



Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
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March 11, 2013

Dr. Carl McQuery
Animal Medical Clinic
3302 Monroe Avenue
Butte, Montana 59701

Dear Dr. McQuery:

Montana Air Quality Permit #4428-01 is deemed final as of March 9, 2013, by the Department of Environmental Quality (Department). This permit is for an animal 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,

Julie A. Merkel
Air Permitting Supervisor
Air Resources Management Bureau
(406) 444-3626

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

JM:EW
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #4428-01

Animal Medical Clinic
3302 Monroe Avenue
Butte, Montana 59701

March 9, 2013



MONTANA AIR QUALITY PERMIT

Issued To: Animal Medical Clinic
3302 Monroe Avenue
Butte, Montana 59701

MAQP: #4428-01
Administrative Amendment (AA) Request
Received: 1/22/13
Department's Decision on AA: 2/21/13
Permit Final: 3/9/13
AFS: #093-0019

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

SECTION I: Permitted Facilities

AMC operates a natural gas-fired 2007 Crawford model CB200 batch load animal crematorium with a maximum incineration design capacity of 70 pounds per hour (lb/hr) of animal remains with a 200 pound initial load.

A. Plant Location

AMC is located at 3302 Monroe Avenue in Butte, Montana 59701. The legal description of the facility is the SW¼ of Section 29, Township 3 North, Range 7 West, in Silver Bow County.

B. Current Permit Action

On January 22, 2013, the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) received correspondence from AMC requesting that permit conditions regarding the minimum secondary chamber operating temperature be reduced from 1800 degrees Fahrenheit (°F) to 1100 °F. The correspondence included supporting information from the incinerator manufacturer indicating that the appropriate minimum operating temperature of the secondary chamber should be 1100 °F and that 1800 °F is not only hotter than necessary but not a practical operating temperature for this model of incinerator. The current permit action updates the references to the minimum secondary chamber operating temperature to 1100 °F.

SECTION II: Conditions and Limitations

A. Operational Requirements

1. AMC shall not incinerate/cremate any material other than animal remains and/or any corresponding container unless otherwise approved by the Department in writing (ARM 17.8.749).
2. The AMC crematorium shall be equipped with auxiliary fuel burners. An auxiliary fuel burner 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 1100 °F with no single reading less than 1100°F (ARM 17.8.752).

3. AMC 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

AMC 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

AMC shall install, calibrate, maintain, and operate continuous monitoring and recording equipment on the crematorium to measure the secondary chamber exit gas temperature. AMC 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 Requirements

1. AMC 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 identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. AMC 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 startup 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(l)(d) (ARM 17.8.745).

3. All records compiled in accordance with this permit must be maintained by AMC as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – AMC 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 continuous 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 AMC fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving AMC 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 therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The 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, failure to pay the annual operation fee by AMC 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).

Montana Air Quality Permit (MAQP) Analysis
Animal Medical Clinic
MAQP #4428-01

I. Introduction/Process Description

Animal Medical Clinic (AMC) owns and operates an animal crematorium. The facility is located at 3302 Monroe Avenue, in Butte, Montana 59701. The legal description of facility is the SW¼ of Section 29, Township 3 North, Range 7 West, in Silver Bow County.

A. Permitted Equipment

AMC operates a 2007 Crawford model CB200 batch load animal crematorium with associated equipment. This crematorium replaces an existing unit that was exempt from permitting requirements due to its age and date of installation.

B. Source Description

The crematorium has a maximum incineration design capacity of 70 pounds per hour (lb/hr) of animal remains with a 200 pound initial load. The crematorium uses natural gas for combustion in the primary and secondary auxiliary burners with the primary burner rated at 0.4 million British thermal units per hour (MMBtu/hr) and the secondary burner rated at 0.75 MMBtu/hr.

C. Permit History

On June 27, 2009, the Montana Department of Environmental Quality – Air Resources Management Bureau (Department) issued **MAQP #4428-00** to AMC for the operation of the animal crematorium.

D. Current Permit Action

On January 22, 2013, the Department received correspondence from AMC requesting that permit conditions regarding the minimum secondary chamber operating temperature be reduced from 1800 degrees Fahrenheit (°F) to 1100 °F. The correspondence included supporting information from the incinerator manufacturer indicating that the appropriate minimum operating temperature of the secondary chamber should be 1100 °F and that 1800 °F is not only hotter than necessary but not a practical operating temperature for this model of incinerator. The current permit action updates the references to the minimum secondary chamber operating temperature to 1100 °F. The Department is updating this minimum operating temperature, which is part of the best available control technology (BACT) analysis from the initial permitting, via Administrative Rules of Montana (ARM) 17.8.764 because it appears that the initial MAQP application provided an incorrect minimum operating temperature of the secondary chamber. Therefore, this incorrect value is being replaced with the correct value according to the manufacturer specifications. All other aspects of the initial BACT analysis remain in place. There are no changes in potential emissions or impacts to ambient air quality expected as a result of this change. **MAQP #4428-01** replaces MAQP #4428-00.

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 location 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).

AMC 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 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀
11. ARM 17.8.230 Fluoride in Forage

AMC must maintain compliance with the applicable ambient air quality standards. As part of the risk assessment required for issuance of an MAQP for an incinerator, the Department conducted SCREEN3 modeling, an Environmental Protection Agency (EPA)-approved air dispersion model. The screening analysis demonstrated that the AMC facility, as permitted, would comply with all applicable ambient air quality standards and demonstrated negligible risk to human health as required for permit issuance. The Department verified that the updated secondary chamber minimum temperature had only a miniscule impact on the maximum ambient concentration of air emissions and still demonstrates a negligible risk to human health.

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. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter.
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. Further, no person shall cause or authorize to be discharged into the outdoor atmosphere from any incinerator emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes. While AMC is required to comply with the Emission Limitations specified in Section II.B of MAQP #4428-01, this particular rule does not apply to the crematorium because AMC has applied for and will operate under an MAQP in accordance with ARM 17.8.770 and MCA 75-2-215 for this unit.
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 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.
8. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. 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 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. A permit application fee was not necessary for the current permit action because it is 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 person to obtain an air quality permit or permit modification 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. AMC 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 AMC 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 MAQP 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 MAQP 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 necessary for the current permit action because it is an administrative amendment. (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. A public notice was necessary for the current permit action because it is an administrative amendment.

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 AMC 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 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 because this facility is not a listed source and the facility's PTE is below 250 tons per year 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 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 (PM₁₀) in a serious PM₁₀ nonattainment area.
 2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #4428-01 for AMC, 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 PM₁₀ nonattainment area. The community of Butte and the surrounding area is classified as a PM₁₀ nonattainment area; however, this designation does not meet the criteria of a serious PM₁₀ nonattainment area.
 - d. This facility is not subject to any current NSPS.
 - e. This facility is not subject to any current National Emission Standards for Hazardous Air Pollutants (NESHAP) standards.

- f. This source is not a Title IV affected source.
- g. This source is not a solid waste combustion unit under 129(e) of the FCAA.
- h. This source is not an EPA designated Title V source.

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

H. MCA 75-2-103, Definitions provided, 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, AMC 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 this MAQP application. Based on the results of the emission inventory, modeling, and the health risk assessment, the Department determined that AMC 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 operating AMC's incinerator according to the manufacturer-recommended operation procedures constitutes BACT.

III. BACT Determination

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

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

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

IV. Emission Inventory

The Department completed an emission inventory for the AMC facility. This emission inventory for criteria pollutants from the incineration of animal remains was based on emission factors from the EPA AP-42 Compilation of Air Pollutant Emission Factors, Section 2.3, Medical Waste Incineration. The application indicated that the fuel used in the crematorium burners would be natural gas; therefore, the Department also used emission factors from AP-42, Section 1.4, Natural Gas Combustion, to estimate project-specific emissions.

The Department developed a HAP emission inventory using those emission factors contained in the AIRS FACILITY SUBSYSTEM SOURCE CLASSIFICATION CODES (AFSSCC) manual dated March 1990, as well as the emission factors from AP-42, Section 1.4, Natural Gas Combustion. 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 of Combustion	PM	PM ₁₀	NO _x	VOC	CO	SO _x	Lead
Crematorium Animal Remains and Container	0.72	0.72	0.55	0.46	0.45	0.33	0.01
Natural Gas Fuel	0.04	0.04	0.49	0.03	0.41	0.00	0.00
Total Criteria Pollutant Potential Emissions	0.75	0.75	1.04	0.49	0.87	0.34	0.01

HAP Emissions from Animal Remains and Container Combustion		HAP Emissions from Natural Gas Combustion	
HAP	TPY	HAP	TPY
Bromoform	4.45E-06	2-Methylnaphthalene	1.19E-07
Carbon Tetrachloride	8.80E-06	3-Methylchloranthrene	8.89E-09
Chloroform	8.35E-06	7,12-Dimethylbenz(a)anthracene	7.90E-08
1,2-Dichloropropane	2.02E-04	Acenaphthene	8.89E-09
Ethyl Benzene	2.47E-04	Acenaphthylene	8.89E-09
Naphthalene	1.78E-03	Anthracene	1.19E-08
Tetrachloroethylene	6.18E-06	Benzene	1.04E-05
1,1,2,2-Tetrachloroethane	1.69E-05	Benzo(a)anthracene	8.89E-09
Toluene	7.08E-04	Benzo(a)pyrene	5.93E-09
Vinylidene Chloride	1.09E-05	Benzo(b)fluoranthene	8.89E-09
Xylene	3.37E-04	Benzo(k)fluoranthene	8.89E-09
Total HAP PTE from Animal Remains and Container Combustion	3.33E-03	Benzo(g,h,i)perylene	5.93E-09
		Chrysene	8.89E-09
		Dibenz(a,h)anthracene	5.93E-09
		Dichlorobenzene	5.93E-06
		Fluoranthene	1.48E-08
		Fluorene	1.38E-08
		Formaldehyde	3.70E-04
		Hexane	8.89E-03
		Indeno(1,2,3,c,d)pyrene	8.89E-09
		Naphthalene	3.01E-06
		Phenanthrene	8.40E-08
		Pyrene	2.47E-08
		Toluene	1.68E-05
		Arsenic	9.88E-07
		Beryllium	5.93E-08
		Cadmium	5.43E-06
		Chromium, total	6.91E-06
		Cobalt	4.15E-07
		Manganese	1.88E-06
		Mercury	1.28E-06
		Nickel	1.04E-05
		Selenium	1.19E-07
		Total HAP PTE from Natural Gas Combustion	9.32E-03

CRITERIA POLLUTANT EMISSION RATE CALCULATIONS

Crematorium Animal Remains Combustion

Maximum Capacity: 70 lb/hr
 Operating Hours: 8760 hours per year (hrs/yr)
 Conversion: 70 lb/hr * 8760 hrs/yr * 0.0005 tons per pound (tons/lb) = 306.6 TPY

PM Emissions

Emission Factor: 4.67 pounds per ton (lbs/ton) (AP-42 Table 2.3-2, 07/93)
 Calculations: 4.67 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.72 TPY

PM₁₀ Emissions

Emission Factor: 4.67 lbs/ton (AP-42 Table 2.3-2, assume PM=PM₁₀, 07/93)
Calculations: 4.67 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.72 TPY

NO_x Emissions

Emission Factor: 3.56 lbs/ton (AP-42 Table 2.3-1, 07/93)
Calculations: 3.56 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.55 TPY

VOC Emissions

Emission Factor: 3.00 lbs/ton (AFSSCC 5-02-005-05, 03/90)
Calculations: 3 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.46 TPY

CO Emissions

Emission Factor: 2.95 lbs/ton (AP-42 Table 2.3-1, 07/93)
Calculations: 2.95 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.45 TPY

SO_x Emissions

Emission Factor: 2.17 lbs/ton (AP-42 Table 2.3-1, 07/93)
Calculations: 2.17 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.33 TPY

Lead Emissions

Emission Factor: 0.0728 lbs/ton (AP-42 Table 2.3-2, 07/93)
Calculations: 0.0728 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.01 TPY

Natural Gas Combustion

Hours of Operation: 8760 hrs/yr
Max Fuel Combustion Rate: 1.15 MMBtu/hr
Conversion: 1.15 MMBtu/hr * 1 MMscf/1020MMBtu = 0.0011 MMscf/hr
Notes: MMscf = million standard cubic feet
MMBtu =million British thermal units

PM₁₀ Emissions (Assume all natural gas PM emissions are PM₁₀)

Emissions Factor: 7.6 pounds per million standard cubic feet (lbs/MMscf)
(AP-42 Table 1.4-2, 07/98)
Calculations: 7.6 lbs/MMscf * 0.0011 MMscf/hr = 0.009 lb/hr
0.009 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 0.04 TPY

NO_x Emissions

Emissions Factor: 100.0 lbs/MMscf (AP-42 Table 1.4-1, 07/98)
Calculations: 100 lbs/MMscf * 0.0011 MMscf/hr = 0.113 lb/hr
0.113 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 0.49 TPY

VOC Emissions

Emissions Factor: 5.5 lbs/MMscf (AP-42 Table 1.4-2, 07/98)
Calculations: 5.5 lbs/MMscf * 0.0011 MMscf/hr = 0.006 lb/hr
0.006 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 0.03 TPY

CO Emissions

Emissions Factor: 84.0 lbs/MMscf (AP-42 Table 1.4-1, 07/98)
Calculations: 84 lbs/MMscf * 0.0011 MMscf/hr = 0.095 lb/hr
0.095 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 0.41 TPY

SO_x Emissions

Emissions Factor: 0.6 lbs/MMscf (AP-42 Table 1.4-2, 07/98)
Calculations: 0.6 lbs/MMscf * 0.0011 MMscf/hr = 0.001 lb/hr
0.001 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 0.00 TPY

Lead Emissions

Emission Factor: 0.0005 lbs/MMscf (AP42, Table 1.4-2, 7/98)
Calculations: 0.0005 lbs/MMscf * 0.0011 MMscf/hr = 5.64E-07 lb/hr
5.64E-07 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 0.00 TPY

HAP EMISSION RATE CALCULATIONS

Crematorium Animal Remains Combustion

Maximum Design Capacity: 306.6 TPY

Bromoform

Emission Factor: 0.000029 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.000029 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000004 TPY

Carbon Tetrachloride

Emission Factor: 0.0000574 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.0000574 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000009 TPY

Chloroform

Emission Factor: 0.0000545 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.0000545 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000008 TPY

1,2-Dichloropropane

Emission Factor: 0.00132 lbs/ton (AFSSCC 1-02-009-01)
Calculations: 0.00132 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000202 TPY

Ethyl Benzene

Emission Factor: 0.00161 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.00161 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000247 TPY

Naphthalene

Emission Factor: 0.0116 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.0116 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.001778 TPY

Tetrachloroethylene

Emission Factor: 0.000040 lbs/ton (AFSSCC 1-02-009-01)
Calculations: 0.0000403 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000006 TPY

Tetrachloroethane

Emission Factor: 0.00011 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.00011 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000017 TPY

Toluene

Emission Factor: 0.00462 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.00462 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000708 TPY

Vinylidene Chloride

Emission Factor: 0.000071 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.000071 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000011 TPY

Xylene

Emission Factor: 0.0022 lbs/ton (AFSSCC 5-02-005-05)
Calculations: 0.0022 lbs/ton * 306.6 TPY * 0.0005 tons/lb = 0.000337 TPY

Natural Gas Combustion

Hours of Operation: 8760 hrs/yr
Max Fuel Combustion Rate: 1.15 MMBtu/hr
Conversion: 1.15 MMBtu/hr * 1 MMscf/1020MMBtu = 0.0011 MMscf/hr

2-Methylnaphthalene

Emission Factor 2.40E-05 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.000024 lbs/MMscf * 0.0011 MMscf/hr = 2.71E-08 lb/hr
2.71E-08 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 1.19E-07 TPY

3-Methylchloranthrene

Emission Factor 1.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000018 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-09 lb/hr
2.03E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-09 TPY

7,12-Dimethylbenz(a)anthracene

Emission Factor 1.60E-05 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.000016 lbs/MMscf * 0.0011 MMscf/hr = 1.80E-08 lb/hr
1.80E-08 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 7.90E-08 TPY

Acenaphthene

Emission Factor 1.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000018 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-09 lb/hr
2.03E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-09 TPY

Acenaphthylene

Emission Factor 1.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000018 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-09 lb/hr
2.03E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-09 TPY

Anthracene

Emission Factor 2.40E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000024 lbs/MMscf * 0.0011 MMscf/hr = 2.71E-09 lb/hr
2.71E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 1.19E-08 TPY

Benzene

Emission Factor 2.10E-03 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0021 lbs/MMscf * 0.0011 MMscf/hr = 2.37E-06 lb/hr
2.37E-06 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 1.04E-05 TPY

Benz(a)anthracene

Emission Factor 1.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000018 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-09 lb/hr
2.03E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-09 TPY

Benzo(a)pyrene

Emission Factor 1.20E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000012 lbs/MMscf * 0.0011 MMscf/hr = 1.35E-09 lb/hr
1.35E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 5.93E-09 TPY

Benzo(b)fluoranthene

Emission Factor 1.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000018 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-09 lb/hr
2.03E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-09 TPY

Benzo(k)fluoranthene

Emission Factor 1.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000018 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-09 lb/hr
2.03E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-09 TPY

Benzo(g,h,i)perylene

Emission Factor 1.20E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000012 lbs/MMscf * 0.0011 MMscf/hr = 1.35E-09 lb/hr
1.35E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 5.93E-09 TPY

Chrysene

Emission Factor 1.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000018 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-09 lb/hr
2.03E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-09 TPY

Dibenzo(a,h)anthracene

Emission Factor 1.20E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000012 lbs/MMscf * 0.0011 MMscf/hr = 1.35E-09 lb/hr
1.35E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 5.93E-09 TPY

Dichlorobenzene

Emission Factor 1.20E-03 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0012 lbs/MMscf * 0.0011 MMscf/hr = 1.35E-06 lb/hr
1.35E-06 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 5.93E-06 TPY

Fluoranthene

Emission Factor 3.00E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.000003 lbs/MMscf * 0.0011 MMscf/hr = 3.38E-09 lb/hr
3.38E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 1.48E-08 TPY

Fluorene

Emission Factor 2.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000028 lbs/MMscf * 0.0011 MMscf/hr = 3.16E-09 lb/hr
3.16E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 1.38E-08 TPY

Formaldehyde

Emission Factor 7.50E-02 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.075 lbs/MMscf * 0.0011 MMscf/hr = 8.46E-05 lb/hr
8.46E-05 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 3.70E-04 TPY

Hexane

Emission Factor 1.80E+00lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 1.8 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-03 lb/hr
2.03E-03 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-03 TPY

Indeno(1,2,3,c,d)pyrene

Emission Factor 1.80E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.0000018 lbs/MMscf * 0.0011 MMscf/hr = 2.03E-09 lb/hr
2.03E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.89E-09 TPY

Naphthalene

Emission Factor 6.10E-04 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.00061 lbs/MMscf * 0.0011 MMscf/hr = 6.88E-07 lb/hr
6.88E-07 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 3.01E-06 TPY

Phenanthrene

Emission Factor 1.70E-05 lbs/MMscf (AP42, Table 1.4-3, 7/98)
Calculations 0.000017 lbs/MMscf * 0.0011 MMscf/hr = 1.92E-08 lb/hr
1.92E-08 lb/hr * 8760 hrs/yr * 0.0005 tons/lb = 8.40E-08 TPY

Pyrene		
Emission Factor	5.00E-06 lbs/MMscf (AP42, Table 1.4-3, 7/98)	
Calculations	0.000005 lbs/MMscf * 0.0011 MMscf/hr =	5.64E-09 lb/hr
	5.64E-09 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	2.47E-08 TPY
Toluene		
Emission Factor	3.40E-03 lbs/MMscf (AP42, Table 1.4-3, 7/98)	
Calculations	0.0034 lbs/MMscf * 0.0011 MMscf/hr =	3.83E-06 lb/hr
	3.83E-06 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	1.68E-05 TPY
Arsenic		
Emission Factor	2.00E-04 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.0002 lbs/MMscf * 0.0011 MMscf/hr =	2.25E-07 lb/hr
	2.25E-07 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	9.88E-07 TPY
Beryllium		
Emission Factor	1.20E-05 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.000012 lbs/MMscf * 0.0011 MMscf/hr =	1.35E-08 lb/hr
	1.35E-08 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	5.93E-08 TPY
Cadmium		
Emission Factor	1.10E-03 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.0011 lbs/MMscf * 0.0011 MMscf/hr =	1.24E-06 lb/hr
	1.24E-06 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	5.43E-06 TPY
Chromium, total		
Emission Factor	1.40E-03 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.0014 lbs/MMscf * 0.0011 MMscf/hr =	1.58E-06 lb/hr
	1.58E-06 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	6.91E-06 TPY
Cobalt		
Emission Factor	8.40E-05 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.000084 lbs/MMscf * 0.0011 MMscf/hr =	9.47E-08 lb/hr
	9.47E-08 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	4.15E-07 TPY
Lead		
Emission Factor	5.00E-04 lbs/MMscf (AP42, Table 1.4-2, 7/98)	
Calculations	0.0005 lbs/MMscf * 0.0011 MMscf/hr =	5.64E-07 lb/hr
	5.64E-07 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	2.47E-06 TPY
Manganese		
Emission Factor	3.80E-04 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.00038 lbs/MMscf * 0.0011 MMscf/hr =	4.28E-07 lb/hr
	4.28E-07 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	1.88E-06 TPY
Mercury		
Emission Factor	2.60E-04 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.00026 lbs/MMscf * 0.0011 MMscf/hr =	2.93E-07 lb/hr
	2.93E-07 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	1.28E-06 TPY

Nickel

Emission Factor	2.10E-03 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.0021 lbs/MMscf * 0.0011 MMscf/hr =	2.37E-06 lb/hr
	2.37E-06 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	1.04E-05 TPY

Selenium

Emission Factor	2.40E-05 lbs/MMscf (AP42, Table 1.4-4, 7/98)	
Calculations	0.000024 lbs/MMscf * 0.0011 MMscf/hr =	2.71E-08 lb/hr
	2.71E-08 lb/hr * 8760 hrs/yr * 0.0005 tons/lb =	1.19E-07 TPY

V. Existing Air Quality

AMC is located at 3302 Monroe Avenue in Butte, Silver Bow County, Montana. The city of Butte and some of the immediate surrounding area is classified as nonattainment for the EPA-established National Ambient Air Quality Standards (NAAQS) for PM₁₀. 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. AMC is a source of PM₁₀ emissions; however, the Department concludes that the PTE quantity of this pollutant is low enough that it does not negatively impact the ambient air quality in Butte. The screening analysis performed during the initial MAQP process 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 #4428-01 contains operating and monitoring requirements to ensure that proper operation of the facility would not result in air emissions that violate any ambient air quality standards.

VI. Ambient Air Impact Analysis

The current permitting action is an administrative amendment with no changes in potential emissions from the facility. The Department verified that the updated secondary chamber minimum temperature had only a miniscule impact on the maximum ambient concentration of air emissions and still demonstrates a negligible risk to human health. Therefore, the Department did not conduct an ambient air impact analysis.

VII. 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?

YES	NO	
	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: February 4, 2013