

DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMITTING AND COMPLIANCE DIVISION

Air and Waste Management Bureau



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March 5, 1999

James R. Mitchell  
Dokken-Nelson Funeral Services  
113 South Willson Avenue  
Bozeman, Montana 59715

Dear Mr. Mitchell:

Air Quality Permit #3041-00 is deemed final as of March 5, 1999 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,

A handwritten signature in cursive script, appearing to read "Richard Knatterud".

Richard Knatterud  
Air Permitting Section Supervisor

RK:bjd

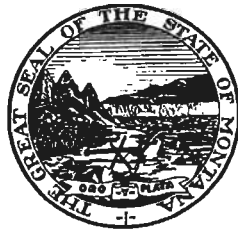
Enclosure

Montana Department of Environmental Quality  
Permitting and Compliance Division

Air Quality Permit #3041-00

Dokken-Nelson Funeral Services  
113 South Willson Avenue  
Bozeman, Montana 59715

March 5, 1999



## Air Quality Permit

Issued to: Dokken-Nelson Funeral Service  
113 South Willson Ave  
Bozeman, MT 59715

Permit #3041-00  
Application Complete: 1/6/99  
Preliminary Determination Issued: 2/1/99  
Department Decision Issued: 02/17/99  
Final Permit: 03/05/99  
AFS: 031-0014

An air quality permit, with conditions, is hereby granted to the above-named permittee, hereinafter referred to as "Dokken-Nelson," pursuant to Sections 75-2-204, 211 and 215, MCA, as amended, and Administrative Rules of Montana (ARM) 17.8.701 *et seq.*, as amended, for the following:

### Section I: Permitted Facilities

A human crematorium located at 113 South Willson Avenue in Bozeman, Montana. The legal description is E½ of Section 7, Township 2 South, Range 6 East, Gallatin County. A complete listing of the permitted equipment can be found in the analysis associated with this permit.

### SECTION II: Limitations and Conditions

#### A. Operational Requirements

1. Dokken-Nelson shall operate the 1999 I.E.&E. Incinerator as specified in their application for their Montana Air Quality permit #3041-00 and all supporting documentation (ARM 17.8.710).
2. Dokken-Nelson shall not incinerate/cremate any material other than human remains and the corresponding container (ARM 17.8.710).
3. The secondary chamber operating temperature of the 1999 I.E.&E. Incinerator shall be maintained above 1400°F. The operating temperature shall be maintained during operation and for one-half hour after the feed has stopped (ARM 17.8.710).

#### B. Emission Limitations

1. Dokken-Nelson shall not cause or allow any emissions of gases, vapors, or odors beyond their property line in such a manner as to create a public nuisance and must comply with the provisions of ARM 17.8.315 Odors (ARM 17.8.315).
2. Dokken-Nelson shall not cause or authorize to be discharged into the atmosphere from the 1999 I.E.&E. Incinerator:
  - a. Visible emissions that exhibit an opacity of 10% or greater (ARM 17.8.715); and
  - b. Any particulate emissions in excess of 0.10 gr/dscf corrected to 12% CO<sub>2</sub> (ARM 17.8.715).

C. Monitoring Requirements

Dokken-Nelson shall install, calibrate, maintain and operate continuous monitoring and recording equipment on the 1999 I.E.&E. Incinerator to measure the secondary chamber exit temperature. Dokken-Nelson shall also record the daily quantity of material incinerated/cremated and daily hours of operation of the 1999 I.E.&E. Incinerator (ARM 17.8.710).

D. Operational Reporting Requirement

1. Dokken-Nelson shall supply the Department of Environmental Quality (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. Dokken-Nelson shall notify the department of any construction or improvement project conducted pursuant to ARM 17.8.705(1)(q) that would change the facility's annual emission inventory. The notice must be included with the annual emission inventory submitted to the department and must include information sufficient to calculate the facility's estimated actual emissions (ARM 17.8.708).
3. The records compiled in accordance with this permit shall be maintained by Dokken-Nelson as a permanent business record for at least five 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. Notification

Dokken-Nelson shall provide the department with written notification of the following dates within the specified time periods:

1. Commencement of construction of the 1999 I.E.&E. Incinerator within 30 days after commencement of construction.
2. Actual start-up date of the 1999 I.E.&E. Incinerator within 15 days after the actual start-up date.

- F. The department must be notified promptly by phone 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 (ARM 17.8.110).

- G. The department may require testing (ARM 17.8.105).

### Section III: General Conditions

- A. Inspection - The recipient shall allow the department's representatives access to the source at all reasonable times for the purpose of making inspections, 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 the recipient fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving the permittee 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.*
- 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 fifteen (15) days after the department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the 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 fifteen (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. Construction Commencement - Construction must begin within three years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked.
- H. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay by the permittee of an annual operation fee may be grounds for revocation of this permit, as required by that Section and rules adopted thereunder by the Board of Environmental Review.

Permit Application Analysis  
Dokken-Nelson Funeral Service  
Permit #3041-00

I. Introduction

On January 6, 1999, Dokken-Nelson submitted a complete application for an air quality preconstruction permit to install and operate an Industrial Equipment & Engineering Company (I.E.&E.) incinerator/crematorium at their existing funeral home located at 113 South Willson Avenue in Bozeman, Montana. The legal description is E½ of Section 7, Township 2 South, Range 6 East, Gallatin County. The incinerator/crematorium is fired on natural or LP gas and will be capable of consuming up to 100 lbs/hr of human remains. This application was assigned permit #3041-00.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana 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. Dokken-Nelson shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual. A copy of the manual is available from the department upon request.
3. ARM 17.8.110, Malfunctions. (2) The department must be notified promptly by phone 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. (1) 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 which 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:

ARM 17.8.210, Ambient Air Quality Standards for Sulfur Dioxide,  
ARM 17.8.211, Ambient Air Quality Standards for Nitrogen Dioxide,  
ARM 17.8.212, Ambient Air Quality Standards for Carbon Monoxide,  
ARM 17.8.214, Ambient Air Quality Standard for Hydrogen Sulfide,  
ARM 17.8.220, Ambient Air Quality Standards for Settled Particulate Matter, and  
ARM 17.8.223, Ambient Standards for PM-10.

Dokken-Nelson must comply with the applicable ambient air quality standards. As part of the risk assessment required for this project, the department has 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 will 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 particulate emissions from fugitive sources.
2. ARM 17.8.309, Particulate Matter, Fuel Burning Equipment. This section states that emissions of particulate matter caused by the combustion of fuel shall not exceed the hourly rate set forth in this section.
3. ARM 17.8.315, Emission Standards - Odors. This rule requires that no person shall cause, suffer, or allow any emissions of gases, vapors, or odors beyond his property line in such manner as to create a public nuisance. A person operating any business or using any machine, equipment, device or facility or process which discharges into the outdoor air any odorous matter or vapors, gases, dusts, or any combination thereof which create odors, shall provide, properly install, and maintain in good working order and operation such odor control devices or procedures as may be specified by the department.
4. 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 which exhibit an opacity of 10% or greater averaged over 6 consecutive minutes. This section does not apply to the 1999 I.E.&E. Incinerator because Dokken-Nelson has applied for and received an air quality permit in accordance with ARM 17.8.706(5) and MCA 75-2-215.
5. ARM 17.8.340, New Source Performance Standards. 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. Dokken-Nelson 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. Dokken-Nelson has submitted the appropriate permit application fee.
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; and the air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

The annual assessment and collection of the air quality operation fee, as described above, shall take place on a calendar-year basis. The 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 which pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7, Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.704, 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 Dokken-Nelson 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 Dokken-Nelson 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 that an application for an air quality permit be submitted for a new or altered source or stack. Dokken-Nelson has 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 that the source demonstrate compliance with applicable rules and standards before a permit can be issued. The source has demonstrated compliance with applicable rules and standards as required for permit issuance.
6. ARM 17.8.715, Emission Control Requirements. Dokken-Nelson is required to install on the new or altered source the maximum air pollution control capability which is technically practicable and economically feasible. A Best Available Control Technology (BACT) review was conducted for the new or altered source and can be found in Section III.
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 requires the permit holder to comply with all other applicable federal and Montana statutes, rules and standards.
9. ARM 17.8.720, Public Review of Permit Applications. This rule requires that Dokken-Nelson notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application of its application for permit. Dokken-Nelson has submitted 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 one year after the permit is issued.
11. ARM 17.8.733, Modification of Permit. An air quality permit may be modified for the following reasons:
  - (a) changes in any applicable rules and standards adopted by the board; or
  - (b) changed conditions of operation at a source or stack which 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, except as specifically provided in the regulations.

- F. ARM 17.8, Subchapter 8, Prevention of Significant Deterioration of Air Quality, including, but not limited to:

ARM 17.8.801, Definitions. Dokken-Nelson 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 of any pollutant.

G. Montana Code Annotated (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...

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. Dokken-Nelson 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 that the information submitted in this application is 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 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 Dokken-Nelson's proposal complies with this requirement.
4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed the Best Available Control Technology (BACT). The department has determined that the proposed incinerator constitutes BACT.

### III. Best Available Control Technology Analysis

A Best Available Control Technology (BACT) determination is required for each new or altered source. Dokken-Nelson shall 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 shall be utilized. In addition, MCA 75-2-215 requires a BACT determination for all pollutants, not just criteria pollutants.

The department has reviewed a BACT analysis as part of this permit. Dokken-Nelson proposes to control the emissions from the incinerator with a secondary chamber designed specifically to reduce the amount of pollutants, including hazardous air pollutants, emitted from the incinerator. Previous research conducted by the department

indicates very few human 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 two 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<sub>x</sub>, 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 Dokken-Nelson'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.

#### Emission Inventory--Permit #3041-00

	Tons/Year					
	TSP	PM-10	SO <sub>x</sub>	NO <sub>x</sub>	VOC	CO
I.E.&E. Incinerator	1.75	1.30	1.75	0.66	0.66	0.00
Natural Gas Fuel	0.22	0.22	0.04	7.29	0.39	1.46
Total	1.97	1.52	1.79	7.95	1.05	1.46

#### I.E.&E. Incinerator

##### TSP Emissions

Emission Factor: 8.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)  
 Calculations: 438.00 tons/year \* 8 lbs/ton \* 0.0005 ton/lb = 1.75 tons/yr

##### PM-10 Emissions:

Emission Factor: 5.92 lbs/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)  
 Calculations: 438.00 tons/year \* 6 lbs/ton \* 0.0005 ton/lb = 1.30 tons/yr

NOx Emissions:  
 Emission Factor: 3.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)  
 Calculations: 438.00 tons/year\*3.00 lbs/ton\*0.0005 ton/lb = 0.66 tons/yr

VOC Emissions:  
 Emission Factor: 3.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)  
 Calculations: 438.00 tons/year\*3.00 lbs/ton\*0.0005 ton/lb = 0.66 tons/yr

CO Emissions:  
 Emission Factor: 0.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)  
 Calculations: 438.00 tons/year\*0 lbs/ton\*0.0005 ton/lb = 0.00 tons/yr

SOx Emissions:  
 Emission Factor: 8.00 lbs/ton {AFSSCC 5-02-005-05, pg 227}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 438.00 tons/year (Maximum Rated Design)  
 Calculations: 438.00 tons/year\*8.00 lbs/ton\*0.0005 tons/lb = 1.75 tons/yr

Natural Gas Fuel

TSP Emissions  
 Emission Factor: 3.00 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)  
 Calculations: 16.64 MMscf/yr\*3 lbs/MMscf\*8760 hr/yr\*0.0005 ton/lb = 0.22 tons/yr

PM-10 Emissions:  
 Emission Factor: 3.00 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)  
 Calculations: 16.64 MMscf/yr\*3 lbs/MMscf\*8760 hrs/yr\*0.0005 ton/lb = 0.22 tons/yr

NOx Emissions:  
 Emission Factor: 100.00 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)  
 Calculations: 16.64 MMscf/yr\*100.00 lbs/MMscf\*8760 hrs/yr\*0.0005 ton/lb = 7.29 tons/yr

VOC Emissions:  
 Emission Factor: 5.30 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)  
 Calculations: 16.64 MMscf/yr\*5.30 lbs/MMscf\*8760 hrs/yr\*0.0005 ton/lb = 0.39 tons/yr

CO Emissions:  
 Emission Factor: 20.00 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)  
 Calculations: 16.64 MMscf/yr\*20 lbs/MMscf\*8760 hrs/yr\*0.0005 ton/lb = 1.46 tons/yr

SOx Emissions:  
 Emission Factor: 0.60 lbs/MMscf {AFSSCC 1-02-006-03, pg 23}  
 Control Efficiency: 0.0%  
 Fuel Consumption: 16.64 MMscf/yr (Maximum Rated Design)  
 Calculations: 16.64 MMscf/yr\*0.60 lbs/MMscf\*8760 hrs/yr\*0.0005 tons/lb = 0.04 tons/yr

## HAZARDOUS AIR POLLUTANTS

Bromoform			
Emission Factor:	2.90E-05	lbs/ton	{AFSSCC 5-02-005-05, pg 227}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.00003 lbs/ton*0.0005 tons/lb =	6.35E-06 tons/yr
Carbon Tetrachloride			
Emission Factor:	5.74E-05	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.00006 lbs/ton*0.0005 ton/lb =	1.26E-05 tons/yr
Chloroform			
Emission Factor:	5.45E-05	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.0000545 lbs/ton*0.0005 ton/lb =	1.19E-05 tons/yr
1,2-Dichloropropane			
Emission Factor:	1.32E-03	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.001320000 lbs/ton*0.0005 ton/lb =	2.89E-04 tons/yr
Ethyl benzene			
Emission Factor:	1.61E-03	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.00161000000 lbs/ton*0.0005 ton/lb =	3.53E-04 tons/yr
Naphthalene			
Emission Factor:	1.16E-02	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.011600 lbs/ton*0.0005 ton/lb =	2.54E-03 tons/yr
Tetrachloroethylene			
Emission Factor:	4.03E-05	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.0000 lbs/ton*0.0005 tons/lb =	8.83E-06 tons/yr
1,1,1,2-Tetrachloroethane			
Emission Factor:	1.10E-04	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.0001 lbs/ton*0.0005 tons/lb =	2.41E-05 tons/yr
Toluene			
Emission Factor:	4.62E-03	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.00462 lbs/ton*0.0005 ton/lb =	1.01E-03 tons/yr
Vinylidene Chloride			
Emission Factor:	7.10E-05	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.0000710 lbs/ton*0.0005 ton/lb =	1.55E-05 tons/yr
Xylene			
Emission Factor:	2.20E-03	lbs/ton	{AFSSCC 1-02-009-01}
Control Efficiency:	0.0%		
Fuel Consumption:	438.00	ton/yr	(Maximum Rated Design)
Calculations:	438.00	ton/yr*0.002200000 lbs/ton*0.0005 ton/lb =	4.82E-04 tons/yr

V. Air Quality Impacts

The department ran SCREEN3, an EPA-approved screening model, using the indicated inputs obtained from the permit application and an emission rate of 0.0001369 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 by prorating the actual emission rate in grams per second against the 0.0001369 gram per second ambient impact of 0.02974  $\mu\text{g}/\text{m}^3$ . The maximum 1-hr 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)	=	.1369E-03
Stack Height (M)	=	5.4900
Stack Inside Diam (M)	=	.5200
Stack Exit Velocity (M/S)	=	4.9000
Stack Gas Exit Temp (K)	=	811
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

Stack exit velocity was calculated using a volumetric flow rate of 2200 ACFM.

Summary of Screen Model Results

Calculation Procedure	Maximum 1 Hour Concentration ( $\mu\text{g}/\text{m}^3$ )	Distance of Maximum (M)	Terrain Height (M)
Simple Terrain	.02974	72	0

VI. Health Risk Assessment

A health risk assessment was conducted to determine if the proposed Dokken-Nelson incinerator/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	Cancer ELCR	Non-Cancer Hazard Quotient	
	$\mu\text{g}/\text{m}^3$	Chronic	Chronic	Acute
Bromoform	.387E-05	.43E-11	.0000	.0000
Carbon Tetrachloride	.773E-05	.12E-09	.0000	.0000
Chloroform	.744E-05	.17E-09	.0000	.0000
1,2-Dichloropropane	.181E-03	.00	.0000	.0000
Ethyl Benzene	.222E-03	.00	.0000	.0000
Naphthalene	.160E-02	.00	.0001	.0000
Tetrachloroethylene	.535E-05	.32E-10	.0000	.0000
1,1,2,2-Tetrachloroethane	.150E-03	.79E-09	.0000	.0000
Toluene	.632E-03	.00	.0000	.0000
Vinylidene Chloride	.981E-05	.49E-09	.0000	.0000
Xylene	.302E-03	.00	.0000	.0000
Total Risks =		.16E-08	.0001	.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, required by the Montana Environmental Policy Act, was completed 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  
(406) 444-3490

**FINAL ENVIRONMENTAL ASSESSMENT (EA)**

Issued For: Dokken-Nelson Funeral Service  
113 South Willson Ave.  
Bozeman, Montana 59715

Permit Number: 3041-00

Preliminary Determination on Permit Issued: February 1, 1999  
Department Decision Issued: February 17, 1999  
Final Permit Issued: March 5, 1999

Montana Environmental Policy Act (MEPA) Compliance: An environmental assessment, required by MEPA, was completed for this project as follows.

Legal Description of Site: E½ of Section 7, Township 2 South, Range 6 East, Gallatin County, Montana

Description of Project: Dokken-Nelson proposes to install a crematorium at their facility to cremate human remains.

Benefits and Purpose of Proposal: This project will provide families with an alternative method of burial for family members.

Description and analysis of reasonable alternatives whenever alternatives are reasonably available and prudent to consider: A reasonable alternative would be the no action alternative. This would require that no human remains be cremated by Dokken-Nelson. With this alternative, families would not have the option of cremating family members. The department has reviewed a best available control technology analysis and a risk assessment for this proposal. These are contained in the permit analysis and demonstrate that this proposed project will not violate any air quality requirements.

A listing and appropriate evaluation of mitigation, stipulations and other controls enforceable by the agency or another government agency: A listing of the enforceable permit conditions and a permit analysis are contained in permit #3041-00.

Description and analysis of regulatory impacts on private property rights: 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.



Potential Impact on Physical Environment							
		Major	Moderate	Minor	None	Unknown	Comments Included
1	Terrestrial and Aquatic Life and Habitats			X			yes
2	Water Quality, Quantity and Distribution				X		yes
3	Geology and Soil Quality, Stability and Moisture				X		yes
4	Vegetation Cover, Quantity and Quality				X		yes
5	Aesthetics			X			yes
6	Air Quality			X			yes
7	Unique Endangered, Fragile or Limited Environmental Resource			X			yes
8	Demands on Environmental Resource of Water, Air and Energy			X			yes
9	Historical and Archaeological Sites				X		yes
10	Cumulative and Secondary Impacts			X			yes

Potential Impact on Human Environment							
		Major	Moderate	Minor	None	Unknown	Comments Included
1	Social Structures and Mores				X		yes
2	Cultural Uniqueness and Diversity				X		yes
3	Local and State Tax Base and Tax Revenue			X			yes
4	Agricultural or Industrial Production				X		yes
5	Human Health			X			yes
6	Access to and Quality of Recreational and Wilderness Activities				X		yes
7	Quantity and Distribution of Employment				X		yes
8	Distribution of Population				X		yes
9	Demands for Government Services			X			yes
10	Industrial and Commercial Activity				X		yes
11	Locally Adopted Environmental Plans and Goals				X		yes
12	Cumulative and Secondary Impacts			X			yes

SUMMARY OF COMMENTS ON POTENTIAL IMPACTS: The following comments have been prepared by the Department.

### Potential Impact on Physical Environment

1. Terrestrial and Aquatic Life and Habitats

Terrestrials will use the same areas as the crematorium. However, the crematorium will present only minor affects to the terrestrial life.

2. Water Quality, Quantity and Distribution

Water will not be affected in any manner from this proposal.

3. Geology and Soil Quality, Stability and Moisture

The soils will not be impacted by the crematorium because it will be located in an existing building. No new construction of footings, foundations, etc. that would disturb the soil will be necessary.

4. Vegetation Cover, Quantity and Quality

The vegetation cover will not be affected by the crematorium because it will be located in an existing building. No new construction of footings, foundations, etc. that would disturb the soil will be necessary

5. Aesthetics

There may be visible emissions from the operation of the crematorium; however, any impacts will be minor because the crematorium will be limited by permit to an opacity of 10%.

6. Air Quality

The air quality impacts from the crematorium are minor. Permit #3041-00 includes conditions limiting the opacity from the crematorium, as well as a particulate emission limit.

7. Unique Endangered, Fragile or Limited Environmental Resources

The affects to unique, endangered, fragile, or limited environmental resources are minor because the crematorium is small and its emissions are well regulated.

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

The crematorium will only demand small quantities of air and energy for proper operation.

9. Historical and Archaeological Sites

Historical and archeological sites are not present at the existing facility where the crematorium will operate.

10. Cumulative and Secondary Impacts

The addition of this crematorium will only present minor Cumulative and Secondary Impacts because the amount of emissions from this type of operation are small and well regulated. In addition, a health risk assessment was completed as part of this permitting action which demonstrates that the proposed crematorium would constitute a negligible risk to human health and the environment.

**Potential Impact on Human Environment**

1. Social Structures and Mores

There will be no disruption of native or traditional lifestyles or communities from the crematorium.

2. Cultural Uniqueness and Diversity

The crematorium will not cause a change in the cultural uniqueness and diversity of the area.

3. Local and State Tax Base and Tax Revenue

The crematorium will have a minor impact on the local and state tax base and tax revenue. The crematorium will serve a need and will generate local revenue in the process.

4. Agricultural or Industrial Production

The crematorium will not create any agricultural or industrial production.

5. Human Health

Permit #3041-00 incorporates conditions to ensure that the crematorium will be operated in compliance with all applicable rules and standards. In addition, a health risk assessment was conducted as part of this permit that demonstrates there will be negligible risk to human health and the environment from the crematorium.

6. Access to and Quality of Recreational and Wilderness Activities

The operation of the crematorium will not have any affect on the access to and quality of recreational and wilderness activities.

7. Quantity and Distribution of Employment

The operation of the crematorium will not affect the quantity and distribution of employment in the area. No new employees will be hired as a result of this project.

8. Distribution of Population

The operation of the crematorium will not require additional or less housing in the area because no new employees will be hired as a result of this project.

9. Demands of Government Services

Minor increases may be seen in traffic on existing roads in the area while the crematorium is operating. The only other government services demanded for this project will be acquiring the appropriate permits.

10. Industrial and Commercial Activity

The crematorium will not result in an increase in the industrial and commercial activity in the area.

11. Locally Adopted Environmental Plans and Goals

The crematorium will not affect any locally adopted environmental plans and goals.

12. Cumulative and Secondary Impacts

The addition of this crematorium will only present minor Cumulative and Secondary Impacts because the amount of emissions from this type of operation are small and well regulated. In addition, a health risk assessment was completed as part of this permitting action which demonstrates that the proposed crematorium would constitute a negligible risk to human health and the environment.

Recommendation: An EIS is not required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The source is applying the Best Available Control Technology; the analyses indicates compliance with all applicable air quality rules and regulations; and there are no major impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: None

Individuals or groups contributing to this EA: Department of Environmental Quality - Air and Waste Management Bureau.

EA prepared by: David Klemp

Date: January 26, 1999