DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
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FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued For: Big Sky Cremation Services

Permit Number: 3422-00

Preliminary Determination Issued: February 1, 2006
Department Decision Issued: March 6, 2006
Permit Final:

1. *Legal Description of Site*: The crematorium would be located in Section 34, Township 8 North, Range 47 East, in Custer County, Montana. The physical address of the crematorium is 210 S. Winchester, Miles City, MT 59301.

2. *Description of Project*: BSCS proposed to install and operate a Millennium III human crematorium. The crematorium would be fired with natural gas and would be capable of incinerating up to 150 pounds per hour of human remains and any associated containers.

3. *Objectives of Project*: The project would allow BSCS to safely dispose of human remains while maintaining compliance with negligible risk requirements as discussed in Section VI of the permit analysis.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the Montana Air Quality Permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because BSCS demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in Permit #3422-00.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and to 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.

		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 Resources			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:

Emissions from the proposed project would impact terrestrial and aquatic life and habitats in the proposed project area. However, as detailed in Section V and Section VI of the permit analysis, any emissions and resulting impacts from the project would be minor due to the low concentration and magnitude of those pollutants emitted.

Further, the crematorium would operate within an existing clinic building and no additional construction or ground disturbance would be required. Overall, any impact to the terrestrial and aquatic life and habitats of the proposed project area would be minor.

B. Water Quality, Quantity and Distribution:

The proposed project would not affect water quantity or distribution in the proposed project area. The crematorium would operate within an existing clinic building and no additional construction or ground disturbance to separately house the crematorium would be required. Further, the project would not discharge or use water as part of normal operations.

Emissions from the proposed project would impact water quality in the proposed project area. However, as detailed in Section 7.F of this EA any emissions and resulting deposition impacts from the project would be minor due to the low concentration and magnitude of those pollutants emitted.

C. Geology and Soil Quality, Stability, and Moisture:

The proposed project would not impact the geology, soil quality, stability, and moisture of the proposed project area. The crematorium would operate within an existing building and no additional construction or ground disturbance would be required.

Further, as described in Section 7.F of this EA, the crematorium would result in minor air pollution emissions to the ambient environment. These pollutants would deposit on the soils in the surrounding area. Any impact from deposition of these pollutants would be minor due to dispersion characteristics of pollutants and the atmosphere and the low concentration and magnitude of those pollutants emitted.

D. Vegetation Cover, Quantity, and Quality:

Emissions from the proposed project would impact vegetation cover, quantity, and quality in the proposed project area. However, as detailed in Section 7.F of this EA any emissions and resulting impacts from the project would be minor due to dispersion characteristics of pollutants and the atmosphere, and the low concentration and magnitude of those pollutants emitted.

Further, the crematorium would operate within an existing clinic building and no additional construction or ground disturbance would be required. Overall, any impact to the vegetation cover, quantity, and quality of the proposed project area would be minor.

E. Aesthetics:

The proposed project would result in only minor impacts to the aesthetic nature of the proposed project area because the crematorium would operate within an existing clinic building and no additional construction or ground disturbance would be required. Further, the overall land use in the area would not change as a result of the proposed project; therefore, the project would not change the aesthetic nature of the area. In addition, visible emissions from the source would be limited to 10% opacity and the permit would include emission control requirements. Also, because the crematorium would be located within an existing building, the project would not result in excess noise from normal operations. Overall, any impact to the aesthetic nature of the project area would be minor.

F. Air Quality:

The proposed project would result in the emission of various criteria pollutants and HAPs to the ambient air in the proposed project area. However, as detailed in Section V and Section VI of the permit analysis, BSCS demonstrated, through ScreenView air dispersion modeling, that any air quality impacts from the proposed project would be minor.

The Department conducted air dispersion modeling to determine the ambient air quality impacts from HAPs that would be generated by the crematorium. The ScreenView model was selected for the air dispersion modeling. The full meteorology option was selected to provide a conservative result. Receptors were placed from 100 to 5000 meters in a simple terrain array. Simple terrain receptors were used to represent the topography of the project area. The model predicted a cumulative modeled impact of 0.009988 $\mu g/m^3$, which the Department used to conduct a risk assessment. The health risk assessment demonstrated that the risks associated with the crematorium are in compliance with the negligible risk requirement contained in MCA 75-2-215.

Stack parameters and emission rates used in the ScreenView model are contained in Section V of the permit analysis and are on file with the Department. Stack velocity and gas temperature were taken from data provided by the manufacturer of the crematorium. The health risk assessment is contained in Section VI of the permit analysis. Due to the dispersion characteristics of the

proposed area, the low levels of pollutants that would be emitted from the proposed project, and the corresponding minor deposition of those pollutants, the Department determined that any impacts to air quality would be minor.

G. Unique Endangered, Fragile, or Limited Environmental Resources:

Emissions from the proposed project would impact unique, endangered, fragile, or limited environmental resources located in the proposed project area because the proposed project would result in increased emissions in the proposed project area. However, as detailed in Section 7.F of this EA, any emissions and resulting impacts from the project would be minor due to the low concentration and low magnitude of those pollutants emitted.

Further, the crematorium would operate within an existing clinic building and no additional construction or ground disturbance to separately house the crematorium would be required. Overall, any impact to existing unique, endangered, fragile, or limited environmental resources in the proposed project area would be minor.

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

The proposed project would result in minor demands on environmental resources of water and air as discussed in Section 7.B and 7.F of this EA, respectively. Further, as detailed in Section V and Section VI of the permit analysis, project impacts on air resources in the proposed project area would be minor due to dispersion characteristics of the area, the types of pollutants emitted, and the low concentration of those pollutants emitted. Finally, because the crematorium would be operated on natural gas, the crematorium would impact the nonrenewable natural gas resource; however, because the project is small by industrial standards, small amounts of natural gas would be required for operation and the resulting impact on energy resources would be minor.

I. Historical and Archaeological Sites:

The proposed project would not result in any impact to any existing historical and archaeological sites in the proposed project area because the clinic housing the crematorium would be located in an area historically used for industrial purposes. According to previous correspondence from the Montana State Historic Preservation Office, there is low likelihood of any disturbance to any known archaeological or historic site, given previous industrial disturbance within the area. Further, no additional land disturbance would be necessary to accommodate the proposed project because the unit would be located within the already constructed clinic. Therefore, the operation would have no effect on any known historic or archaeological site that may be located within or near the proposed operating site.

J. Cumulative and Secondary Impacts:

Overall, the cumulative and secondary impacts from this project on the physical and biological environment in the immediate area would be minor because the facility is relatively small by industrial standards, would operate within an existing building, and would result in only minor emissions. Further, no additional industrial sources/impacts would result from the crematorium operation. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in Permit #3422-00.

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

		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 ECONOMIC AND SOCIAL EFFECTS: The Department has prepared the following comments.

A. Social Structures and Mores:

B. Cultural Uniqueness and Diversity:

The proposed project would not have any impact on social structures and mores or cultural uniqueness and diversity of the proposed area of operation because the project is small by industrial standards and operations would take place within an existing clinic and no additional construction or employment would be required.

Further, the surrounding area is currently and would remain commercial/industrial in nature. The predominant use of the surrounding area would not change as a result of the proposed project.

C. Local and State Tax Base and Tax Revenue:

The proposed project would have a minor impact on the local and state tax base and tax revenue because the project is small by industrial standards and would not result in any increased commercial activity beyond the proposed project. No new employees would be hired as a result of the proposed project.

D. Agricultural or Industrial Production:

Because the crematorium would operate within an existing clinic building within the city limits of Miles City and no additional construction or ground disturbance would be required, the project would not impact or displace any land used for agricultural production. Further, the project would not result in any increased commercial/industrial activity beyond the proposed project.

E. Human Health:

The peak annual ambient impact from the operation of the crematorium would be 0.0009988 $\mu g/m^3$. The predicted annual ambient impact for individual HAPs was determined by multiplying the peak annual ambient concentration by the emission rate of the HAP. The impacts calculated for each HAP are compared to the cancer and non-cancer levels specified in Tables 1 and 2 of ARM 17.8.770. If the predicted ambient impact of a particular HAP is less than the level specified in the table and the inhalation pathway is the only appropriate pathway, that HAP can be excluded from the human health risk assessment. The table summarized in Section V of the permit analysis indicates the calculated ambient impacts of the HAPs, the cancer and non-cancer levels, and whether or not each HAP passes the screening criteria. 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 would be the only necessary pathway to consider.

As detailed in Section VI of the permit analysis, a health risk assessment was conducted to determine if the proposed crematorium would comply with the negligible risk requirement of MCA 75-2-215 and ARM 17.8.770. As defined in ARM 17.8.740(10), negligible risk is "*an increase in excess lifetime cancer risk of less than 1.0×10^{-6} for any individual pollutant, and 1.0×10^{-5} for the aggregate of all pollutants, and an increase in the sum of the non-cancer hazard quotients for all pollutants with similar toxic effects of less than 1.0 in order to determine negligible risk.*" For the purposes of determining negligible risk for the crematorium operations, all pollutants were included in the human health risk assessment.

All of the individual pollutant concentrations for the excess lifetime cancer risk (ELCR) meet the acceptable risk limit because they are less than 1.00E-06 for each pollutant and less than 1.00E-05 for the aggregate of all pollutants. Further, the sums of the chronic and acute non-cancer hazard quotients are less than 1.0. Therefore, the crematorium proposed for the BSCS facility meets the criteria of ARM 17.8.770 and operation of the incinerator would be considered a negligible risk to public health, safety, welfare, and to the environment. Overall, any impacts to human health in the proposed project area would be minor.

F. Access to and Quality of Recreational and Wilderness Activities:

Because the crematorium would operate within an existing clinic building and no additional construction or ground disturbance to separately house the crematorium would be required, the project would not affect any access to or quality of any recreation or wilderness activities in the area. In addition, the minimal noise created by the crematorium operations would not impact the area due to the source being located within the building structure and because the overall nature of the area is commercial/industrial.

G. Quantity and Distribution of Employment:

H. Distribution of Population:

The proposed project would not impact the quantity and distribution of employment or the distribution of population of the proposed project area because the project would not require any new employees. The proposed project would require only a single operator and possibly a support employee, both of which would be accommodated by existing BSCS staff.

I. Demands for Government Services:

Government services would be required for acquiring the appropriate permits from government agencies. In addition, the permitted source of emissions would be subject to periodic inspections by government personnel. Demands for government services would be minor.

J. Industrial and Commercial Activity:

The proposed project would result in only a minor impact on local industrial and commercial activity because the crematorium would operate within an existing building and because no additional construction or ground disturbance would be required. The project would not result in additional industrial production beyond the proposed operations.

K. Locally Adopted Environmental Plans and Goals:

The Department is not aware of any locally adopted environmental plans or goals that would be affected by the proposed project. The state standards would protect the proposed site and the environment surrounding the site.

L. Cumulative and Secondary Impacts:

Overall, cumulative and secondary impacts from this project would result in minor impacts to the economic and social environment in the immediate area because the facility is relatively small by industrial standards, would operate within an existing building, and would result in only minor emissions. In addition, the facility would not contribute to any secondary commercial or industrial activity. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in Permit #3422-00.

Recommendation: No EIS is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permit action is for the construction and operation of a crematorium. Permit #3422-00 includes conditions and limitations to ensure the facility would operate in compliance with all applicable rules and regulations. In addition, as detailed in the above EA, there are no significant impacts associated with the proposed project.

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 Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program.

EA prepared by: Eric Thunstrom
Date: January 18, 2006