AIR QUALITY PERMIT

| | | |
|---|---|---|
| Issued To: | Flathead County Solid Waste District<br>4098 Highway 93 North<br>Kalispell, MT 59901 | Permit #2850-06<br>Administrative Amendment<br>Request Received: 5/4/06<br>Department Decision on Administrative Amendment Issued: 11/02/06<br>Final Permit Issued: 11/18/06<br>AFS #029-0029 |

An air quality permit, with conditions, is hereby granted to Flathead County Solid Waste District (Flathead County), pursuant to Sections 75-2-204 and 211, 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

A. Location

The landfill operated by Flathead County is located 9 miles north of Kalispell on Highway 93. The legal description of the facility site is the NE¼ of the NW¼ of Section 1, Township 29 North, Range 22 West, in Flathead County, Montana. A list of permitted equipment is included in the permit analysis.

B. Current Permit Action

On May 4, 2006, the Department of Environmental Quality (Department) received a request from Flathead County for an administrative change to Permit #2850-05. Flathead County requested that the flare inlet source testing schedule be modified to eliminate Hydrogen Chloride and reduce the frequency of mercury from annual to every five years. Permit #2850-06 replaces Permit #2850-05.

Section II: Limitations and Conditions

A. Operational Requirements

1. Flathead County shall construct and operate the landfill flare system as specified in their application for Montana Air Quality Permit #2850-03 and all supporting documentation (ARM 17.8.749).

2. Flathead County shall install and continuously operate a flame sensor system and an associated recorder, or any other equivalent device, to detect the presence of a flame (ARM 17.8.749).

3. Flathead County shall install and continuously operate a flowmeter and associated recorder on the flare to determine the total flow of landfill gas to the flare (ARM 17.8.749).

4. Flathead County shall operate and maintain a flare capable of meeting the requirements contained in 40 CFR 60.18 (ARM 17.8.752 and ARM 17.8.340).

5. The total volume of landfill gas sent to the flare may not exceed $8.64 \times 10^5$ standard cubic feet per day. Note: Standard conditions are 77 $^{o}$F and 1 atm pressure (ARM 17.8.749).

6. Flathead County shall comply with all applicable standards and limitations, and

the reporting, recordkeeping, and notification requirements of 40 CFR Part 60, Subpart WWW for the landfill (ARM 17.8.749, ARM 17.8.340, and 40 CFR Part 60).

7. Flathead County shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

8. Flathead County shall treat all unpaved portions of the haul roads, access roads, parking lots, and the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.7 (ARM 17.8.749).

B. Emission Limitations

Flathead County may not cause or authorize to be discharged into the atmosphere from the incinerator/landfill flare system:

1. Any visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours (ARM 17.8.752 and 40 CFR 60.18).

2. Any particulate emissions in excess of 0.1 gr/dscf corrected to 12% carbon dioxide ($CO_2$) (ARM 17.8.752).

3. Any nitrogen oxide ($NO_x$) emissions in excess of 5.74 lb/hr (ARM 17.8.752).

4. Any carbon monoxide (CO) emissions in excess of 18.40 lb/hr (ARM 17.8.752).

5. Any flare inlet concentrations in excess of the amounts contained in Table I (ARM 17.8.752 and MCA 75-2-215).

Table I. Flare Inlet Concentration Limitations

| **POLLUTANTS** | **FLARE INLET CONCENTRATION ($mg/m^3$)** |
|---|---|
| | |
| ***Annual Testing*** | |
| Acetonitrile | 137 |
| Benzene | 61 |
| Carbon Disulfide | 18 |
| Carbon Tetrachloride | 0.25 |
| Carbon Sulfide | 15 |
| Chlorobenzene | 12 |
| Chloroethane | 33 |
| Chloroform | 1.5 |
| Chloromethane | 25 |
| 1,1-Dichloroethane | 95 |
| 1,2-Dichlorethane | 17 |
| Dichloromethane | 494 |
| 1,2-Dichloropropane | 8 |
| Ethylbenzene | 200 |
| Hexane | 232 |
| Methyl Ethyl Ketone | 209 |

| POLLUTANTS (con't) | FLARE INLET CONCENTRATION ($mg/m^3$) |
|---|---|
| Methyl Isobutyl Ketone | 77 |
| Perchloroethene | 253 |
| 1,1,2,2-Tetrachloroethane | 76 |
| Toluene | 1481 |
| 1,1,1-Trichloroethane | 26 |
| Trichloroethene | 152 |
| Vinyl Chloride | 188 |
| Xylenes | 525 |
| | |
| ***5-Year Testing*** | |
| Mercury | 0.004 |

- Allowable emissions represent a worst case scenario based on a 10-fold increase in reported potential emissions.

C. Emission Testing

1. Flathead County must conduct a test on the flare inlet concentration for the pollutants identified in Table I and demonstrate compliance with the limits contained in Table I within 180 days of flare startup and annually thereafter except once every five years for mercury, or according to another testing/monitoring schedule as may be approved by the Department in writing. Flathead must also test the liquid condensate once every five years for the pollutants listed in Table I (ARM 17.8.105 and ARM 17.8.749).

2. All compliance source tests must be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

3. The Department may require further testing (ARM 17.8.105).

D. Operational Reporting Requirements

1. Flathead County shall maintain on-site daily records identifying the total volume (SCF) of landfill gas sent to the flare. Note: Standard conditions are $77^oF$ and 1 atm pressure (ARM 17.8.749).

2. Flathead County 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 Section I.A. of 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 units as required by the Department. In addition, Flathead County shall total the volume (SCF) of landfill gas sent to the flare annually and submit the total to the Department by March 1 of each year. The information may be submitted with the emission inventory (ARM 17.8.505).

3. Flathead County shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745(1) that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new

emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start-up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

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

E. Notification

Flathead County shall provide the Department with written notification of the following dates within the specified time periods (ARM 17.8.749).

1. Commencement of construction of the flare system and any future gas extraction wells within 30 days after commencement of construction;

2. Anticipated startup date of the flare system and anticipated connection date of future gas extraction wells to the flare system, between 30 and 60 days prior to the actual startup date or connection date; and

3. Actual startup date of the flare system and actual connection date of future gas extraction wells to the flare system within 15 days after the actual startup date or connection date.

Section III: General Conditions

A. Inspection – Flathead County shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver - The permit and the terms, conditions, and matters stated herein shall be deemed accepted if Flathead County fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving Flathead County 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 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 Department personnel at the location of the permitted source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Flathead County may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Construction Commencement - Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Permit Analysis
Flathead County Solid Waste District
Permit #2850-06

I. Introduction/Process Description

A. Permitted Equipment

The Flathead County Solid Waste District (Flathead County) operates a Class II municipal landfill on approximately 80 acres of a 272-acre site. The design capacity of the landfill is over 2.5 million megagrams. Flathead County landfill located approximately 9 miles north of Kalispell on Highway 93. The legal description of the facility site is the NE¼ of the NW¼ of Section 1, Township 29 North, Range 22 West, in Flathead County, Montana.

The facility consists of a landfill gas (LFG) collection extraction system routed to a 2001 Perennial Energy, Inc. (PEI), enclosed ground flare with a capacity of 18 MMBtu/hr. The flare is capable of combusting 600 scfm of LFG containing approximately 50% methane and 50% nonmethane organic compounds (NMOC), and has the ability to be upgraded to accommodate 1200 scfm of LFG as more wells are installed. The system includes the following additional components:

1. Natural gas fired pilot assembly
2. One flare station blower capable of providing 600 scfm of LFG to the flare
3. Condensate knock-out vessel with particulate filter for LFG particulate removal prior to flaring
4. Flow meter used to monitor and help control the flare's operation
5. Miscellaneous piping and associated equipment used in support of the LFG extraction system

In addition, the facility includes a Tee Mark Super 6PJ-VC can, pail, and aerosol crusher.

B. Process Description

The LFG collection system is comprised of approximately 25 vertical extraction wells, which actively collect gas from the waste prism, and headers and lateral piping to convey extracted LFG to the flare system. The LFG collection system will be expanded as the landfill expands. This permit may need to be altered if any of the proposed extraction wells will result in an increase in the permitted amount of landfill gas that will be combusted by the flare or if these wells result in new pollutants being emitted.

This system results in a variety of pollutants being emitted from the flare. The primary emissions consist of carbon monoxide (CO), oxides of nitrogen ($NO_x$), and volatile organic compounds (VOC). There will be only minimal particulate emissions (<3 tpy), since knockout drums and demisters will be used to remove the particulate from the landfill gas prior to flaring. In addition, a health risk assessment has been completed on the emission of VOCs and Hazardous Air Pollutants (HAP) that will result from this proposal. A description of the health risk assessment is contained in Section VI of the analysis.

C. Permit History

On January 4, 1995, **Permit #2850-00** was issued to Flathead County to operate a landfill flare system to combust landfill gas collected by a gas extraction system. The collected

gas is composed mainly of methane, carbon dioxide, and other trace gases. The gas extraction system was installed to comply with Resource Conservation and Recovery (RCRA) Subtitle D regulations, prevent the migration of gas into adjacent soils, and remove excess gas from within the waste mass. Such activities were determined to prevent vegetative stress, control odors, and maintain ground water quality.

On May 6, 1996, **Permit #2850-01** was issued to Flathead County to change their operational requirement of maintaining a flare temperature of 1400 $^{o}$F to a flare capable of meeting the requirements in 40 CFR 60.18. The permit change was based on Flathead County's statement that it is difficult to show compliance with a flare temperature because the flame cone can be blown away from the sensor.

In addition, New Source Performance Standard (NSPS) 40 CFR 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills was promulgated on March 12, 1996, and is applicable to Flathead County's landfill. A condition was added to Permit #2850-01 to address 40 CFR Part 60, Subpart WWW.

In 1999, the U.S. Environmental Protection Agency (EPA) informed the Department of Environmental Quality (Department) that any condition in an air quality preconstruction permit would be considered a federally enforceable condition. However, there are certain state rules that were never intended to be federally enforceable. The Department notified all facilities holding preconstruction permits that they could request deletion of those conditions based on the Administrative Rules of Montana (ARM) 17.8.717 and ARM 17.8.315. Removing either of these conditions did not relieve the facility from complying with the rule upon which the permit condition was based; removal only ensured that enforcement of the condition remained solely with the Department. The condition based on ARM 17.8.717 was removed from Flathead County's permit. **Permit #2850-02** replaced Permit #2850-01. Furthermore, the rule references and permit format were updated.

On June 27, 2001, Flathead County submitted a complete application for the addition of a new ground level flare, addition of 16 new wells, and removal of the existing candlestick flare at the facility. Flathead County demonstrated that potential emissions from the new flare were less than the de minimis level of 15 tons per year; however, in accordance with the Montana Code Annotated (MCA) 75-2-215(1) the Department determined that all incinerators, including the proposed flare, require an air quality permit prior to construction, installation, or operation. **Permit #2850-03** replaced Permit #2850-02.

On December 12, 2002, the Department received a request from Flathead County to relax permitted compliance source testing requirements for the LFG flare from semiannual to annual source testing requirements. In accordance with the Department's guidance document titled "Revised Testing Schedule" dated December 4, 1998, sources with the Potential to Emit (PTE) less than 50 tons per year of any regulated pollutant shall conduct additional compliance source testing "as required by the Department" after initially demonstrating compliance with the applicable permit limits. The guidance statement also indicates that the Department may evaluate and apply a specific source-type testing schedule on a case-by-case basis.

The LFG flare at the Flathead County landfill has the PTE less than 50 tons per year of all regulated pollutants. Therefore, the Department's guidance indicates that testing shall be applied "as required by the Department." The Department determined that source testing for LFG flares was necessary and should be conducted at least annually. The permit action modified the testing schedule for the LFG flare to annual testing from a semiannual basis. **Permit #2850-04** replaced Permit #2850-03.

On October 21, 2003, the Department received a request from Flathead County for the addition of a Tee Mark Super 6PJ-VC can, pail, and aerosol crusher to the Flathead County facility. This permit action added the Tee Mark Super 6PJ-VC crusher to the Flathead County facility under the provisions of ARM 17.8.745(1). In addition, Permit #2850-05 was updated to reflect current Department permit format and permit language. **Permit #2850-05** replaced Permit #2850-04.

D. Current Permit Action

On May 4, 2006, the Department received a request from Flathead County for an administrative change to Permit #2850-05. Flathead County requested that the flare inlet source testing scheduled be modified to eliminate testing of Hydrogen Chloride (HCl) and reduce the testing frequency for mercury from annually to every five years.

The testing requirement for HCl was removed since the two years of testing results were so far below the limit ($2.4 \times 10^{-04}$ mg/m$^3$ and $6.0 \times 10^{-04}$ mg/m$^3$ inlet vs. emission limit of 1069 mg/m$^3$). Furthermore, HCl is created from the combustion of the chlorinateds, and the inlet concentration would not be representative of the HCl emissions. The testing requirement for mercury was reduced since the two years of testing results were significantly below the mercury limit ($1.2 \times 10^{-05}$ mg/m$^3$ and $7.0 \times 10^{-09}$ mg/m$^3$ vs. limit of $4.0 \times 10^{-03}$ mg/m$^3$). Lastly, the Department determined that Flathead is required to conduct periodic testing of the condensate that is introduced into the flare after the sampling port, in order to complete the information on inlet pollutants listed in Table I of the Air Quality Permit. In addition, the Permit Analysis was updated to reflect current conditions. **Permit #2850-06** replaces Permit #2850-05.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts and environmental assessments, is included in the analysis associated with each change to the permit.

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 ARMs 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. ARM17.8.101 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).

   Flathead County 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 in the total amount of air contaminants 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 that a public nuisance is created.

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

1. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
5. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.223 Ambient Air Quality Standard for $PM_{10.}$

Flathead County must comply with all applicable ambient air quality standards.

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

1. 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. (2) Under this rule, Flathead County shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

2. 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.

3. ARM 17.8.316 Incinerators. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any incinerator, particulate matter in excess of 0.10 grains per standard cubic foot of dry flue gas, adjusted to 12% carbon dioxide and calculated as if no auxiliary fuel

had been used. This rule does not apply to incinerators for which a Montana Air Quality permit has been issued under 75-2-215, MCA, and ARM 17.8.770. Therefore, it does not apply to Flathead County.

4. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

5. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). Flathead County's landfill is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of 40 CFR Part 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills. This subpart applies to the Flathead County Landfill because it was modified on or after May 30, 1991.

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. The current permit action is considered an administrative action and does not require a permit application or 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.

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

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

1. ARM 17.8.740 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 alteration to construct, alter, or use an air contaminant source that has the PTE more than 25 tons per year of any pollutant. This rule also requires any incinerator, as defined in 75-2-103(11), MCA and is subject to the requirements of 75-2-215, MCA to obtain a

permit. Flathead County's flare is subject to the above requirements and therefore a permit is required.

3. ARM 17.8.744 Montana Air Quality Permits – General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit Program.

4. ARM 17.8.745 Montana Air Quality Permits – Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units – Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration or use of a source. Flathead County was not required to submit a permit application for the current permit action.

6. ARM 17.8.749 Conditions for Issuance 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 condition 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 BACT shall be utilized. The BACT analysis and determination is contained 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 Flathead County 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 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.

12. 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 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 that 1 year after the permit is issued.

13. 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).

14. 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 17.8.749, 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.

15. 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.

16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, MCA.

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

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

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

G. ARM 17.8, Subchapter 9, Permit Requirements for Major Stationary Sources or Modifications Located within Nonattainment Areas, including, but not limited to:

ARM 17.8.904 When Air Quality Preconstruction Permit Required. The requirements contained in ARM 17.8.905 shall apply to any major stationary source and any major modification that would locate anywhere in an area designated as nonattainment for a national ambient air quality standard under 40 CFR 81.327. This facility is not a major stationary source because it is not a listed source and does not have the potential to emit more than 100 tons per year of any air pollutant.

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

1. ARM 17.8.1201 Definitions. (23) A Major Source under Section 7412 of the FCAA is defined as any stationary source having:

a. PTE > 100 tons/year of any pollutant;

b. PTE > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAPs, or a lesser quantity as the Department may establish by rule; and

c. PTE > 70 tons/year of $PM_{10}$ in a serious $PM_{10}$ nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #2850-06 for Flathead County's landfill, the following conclusions were made:

a. The facility's PTE is less than 100 tons/year for any pollutant.

b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year of all HAPs.

c. This source is not located in a serious $PM_{10}$ nonattainment area.

d. The facility is subject to 40 CFR 60, Subpart WWW.

e. This facility is subject to NESHAP standards.

f. The source is not a Title IV affected source, nor a solid waste combustion unit.

g. The source is not an EPA designated Title V source.

In accordance with 40 CFR 60.752(b) Flathead County is subject to the Title V operating permit program. On November 4, 2003, Flathead County was issued final and effective Title V Operating Permit #OP2850-03. Although the current permit action is administrative and a modification to Flathead County's Title V Operating Permit is not required, the permit is being renewed as #OP2850-04.

I. 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...

J. 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. Flathead County therefore had 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 HAPs, from the incineration of solid waste. The

Department 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 completed a health risk assessment based on an emissions inventory and ambient air quality modeling submitted by Flathead County. Based on the results of the emission inventory, modeling, and health risk assessment, the Department determined that Flathead County's proposed landfill flare system is in compliance with this requirement.

4. MCA 75-2-215 requires the application of pollution control equipment or procedures that meet or exceed BACT. The Department determined that the proposed flare system constitutes BACT.

## III. BACT Determination

A BACT determination is required for each new or altered source. Flathead County shall install on the new or altered source the maximum air pollution control capability, which is technically practicable and economically feasible, except that BACT shall be utilized. However, the current permit action is administrative and is not subject to BACT requirements.

## IV. Emission Inventory

| Source | PM | $PM_{10}$ | $NO_x$ | CO | VOC | $SO_x$ |
|---|---|---|---|---|---|---|
| Flare | 3.15 | 1.58 | 4.73 | 11.83 | 0.077 | 0.026 |
| Tee Mark 6PJ-VC Crusher | ----- | ----- | ----- | ------ | 2.79 | ----- |
| **Total** | 3.15 | 1.58 | 4.73 | 11.83 | 2.87 | 0.026 |

**Flare**

PM Emissions

Emission Factor: 0.72 lb/hr (Company Information)
Hours of Operation: 8760 hr/yr
Calculations: 0.72 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 3.15 ton/yr

$PM_{10}$ Emissions

Emission Factor: 0.36 lb/hr (Company Information)
Hours of Operation: 8760 hr/yr
Calculations: 0.36 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 1.58 ton/yr

$NO_x$ Emissions

Emission Factor: 1.08 lb/hr (Company Information)
Hours of Operation: 8760 hr/yr
Calculations: 1.08 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 4.73 ton/yr

CO Emissions

Emission Factor: 2.70 lb/hr (Company Information)
Hours of Operation: 8760 hr/yr
Calculations: 2.70 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 11.83 ton/yr

VOC Emissions

Emission Factor: 0.018 lb/hr (Company Information)
Hours of Operation: 8760 hr/yr

Calculations: 0.018 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.077 ton/yr

$SO_x$ Emissions

Emission Factor: 0.006 lb/hr (Company Information)
Hours of Operation: 8760 hr/yr
Calculations: 0.006 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 0.026 ton/yr
**Emissions based on a maximum flowrate of 600 standard cubic feet per minute, 40% methane, and 595 ppm VOC.*

**Crusher**

VOC Emissions

Emission Factor: 0.6370 lb/hr (Company Information)
Hours of Operation: 8760 hr/yr
Calculations: 0.6370 lb/hr * 8760 hr/yr * 0.0005 ton/lb = 2.79 ton/yr

## Table I. Potential Hazardous Air Pollutant - Risk Assessment Pollutants Emission Estimations

| Pollutant | Inlet Uncontrolled Emission Rate (lb/hr) | Controlled Emission Rate* (lb/hr) | Exhaust Worst Case Emission Rate** (lb/hr) (Uncontrolled) | Worst Case Emission Rate** (ton/yr) (Uncontrolled) |
|---|---|---|---|---|
| Acetonitrile | 3.09E-02 | 6.18E-04 | 3.09E-01 | 1.35 |
| Benzene | 1.37E-02 | 2.74E-04 | 1.37E-01 | 6.00E-01 |
| Carbon Disulfide | 4.06E-03 | 8.12E-05 | 4.06E-02 | 1.77E-01 |
| Carbon Tetrachloride | 5.66E-05 | 1.13E-06 | 5.66E-04 | 2.48E-03 |
| Carbonyl Sulfide | 3.43E-03 | 6.86E-05 | 3.43E-02 | 1.50E-01 |
| Chlorobenzene | 2.59E-03 | 5.18E-05 | 2.59E-02 | 1.13E-01 |
| Chloroethane | 7.42E-03 | 1.48E-04 | 7.42E-02 | 3.25E-01 |
| Chloroform | 3.29E-04 | 6.59E-06 | 3.29E-03 | 1.44E-02 |
| Chloromethane | 5.62E-03 | 1.12E-04 | 5.62E-02 | 2.46E-01 |
| 1,1-Dichloroethane | 2.14E-02 | 4.28E-04 | 2.14E-01 | 9.37E-01 |
| 1,2-Dichloroethane | 3.73E-03 | 7.46E-05 | 3.73E-02 | 1.63E-01 |
| Dichloromethane | 1.12E-01 | 2.23E-03 | 1.12 | 4.91 |
| 1,2-Dichloropropane | 1.87E-03 | 3.74E-05 | 1.87E-02 | 8.19E-02 |
| Ethylbenzene | 4.50E-02 | 9.00E-04 | 4.50E-01 | 1.97 |
| Hexane | 5.21E-02 | 1.04E-03 | 5.21E-01 | 2.28 |
| Mercury | 8.08E-07 | 1.62E-08 | 8.08E-06 | 3.54E-05 |
| Methyl Ethyl Ketone | 4.70E-02 | 9.40E-04 | 4.70E-01 | 2.05 |
| Methyl Isobutyl Ketone | 1.72E-02 | 3.44E-04 | 1.72E-01 | 7.53E-01 |
| Perchloroethene | 5.69E-02 | 1.14E-03 | 5.69E-01 | 2.49 |
| 1,1,2,2-Tetrachloroethane | 1.71E-02 | 3.43E-04 | 1.71E-01 | 7.49E-01 |
| Toluene | 3.33E-01 | 6.66E-03 | 3.33 | 14.6 |
| 1,1,1-Trichloroethane | 5.89E-03 | 1.18E-04 | 5.89E-02 | 2.58E-01 |
| Trichloroethene | 3.41E-02 | 6.82E-04 | 3.41E-01 | 1.49 |
| Vinyl Chloride | 4.22E-02 | 8.44E-04 | 4.22E-01 | 1.85 |
| Xylenes | 1.18E-01 | 2.36E-03 | 1.18 | 5.17 |

*Based on 98% flare destruction efficiency
**Based on a 10-fold increase in emissions

## Table II. HCl Emission Estimation

| Chlorinated Compounds | Molecular Weight | # of Cl Molecules | Cl Concentration* (mg/m^3) |
|---|---|---|---|
| Carbon Tetrachloride | 153.84 | 4 | 0.23 |
| Chlorobenzene | 112.56 | 1 | 3.65 |
| Chloroethane | 64.52 | 1 | 18.07 |
| Chloroform | 119.39 | 3 | 1.34 |
| Chloromethane | 50.49 | 1 | 17.48 |
| 1,1-Dichloroethane | 99 | 2 | 68.21 |
| 1,2-Dichloroethene | 99 | 2 | 11.82 |
| Dichloromethane | 84.94 | 2 | 412.01 |

| | | | |
|---|---|---|---|
| 1,2-Dichloropropane | 113 | 2 | 5.27 |
| Perchloroethene | 165.85 | 4 | 216.31 |
| Chlorinated Compounds | Molecular Weight | # of Cl Molecules | Cl Concentration* (mg/m^3) |
| 1,1,1,2-Tetrachloroethane | 167.8 | 4 | 64.20 |
| 1,1,1-Trichloroethane | 133.4 | 3 | 20.88 |
| Trichloroethane | 131.4 | 3 | 122.71 |
| Vinyl Chloride | 62.5 | 1 | 106.46 |
| | | Total Potential HCl emissions → | 1068.64 |

Example Calculation: Carbon Tetrachloride
*Cl Concentration* = Reported $CCl_4$ Inlet Concentration ($Mg/m^3$) * (# of Cl molecules * Molecular Wt. Cl / Molecular Wt. $CCl_4$)
*Cl Concentration* = 0.25 Mg $CCl_4/m^3$ * (4 * 35.45 / 153.84) = 0.23 Mg $Cl/m^3$
*Based on a 10-fold increase in emission.

## V. Air Quality and Monitoring Requirements

The current permit action is administrative and will not cause an increase in air emissions. The air quality of the area is expected to remain in compliance with all state and federal requirements.

## VI. Health Risk Assessment

A health risk assessment was conducted by the Department to determine if the Flathead County enclosed flare/incinerator permitted under Permit Action #2850-03 complied with the negligible risk requirement of MCA 75-2-215. Only those air toxic pollutants that were listed in the January 1992 CAPCOA Risk Assessment Guidelines that had established emission factors were considered.

Table IV shows the pollutants that were identified for the risk assessment, the Chemical Abstract Service Number (CAS #) for each pollutant, the emission rate in grams/second that was used in the modeling, and the corresponding ambient concentration of the pollutants. Modeling was conducted for Flathead County for each pollutant identified. A copy of this modeling is contained with the original application.

Table IV. Calculation of Maximum Ambient Concentrations

| Pollutant | CAS # | Flare Emissions* (g/sec) | Max. Conc. (ug/m^3) |
|---|---|---|---|
| Acetonitrile | | 0.039 | 6.69E-02 |
| Benzene | 71-43-2 | 0.017 | 3.12E-02 |
| Carbon Disulfide | 75-15-0 | 0.005 | 8.92E-03 |
| Carbon Tetrachloride | 56-23-5 | 0.000070 | 1.34E-04 |
| Carbonyl Sulfide | | 0.004 | 6.69E-03 |
| Chlorobenzene | 108-90-7 | 0.003 | 6.69E-03 |
| Chloroethane | | 0.009 | 1.78E-02 |
| Chloroform | 67-66-3 | 0.0004 | 8.92E-04 |
| Chloromethane | | 0.007 | 1.34E-02 |
| 1,1-Dichloroethane | 75-34-3 | 0.027 | 4.46E-02 |
| 1,2-Dichloroethane | 75343 | 0.005 | 8.92E-03 |
| Dichloromethane | | 0.141 | 2.68E-01 |
| 1,2-Dichloropropane | | 0.0024 | 4.46E-03 |
| Ethylbenzene | 100414 | 0.057 | 1.03E-01 |
| Hexane | 110-54-3 | 0.065 | 1.16E-01 |
| Mercury | 7439-97-6 | 0.00000102 | 1.85E-06 |
| Methyl Ethyl Ketone | 78-93-3 | 0.059 | 1.07E-01 |
| Methyl Isobutyl Ketone | | 0.022 | 3.79E-02 |
| Perchloroethene | | 0.072 | 1.32E-01 |
| 1,1,1,2-Tetrachloroethane | 79-34-5 | 0.022 | 4.01E-02 |
| Toluene | 108-88-3 | 0.420 | 7.62E-01 |
| 1,1,1-Trichloroethane | 79016 | 0.007 | 1.49E-02 |
| Trichloroethene | 79-01-6 | 0.043 | 7.81E-02 |
| Vinyl chloride | 75-01-4 | 0.053 | 9.59E-02 |

| | | | |
|---|---|---|---|
| Xylenes | 1330-20-7 | 0.149 | 2.70E-01 |

**Flare emissions = uncontrolled emissions with a 10-fold increase*

The predicted maximum ambient air concentrations of the constituents in Table IV were then used in the risk assessment model. Table V shows the results of the risk assessment modeling. It is important to note that the emission rate used in the model was the uncontrolled emission rate multiplied by 10. This yielded a conservative result because the emissions were overestimated.

Table V. Risk Assessment Results

| Chemical Compound | % of total concentration[1] | Annual Concentration[2] ($\mu g/m^3$) | Cancer ELCR[3] Chronic | Non – Cancer Hazard Quotient (NCHQ[4]) | |
|---|---|---|---|---|---|
| | | | | Chronic | Acute |
| Benzene | 1.3 | 3.12E-02 | 2.60E-07 | 4.39E-04 | 0.0000 |
| Carbon Disulfide | 0.4 | 8.92E-03 | ND | 1.27E-05 | 0.0000 |
| Carbon Tetrachloride | 0.006 | 1.34E-04 | 2.01E-09 | 5.60E-05 | 0.0000 |
| Chloroform | 0.03 | 8.92E-04 | 2.00E-08 | 2.55E-05 | 0.0000 |
| Ethyl Benzene | 4.6 | 1.03E-01 | ND | 7.90E-05 | 0.0000 |
| Hexane | 5.2 | 1.60E-01 | ND | 5.80E-04 | 0.0000 |
| Mercury | 0.000083 | 1.85E-06 | ND | 6.17E-06 | 0.0000 |
| Methyl Ethyl Ketone | 4.8 | 1.07E-01 | ND | 1.07E-04 | 0.0000 |
| 1,1,2,2 Tetrachloroethane | 1.8 | 4.01E-02 | 1.00E-08 | ND | 0.0000 |
| Toluene | 34.2 | 7.62E-01 | ND | 5.75E-06 | 0.0000 |
| Vinyl Chloride | 4.3 | 9.59E-02 | 7.48E-06 | 3.69E-03 | 0.0000 |
| Xylene | 12.1 | 2.70E-01 | ND | 5.67E-04 | 0.0000 |
| Total Risks | N/A | N/A | 7.77E-06 | 5.57E-03 | 0.0000 |

- Table V includes only those chemicals reported by Flathead County for which risk data exists.
- ND = No Data Available

[1]% of total concentration = emission rate each pollutant/sum of all pollutants emission rates (2.00E-4)
[2]annual concentration = (max 1-hr conc. from model * 0.1 * % of total)/100-or-(0.2021E-1 * 0.1 * % of total)/100
[3]ELCR = excess lifetime cancer risks = Annual Concentration * Cancer Potency Factor
[4]NCHQ = annual concentration/Risk Factor Concentration

Based on the results of this risk assessment, the Department determined that emissions from Flathead County's landfill flare will constitute a negligible risk to public health, safety, and welfare.

## VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

## VIII. Environmental Assessment

This permitting action is considered an administrative action; therefore, an Environmental Assessment is not required.

Permit Analysis Prepared By: Christine Weaver
Date: October 20, 2006