Velocity (M/S)	=	9.02
Stack Gas Exit Temp (K)	=	933.16
Ambient Air Temp (K)	=	293.15
Receptor Height (M)	=	0.0000
Urban/Rural Option	=	RURAL

Stack exit velocity was calculated using a volumetric flow rate of 1775 ACFM.

#### Summary of Screen View Model Results

Calculation Procedure	Maximum 1 Hour Concentration (µg/m <sup>3</sup> )	Distance of Maximum (M)	Terrain Height (M)
Simple Terrain	2.785E-01	104	0

## VII. Health Risk Assessment

The current permitting action is considered an administrative amendment and does not change the health risk assessment of the facility. A health risk assessment was conducted for the permit analysis during the initial MAQP application to determine if the SNFH incinerator/crematorium complies with the negligible risk requirement of MCA 75-2-215. The emission inventory did not contain sufficient quantities of any pollutant on the 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 hazardous air pollutants for which there were established emission factors were considered in the emission inventory.

Negligible Risk Assessment <sup>(1)</sup>					
Hazardous Air Pollutant	Modeled Concentration	Cancer URF <sup>(2)</sup> (ug/m <sup>3</sup> ) <sup>-1</sup>	Cancer Risk <sup>(3)</sup>	CNCREL <sup>(6)</sup> (ug/m <sup>3</sup> )	CNCREL Hazard Quotient <sup>(7)</sup>
Bromoform	3.72E-05	1.10E-06	4.09E-11	ND	NA
Carbon Tetrachloride	7.36E-05	1.50E-05	1.10E-09	1.90E+02	3.88E-07
Chloroform	6.99E-05	2.30E-05	1.61E-09	9.80E+01	7.13E-07
1,2-Dichloropropane <sup>(4)</sup>	1.69E-03	1.90E-05	3.22E-08	4.00E+00	4.23E-04
Ethyl Benzene	2.07E-03	ND	ND	1.00E+03	2.07E-06
Naphthalene	1.49E-02	3.40E-05	5.06E-07	3.00E+00	4.96E-03
Tetrachloroethylene <sup>(5)</sup>	5.17E-05	5.90E-06	3.05E-10	2.70E+02	1.91E-07
1,1,2,2-Tetrachloroethane	1.41E-04	5.80E-05	4.87E-09	ND	NA
Toluene	5.93E-03	ND	ND	4.00E+02	1.48E-05
Vinylidene Chloride	9.11E-05	5.00E-05	4.55E-09	2.00E+02	4.55E-07
Xylene	2.82E-03	ND	ND	1.00E+02	2.82E-05
Total Risks	-----	-----	5.54E-07	-----	5.43E-03
A copy of the Screen View modeling conducted for this project is on file with the Department.					
(1) Source of chronic dose-response values is from Table 1: Prioritized Chronic Dose Response Values for Screening Risk Assessments ( <a href="http://www.epa.gov/ttn/atw/toxsource/table1.pdf">www.epa.gov/ttn/atw/toxsource/table1.pdf</a> , 2/28/06).					
(2) Cancer Chronic Inhalation Risk Factor (1/ug/m <sup>3</sup> ).					
(3) Cancer Risk is unitless and is calculated by multiplying the predicted concentration by the URF.					
(4) AKA Propylene dichloride.					
(5) AKA Tetrachloroethene, Perchloroethylene.					
(6) Chronic Noncancer Reference Exposure Level.					
(7) The CNCREL hazard quotient is determined by calculating the modeled HAP concentration by the CNCREL.					

The Department determined that the risks estimated in the risk assessment are in compliance with the requirement to demonstrate negligible risk to human health and the environment. As documented in the above table and in accordance with the negligible risk requirement, no single HAP concentration results in Cancer Risk greater than 1.00E-06 and the sum of all HAPs results in a Cancer Risk of less than 1.00E-05. Further, the sum of the Chronic Noncancer Reference Exposure Level (CNCREL) hazard quotient is 5.43E-03, which is less than 1.0 as required to demonstrate compliance with the negligible risk requirement.

### VIII. Taking or Damaging Implication Analysis

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

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

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

### IX. Environmental Assessment

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

Analysis Prepared By: Ed Warner

Date: March 20, 2009