AIR QUALITY PERMIT

Issued to: Eureka Pellet Mills
Superior Plant
480 Diamond Road
P.O. Box 128
Superior, MT 59872

Permit: #3039-02
Application Complete: 10/30/01
Preliminary Determination Issued: 12/10/01
Department Decision Issued: 12/27/01
Permit Final :01/15/02
AFS #: 061-0006

An air quality permit, with conditions, is hereby granted to Eureka Pellet Mills (EPM), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.701, *et seq*., as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

EPM operates a wood product pelletizing plant and the associated equipment. The facility is located in the SW¼ of Section 13, Township 16 North, Range 26 West, in Mineral County, Montana. The list of permitted equipment can be found in Section I.A of the Permit Analysis.

B. Current Permit Action

The current permit action is an alteration to Permit #3039-01. EMP has requested to add a McConnell Burner, a Triple Pass Dryer, and a Burner Cyclone to the list of permitted equipment at the facility. The proposed McConnell wood fired burner will provide heat to the existing dryer and to the additional proposed dryer. The material from these dryers will be routed to a common dry bin that feeds dried material into the pellet operation.

Section II: Limitations and Conditions

A. Emission Limits

1. EPM shall not cause or authorize to be discharged into the atmosphere, from any equipment used in conjunction with this facility, including, but not limited to, screens, rotary dryer, dryer target box, dryer stack, process and storage bins, cyclones, pellet mills, or any material conveyance device, any visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304, 17.8.308 and 17.8.715)

2. EPM 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).

3. EPM shall treat all unpaved portions of the haul roads, access roads, parking lots, or 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.2. (ARM 17.8.715).

B. Testing Requirements

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

2. The Department may require testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. EPM 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 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 the units required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. All records compiled in accordance with this permit must be maintained by EPM 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 17.8.710).

3. EPM shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.705(1)(r) 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 17.8.705(1)(r)(iv) (ARM 17.8.705).

Section III: General Conditions

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

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

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving EPM of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.701, *et seq*. (ARM 17.8.717).

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 therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department's decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department's decision until the conclusion of the hearing and issuance of a final decision by the Board.

F. Permit Inspection - As required by ARM 17.8.716, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.

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

PERMIT ANALYSIS
Permit #3039-02
Eureka Pellet Mills
Superior Plant

I. Introduction/Process Description

A. Eureka Pellet Mills (EPM) operates a wood product pelletizing plant. Permitted equipment at the facility includes:

1. Screen
2. Dryer Feed Bin
3. Propane Fired Rotary Dryer
4. Dryer Target Box
5. Dryer Stack
6. Dryer Cyclone
7. Dryer Storage Bin
8. Dried Compost Storage Bin
9. Pellet Mill Feed Bin
10. Pellet Cooler Cyclone
11. Pellet Mills (2)
12. Pellet Cooler
13. Pellet Shaker
14. Pellet Conveyor
15. Pellet Storage Bins
16. Pellet Bagging Line
17. Trailer Dump
18. Negative Draw Cyclone (in line with dryer exhaust)
19. McConnell Burner
20. Triple Pass Dryer
21. Burner Cyclone

B. Source Description

The EPM facility is located at an industrial site adjacent to a bark company and a railcar loading (iron ore) operation that are independent commercial entities. The EPM facility is located in the SW¼ of Section 13, Township 16 North, Range 26 West, in Mineral County, Montana. EPM is located at a site that was previously a lumber mill. The permit for the defunct lumber mill is currently owned by Johnson Brothers Contracting. A lumber mill was in operation at the proposed site for an extensive period that concluded in 1994.

The EPM facility, that manufactures residential and industrial wood pellets, first sizes the raw material (wood products). The feed material is then sent to a propane fired rotary dryer to remove most of the moisture. The dried feed stock is then transferred by auger to the pellet mills. The pellets are cooled and sent to a shaker prior to being conveyed to storage bins. The final step in the process is a bagging line.

The raw material is stored in outdoor piles near the process equipment. The mill and bagging line are indoors. Primary emission points, for the purposes of this air quality permit, are the screen, rotary dryer stack, dryer target box, dryer cyclone, the pellet cooler cyclone, the trailer dump, and the negative draw cyclone that is in line with the dryer exhaust. Material handling before the drying step generates minimal particulate emissions because of the moisture content. All dried material is conveyed to surge or

storage bins. Bagged product is distributed widely through various outlets to multiple markets.

C. Permit History

The Department of Environmental Quality (Department) received a permit application from Nature's Superior Products (NSP) on December 22, 1998. The Department determined that the application was incomplete in a letter to NSP on January 20, 1999. The application was submitted with inadequate process detail and incomplete emission information. The applicant responded with faxed information and followed up with a mailing on January 27, 1999. The permit application was deemed complete on February 23, 1999, when NSP submitted the remaining portion of their permit application fee. **Permit #3139-00** became final on March 27, 1999.

On September 4, 2001, NSP requested a modification of Permit #3039-00. NSP requested to change the name on Permit #3039-00 from NSP to EPM. In addition, NSP submitted several *de minimis* requests that were approved by the Department including the addition of a cyclone, the installation of a trailer dump for unloading incoming raw materials, and running 100% wood products for the pelletizing operation. Permit #3039-00 was updated to change the name on the permit from NSP to EPM, add the Department approved *de minimis* changes into the permit, and update the emission inventory to reflect the *de minimis* changes. In addition, the permit change removed the hammer mill from the permit, since it was no longer operated at the facility. **Permit #3039-01** replaced Permit #3039-00.

D. Current Permit Action

The current permit action is an alteration of Permit #3039-01. EPM requested that Permit #3039-01 be altered to facilitate the installation and operation of a McConnell Burner, a Triple Pass Dryer, and a Burner Cyclone to the list of permitted equipment at the facility. The proposed McConnell wood fired burner will provide heat to the existing dryer and to the additional proposed dryer. The material from these dryers will be routed to a common dry bin that feeds dried material into the pellet operation. **Permit #3039-02** will replace Permit #3039-01.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) 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 Administrative Rules of Montana (ARM) and are available upon request from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Sub-Chapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emissions of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

2. ARM 17.8.106 Source Testing Protocol. 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).

   EPM 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.

3. 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.

4. 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 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 that a public nuisance is created.

B. ARM 17.8, Sub-Chapter 2 - Ambient Air Quality, including, but not limited to:

1. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter;
2. ARM 17.8.221 Ambient Air Quality Standard for Visibility; and,
3. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}.

EPM must maintain compliance with all of the applicable ambient air quality standards.

C. ARM 17.8, Sub-Chapter 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 to an 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 section requires an opacity limitation of 20% for all fugitive emission sources, and that reasonable precautions be taken to control emissions of airborne particulate. (2) Under this section, EPM 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.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This section 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 section.

4. ARM 17.8.310 Particulate Matter, Industrial Processes. This section 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 section.

5. 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 a tank is equipped with a vapor loss control device as described in (1) of this rule, or is a pressure tank as described in (1) of this rule.

6. ARM 17.8.340 Standard of Performance for New Stationary Sources. This section incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected facility under any of the current subparts; therefore, the requirements do not apply at this time.

D. ARM 17.8, Sub-Chapter 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 section 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. EPM submitted the appropriate permit application fee for the current permit action.

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

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

1. ARM 17.8.704 General Procedures for Air Quality Preconstruction Permitting. An air quality preconstruction permit shall contain requirements and conditions applicable to both construction and subsequent use of the permitted equipment.

2. ARM 17.8.705 When Permit Required - Exclusions. This rule requires a facility to obtain an air quality permit or permit alteration if they construct, alter, or use any air contaminant sources that have the potential to emit more than 25 tons per year of any pollutant. EPM has the potential to emit more than 25 tons per year

of particulate matter; therefore, a permit is required.

3. ARM 17.8.710 Conditions for Issuance of Permit. This section requires that EPM demonstrate compliance with all applicable rules and standards before a permit can be issued. Also, a permit may be issued with such conditions as are necessary to assure compliance with all applicable rules and standards. EPM demonstrated compliance with all applicable rules and standards as required for permit issuance.

4. ARM 17.8.715 Emission Control Requirements. This section requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible except that BACT shall be utilized.

5. ARM 17.8.716 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

6. ARM 17.8.717 Compliance with Other Statutes and Rules. This rule states that nothing in the permit shall be construed as relieving EPM of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.701, *et seq*.

7. ARM 17.8.720 Public Review of Permit Applications. 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. EPM submitted an affidavit of publication for October 24, 2001, from the *Mineral Independent*, a newspaper of general circulation in Mineral County.

8. ARM 17.8.731 Duration of Permit. An air quality permit shall be valid until revoked or modified as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

9. ARM 17.8.733 Modification of Permit. An air quality permit may be modified 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 in emissions because of those changed conditions. A source may not increase its emissions beyond those found in its permit unless the source applies for and receives another permit.

10. ARM 17.8.734 Transfer of Permit. This section states 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.

F. ARM 17.8, Sub-Chapter 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 Federal Clean Air Act (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 potential to emit (PTE) is less than 250 tons per year of any pollutant. Therefore, the requirements of this program do not apply.

G. ARM 17.8, Sub-Chapter 12 - Operating Permit Program, including, but not limited to:

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

a. PTE greater than 100 ton/year of any pollutant;

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

c. PTE greater than 70 ton/year of PM_{10} in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. 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 #3039-02 for the EPM facility, the following conclusions were made:

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

b. The facility's PTE is less than 10 ton/year of any one HAP, and less than 25 ton/year of a combination of all HAPs.

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

d. The facility is not subject to any current NSPS.

e. The facility is not subject to any current NESHAP standards.

f. The facility is not an EPA designated Title V source.

III. BACT Determination

A BACT determination is required for each new or altered source. EPM shall install on all new or altered sources the maximum air pollution control capability that is technically practicable and economically feasible, except that best available control technology shall be utilized. A BACT analysis, as well as previous BACT determinations, addressing some available methods of

controlling particulate emissions from the facility, was reviewed by the Department. The McConnell Burner is a wood fired burner, the hot gases from which will be directed to both dryers in order to dry wood furnish. The Triple Pass Dryer is used to dry wood shavings prior to the pelletizing process. The Burner Cyclone is located just prior to the burner to separate particulate from air as it is coming from the dry bin and the fuel hammermill.

A. CO Emissions

1. Catalytic Incineration - Catalytic Incineration including Regenerative Thermal Oxidation (RTO) and Regenerative Catalytic Oxidation (RCO) uses a catalyst to oxidize CO to CO_2. While catalytic incineration can achieve relatively high control efficiencies, the costs associated with this technology have been demonstrated to be economically impractical ($12,500/ton for RTO technology and $11,600/ton for RCO). For this reason, catalytic incineration technology does not constitute BACT in this case.

2. Good Combustion Practice - Good combustion practice helps ensure that combustion sources are being operated at their optimum level of performance. The McConnell Burner is a cyclonic suspension type dual chambered combustor with conversion efficiency equal to fossil fuel burners. The BACT/RACT/LAER Clearinghouse indicates that good combustion practice (Combustion Control, Design, and Operation) is the most prevalent BACT determination for control of emissions from these types of sources. For these reasons, proper operation of the burner to provide for good combustion practices will constitute BACT for the McConnell Burner.

B. NO_x Emissions

1. Selective Catalytic Reduction (SCR) - SCR is a post-combustion gas treatment technique that uses a catalyst to reduce NO and NO_2 to molecular nitrogen, oxygen, and water. Ammonia (NH_3) is commonly used as the reducing agent.

   NH_3 is vaporized and injected into the flue gas upstream of the catalyst bed. The NH_3 combines with the NO_x at the catalyst surface to form an ammonium salt intermediate. The ammonium salt intermediate then decomposes to produce elemental nitrogen and water.

   The catalyst lowers the temperature required for the chemical reaction between NO_x and NH_3. Catalysts used for NO_x reduction can include base metals, precious metals, and zeolites. Commonly, the catalyst is a mixture of titanium and vanadium oxides.

   An attribute common to all catalysts is the narrow "window" of acceptable system temperatures. In this case, the temperature "window" is approximately 575 to 800ºF. Below 575º F, the NO_x reduction reaction will not proceed, while operation above 800º F will shorten catalyst life and can lead to the oxidation of NH_3 to either nitrogen oxides or possibly generating explosive levels of ammonium nitrate in the exhaust gas.
   Technical factors that impact the effectiveness of this technology include the catalyst reactor design, operating temperature, type of fuel fired, sulfur content of the fuel, design of the NH_3 injection system, and the potential for catalyst poisoning.

   A recent similar analysis indicated that the cost per ton of reduction for NO_x from

the burner would be approximately $11,500 per ton. The Department determined that, for the McConnell Burner, SCR does not constitute BACT. SCR has not been required of other recently permitted similar sources.

2. Selective Non-Catalytic Reduction (SNCR) - SNCR involves the noncatalytic decomposition of NO_x to nitrogen and water. A nitrogenous reducing agent, typically NH_3 or urea, is injected directly into the hot flue gas. Because a catalyst is not used to drive the reaction, temperatures of 1600 to 2100º F are required.

   NO_x removal efficiency varies considerably for this technology, depending on the inlet NO_x concentrations, fluctuating flue gas temperature, residence time, amount and type of nitrogenous reducing agent, mixing effectiveness, and the presence of interfering chemical substances in the gas stream.

   In a recent similar analysis, the cost per ton of reduction for NO_x from the burner would be approximately $10,700 per ton. The Department determined that, for the McConnell Burner, SNCR does not constitute BACT. SNCR has not been required of other recently permitted similar sources.

3. Flue Gas Recirculation/Low-NO_x Burners (FGR/LNBs) - LNBs reduce NO_x formation by controlling the mixing of fuel and air to provide low excess air firing. LNBs are designed to reduce peak flame temperature and/or reduce the residence time at high temperature. The effectiveness of LNB/FGR control technology ranges from 60% to 90%. Due to fuel-bound nitrogen, the control efficiency of a LNB will be lower. The impacts from a LNB include additional CO and VOC emissions, high operating costs, additional energy requirements, and possible retrofit problems with existing burners

4. No Additional Controls - Based on the potential emissions from the McConnell Burner and the incremental cost to control the NO_x emissions, the Department agrees that no additional controls will constitute BACT for the McConnell Burner.

C. VOC Emissions

1. Regenerative Thermal Oxidation (RTO) - RTO technology has been used in other industrial applications with a control efficiency of 98% or higher. However, in some installations with dilute gas streams, it has been difficult to maintain high control efficiencies. Because dryer emissions are very dilute, an efficiency of 85% is estimated for this control as it is applied to the dryer.

   Further, a cost analysis obtained from the OAQPS Control Cost Manual, Fifth edition, January 1996, estimates RTO system control for the source in question at approximately $5300/ton of VOC emission reduction.

   Effective thermal oxidation generally requires residence time of 0.75 seconds at a temperature of 1600ºF. Because dryer vent temperatures are approximately 200ºF or less, a large amount of additional heat would be required to operate the RTO system. Re-heating the gas stream would require the use of additional fuel, which, in itself, would increase the pollutant burden to the atmosphere through the combustion of additional fuels.

2. No Additional Control - Review of the BACT Clearinghouse shows that no VOC

control determinations have been made for similar sources such as the Triple Pass Dryer. A major concern in the application of any type of afterburner system, such as that required for the operation of an effective RTO system, is the additional combustion of fuels. Based on excessive cost of RTO control, the increased use of energy resources associated with the RTO system afterburner operation, and the additional emission burden created through the combustion of additional fuel, it has been determined that no additional control will constitute BACT for VOC emissions from the Triple Pass Dryer.

D. Particulate Emissions

1. Fabric Filter Baghouse - Efficiencies for the fabric filter baghouse control are estimated to be as high as 99%. However, when utilized at the exit of a cyclone the inlet loading is low and, as a result, the removal efficiency is reduced. Overall baghouse efficiency is estimated at approximately 80% for total particulate and somewhat lower for PM_{10}.

   Further, a cost analysis taken from EPA's Air Pollution Technology Fact Sheets for various baghouse control strategies, estimates control costs at approximately $2230/ton.

2. Although particulate emissions from the Burner Cyclone could feasibly be reduced with a baghouse, the cost analysis shows that cost per ton of particulate removal exceeds the industry norm for control of wood product emissions. Therefore, based on excessive cost and energy usage, it has been determined that no additional control will constitute BACT for the Burner Cyclone.

In summary, the Department determined that no additional control (Good Combustion Practices) will constitute BACT for the McConnell Burner, Triple Pass Dryer, and Burner Cyclone, for CO, NO_x, VOC, and particulate emissions. The control options that have been selected contain control equipment and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory

TOTAL EMISSIONS

	Ton/Year (TPY)					
Source	PM	PM-10	NO_x	VOC	CO	SO2
01 Raw Material Handling	13.5	4.90				
02 Screen (Ball Mill)	13.5	4.90				
03 Rotary Dryer (Propane)	0.40	0.40	13.93	0.50	1.89	0.09
04 Rotary Dryer (raw material)	8.76	3.50				

05	Compost Dryer Cyclone	8.76	3.50				
06	Pellet Cooler Cyclone	8.76	3.50				
07	Dryer Exhaust Cyclone	8.76	3.50				
08	McConnell Burner			22.78		77.44	2.73
09	Triple Pass Dryer	14.8	14.8		4.82		
10	Burner Cyclone	8.76	3.5				
TOTAL EMISSIONS		86.0	31.20	36.71	5.32	79.33	2.82

FACILITY INFORMATION

maximum production capacity	60,000 ton/year
maximum hours of operation	8760 hour/year
maximum production	6.85 ton/hour
raw material moisture content	35-55% H2O
maximum wood waste processed	100000.00 ton/year
maximum wood waste feed rate	11.42 ton/hour
dryer exhaust	20,000-24,000 CFM

CALCULATIONS

Source #01 - Raw Material Handling/Storage (includes trailer dump) - Control Efficiency=55%

The Feed Moisture Content offers some particulate emission reduction.
Because the moisture content is assumed to be between 35% and 55%, take an average of 45% and assume 55% control efficiency. (100-55) / 100 = 0.45

PM Emission Factor: 1.0 lb/ton {Fire v. 5.0 SCC 30700803}

0.45 * 60,000.00 ton/year * 1 lb/ton * 0.0005 ton/lb = 13.5 ton/year

PM10 Emission Factor: 0.36 lb/ton {Fire v. 5.0 SCC 30700803}

0.45 * 60,000.00 ton/year * 0.36 lb/ton * 0.0005 ton/lb = 4.9 ton/year

Source #02 - Screen (Ball Mill*)* - Control Efficiency=55% raw material moisture

PM Emission Factor: 1.0 lb/ton {Fire v. 5.0 SCC 30700803}

0.45 * 60,000.00 ton/year * 1 lb/ton * 0.0005 ton/lb = 13.5 ton/year

PM10 Emission Factor: 0.36 lb/ton {Fire v. 5.0 SCC 30700803}

0.45 * 60,000.00 ton/year* 0.36 lb/ton * 0.0005 ton/lb = 4.9 ton/year

Source #03 - Rotary Dryer (Propane Fuel*)* - Control Efficiency=0.0%

Gallons of Propane = 954 lb/hr * 1 gal/4.2 lb * 8760 hr/year = 1,989,771.4 gal/year
(1 gal = 4.2 lbs @ 60 F)

PM (Propane) Emission Factor: 0.4 lb/1000 gal {Fire v. 6.1 SCC 39001089}

1 ton/2000 lb * 1,989,771.4 gal/year * 0.4 lb/1000gal= 0.40 ton/year

PM10 (Propane) Emission Factor: 0.4 lb/1000 gal {Fire v. 6.1 SCC 39001089}

1 ton/2000 lb * 1,989,771.4 gal/year * 0.4 lb/1000 gal = 0.40 ton/year

SO_x (Propane) Emission Factor: 0.095 lb/1000 gal {Fire v. 5.0 SCC 10500110, pg EF-8}

1 ton/2000 lbs * 1,989,771.4 gal/year * 0.095 lb/1000 gal = 0.09 ton/year

NO_x (Propane) Emission Factor: 14.0 lb/1000 gal {Fire v. 6.1 SCC 39001089}

1 ton/2000 lb * 1,989,771.4 gal/year * 14 lb/1000 gal = 13.93 ton/year

VOC (Propane)	Emission Factor: 0.5 lb/1000 gal	{Fire v. 6.1 SCC 39001089}
	1 ton / 2000 lb * 1,989,771.4 gal/year * 0.5lb/1000 gal = 0.50 ton/year	
CO (Propane)	Emission Factor: 1.9 lb/1000 gal	{Fire v. 6.1 SCC 39001089}
	1 ton/2000 lb * 1,989,771.4 gal/year * 1.9 lb/1000 gal = 1.89 ton/year	

Source #04 - Rotary Dryer (Raw Material)

Assume the separation device (target box) has a control efficiency similar to that of a cyclone.

PM	Emission Factor: 2.0 lb/hr	{Fire v. 5.0 SCC 30700803}
	8760 hour/year * 2 lb/hr * 1 ton/2000 lb = 8.76 ton/year	
PM10	Emission Factor: 0.8 lb/hr	{Fire v. 5.0 SCC 30700803}
	8760 hour/year * 0.8 lb/hr * 1 ton / 2000 lb = 3.50 ton/year	

Source #05 - Compost Dryer Cyclone

PM/TSP	Emission Factor: 2 lb/hour of operation	{Fire v. 6.1 SCC 30700808}
	8760 hours/year * 2 lb/hr * 1 ton/2000 lb = 8.76 ton/year	
PM10	Emission Factor: 0.8 lb/hour of operation	{Fire v. 6.1 SCC 30700808}
	8760 hour/year * 0.8 lb/hr * 1 ton/2000 lb = 3.50 ton/year	

Source #06 - Pellet Cooler Cyclone

PM/TSP	Emission Factor: 2 lb/hour of operation	{Fire v. 6.1 SCC 30700808}
	8760 hour/year * 2 lb/hr * 1 ton/2000 lb = 8.76 ton/year	
PM10	Emission Factor: 0.8 lb/hour of operation	{Fire v. 6.1 SCC 30700808}
	8760 hour/year * 0.8 lb/hr * 1 ton/2000 lb = 3.50 ton/year	

Source #07 - Dryer Exhaust Cyclone (Negative Draw)

PM/TSP	Emission Factor: 2 lb/hour of operation	{Fire v. 6.1 SCC 30700808}
	8760 hour/year * 2 lb/hr * 1 ton/2000 lb = 8.76 ton/year	
PM10	Emission Factor: 0.8 lb/hour of operation	{Fire v. 6.1 SCC 30700808}
	8760 hour/year * 0.8 lb/hr * 1 ton/2000 lb = 3.50 ton/year	

Source #08 - McConnell Burner - Control Efficiency=0.0%

SO_x	Emission Factor: .62lb/hr	{AP-42}
	1 ton/2000 lbs * .62 lb/hr * 8760 hr/yr = 2.73 ton/year	
NO_x	Emission Factor: 5.2 lb/hr	{AP-42}
	1 ton/2000 lb * 5.2 lb/hr* 8760 hr/yr = 22.78 ton/year	
CO	Emission Factor: 17.68 lb/hr	{AP-42}

1 ton/2000 lb * 17.68 lb/hr * 8760 hr/yr = 77.44 ton/year

Source #09 - Triple Pass Dryer

Assume the separation device (target box) has a control efficiency similar to that of a cyclone.

PM	Emission Factor: 3.4 lb/hr	{Fire v. 5.0 SCC 30700803}
	8760 hr/yr * 3.47 lb/hr * 1 ton / 2000 lb = 14.8 ton/year	
PM10	Emission Factor: 3.4 lb/hr	{Fire v. 5.0 SCC 30700803}
	8760 hr/yr * 3.47 lb/hr * 1 ton / 2000 lb = 14.8 ton/year	
VOC	Emission Factor: 1.1 lb/hr	{Fire v. 5.0 SCC 30700803}
	8760 hr/yr * 1.1 lb/hr * 1 ton/2000 lb = 4.82 ton/yr	

Source #10 - Burner Cyclone

PM	Emission Factor: 2 lb/hour of operation	{Fire v. 6.1 SCC 30700808}
	8760 hours/year * 2 lb/hr * 1 ton/2000 lb = 8.76 ton/year	
PM10	Emission Factor: 0.8 lb/hour of operation	{Fire v. 6.1 SCC 30700808}
	8760 hour/year * 0.8 lb/hr * 1 ton/2000 lb = 3.50 ton/year	

V. Ambient Air Impacts

The potential emissions from EPM are relatively small. The Department determined, based on the size of the facility and its estimated emissions, that the emissions from EPM are insignificant. The Department does not believe that the facility will cause or contribute to any violations of the National Ambient Air Quality Standards (NAAQS).

VI. 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.

VII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy of the EA is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air and Waste Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued For: Eureka Pellet Mills
P.O. Box 128
Superior, Montana 59872

Air Quality Permit Number: 3039-02

Preliminary Determination Issued: December 10, 2001
Department Decision Issued: December 27,2001
Permit Final: January 15, 2002

1. *Legal Description of Site*: The Eureka Pellet Mill facility is located in the SW¼ of Section 13, Township 16 North, Range 26 West, Mineral County, Montana.

2. *Description of Project*: Eureka Pellet Mills has requested an alteration to Permit #3039-01 to install and operate a McConnell Wood Fired Burner, a Triple Pass Dryer, and a Burner Cyclone. The proposed wood fired burner would provide heat to the existing dryer and to the additional proposed dryer. The material from these dryers would be routed to a common dry bin that feeds dried material into the pellet operation.

3. *Objectives of Project*: Eureka Pellet Mills would be updating the facility with an additional proposed dryer and associated equipment to promote continued business and revenue for the company.

4. *Description of Alternatives*: The only other alternative considered was for the Department to take no action. The "no-action" alternative is not appropriate because Eureka Pellet Mills has demonstrated compliance with all applicable rules and standards as required for permit issuance

5. *A Listing of Mitigation, Stipulations and Other Controls*: A list of enforceable conditions and a best available control technology analysis would be contained in Permit #3039-02.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action alternative" was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Terrestrial and Aquatic Life and Habitats			4			yes
B.	Water Quality, Quantity, and Distribution				4		yes
C.	Geology and Soil Quality, Stability, and Moisture				4		yes
D.	Vegetation Cover, Quantity, and Quality			4			yes
E.	Aesthetics				4		yes
F.	Air Quality			4			yes
G.	Unique Endangered, Fragile, or Limited Environmental Resource			4			yes
H.	Demands on Environmental Resource of Water, Air, and Energy			4			yes
I.	Historical and Archaeological Sites				4		yes
J.	Cumulative and Secondary Impacts			4			yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

The impacts from this project to terrestrial and aquatic life and habitats would be minor because the addition of equipment will take place at an existing facility and the increase in air emissions would be minimal. Terrestrials (such as black bears, bald eagles, elk and osprey) would continue to use the general area around the facility. Aquatic life and habitats would not be affected because the deposition of air emissions would be minimal to the surface water.

B. Water Quality, Quantity, and Distribution

No surface water or ground water quality problems would result from the current permit action. Any accidental spills or leaks from equipment would be handled according to the appropriate environmental regulations in an effort to minimize any potential impact on the immediate and surrounding area. Although air emissions would increase slightly, there would be minimal deposition of air emissions on the surface water.

C. Geology and Soil Quality, Stability, and Moisture

The actions addressed in this permit would not change the soil stability or geologic substructure. The proposed changes would not result in impacts to productivity or fertility at or near the site. No unique geologic or physical features would be disturbed. Therefore, no impact to geology or soil quality, stability, and moisture would occur. Although air emissions would increase slightly, there would be minimal deposition of air emissions on the surface water.

D. Vegetation Cover, Quantity, and Quality

The present land use at the site is a light industrial site and storage area for timber and bark, which is barren of vegetation. The increase in emissions of regulated pollutants may result in minor impacts to the diversity, productivity, or abundance of plant species in the surrounding forested mountains because the increase would be minimal.

E. Aesthetics

The proposed permit action would include the installation of new equipment at the facility. However, the additional equipment would not alter any scenic vista or create any effect on aesthetics because the mill is an existing facility.

F. Air Quality

Allowable emissions of pollutants would increase as a result of the current permit action. However, the emissions would have a minor affect on the air quality because the allowable emissions would remain below the National Ambient Air Quality Standards and Montana Ambient Air Quality Standards.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The Department contacted the Montana Natural Heritage Program (MNHP) in an effort to identify any species of special concern associated with the location of the facility. Search results did not indicate any species of special concern located directly on the proposed site.

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

The changes to the facility would not impact water. Additional energy would be used at the facility because of the installation of new equipment; therefore, minor impacts to energy would occur. The Montana Power Company would upgrade service lines to the plant to compensate for the increased need for energy. Minor demands on air resources would occur because the facility's emissions would be increasing slightly.

I. Historical and Archaeological Sites

The proposed project would take place within the existing EPM property, a previously disturbed industrial site. According to the Montana State Historic Preservation Office, there is low likelihood of adverse disturbance to any known archaeological or historic site, given previous industrial disturbance within a given area. Therefore, it is unlikely the current permit action would have an effect on any historic or archaeological site.

J. Cumulative and Secondary Impacts

Overall, this project would result in minor physical and biological impacts to the human environment in the immediate area. Because the proposed area of construction/operation would occur at an existing facility, the proposed project could result in cumulative physical and biological impacts; however, as previously described in this environmental assessment, any cumulative impacts would be minor. In addition, the proposed project would not result in any known secondary impacts.

Air pollution from the facility would be controlled by Department-approved BACT and conditions in Permit #3039-02. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as outlined in Permit #3039-02.

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

		Major	Moderate	Minor	None	Unknown	Comments Included
A.	Social Structures and Mores				4		yes
B.	Cultural Uniqueness and Diversity				4		yes
C.	Local and State Tax Base and Tax Revenue				4		yes
D.	Agricultural or Industrial Production			4			yes
E.	Human Health			4			yes
F.	Access to and Quality of Recreational and Wilderness Activities				4		yes
G.	Quantity and Distribution of Employment			4			yes
H.	Distribution of Population			4			yes
I.	Demands for Government Services			4			yes
J.	Industrial and Commercial Activity				4		yes
K.	Locally Adopted Environmental Plans and Goals				4		yes
L.	Cumulative and Secondary Impacts			4			yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The proposed project would not cause a disruption to any native or traditional lifestyles or communities (social structures or mores) in the area because the site is an existing facility and the immediate surrounding area would remain the same.

B. Cultural Uniqueness and Diversity

The proposed project would not cause a change in the cultural uniqueness and diversity of the area because the site is an existing facility and used predominantly for light industrial purposes. Further, the addition of the proposed equipment at the facility would not change the existing industrial character of the area.

C. Local and State Tax Base and Tax Revenue

The proposed changes would have a minor effect on the local and state tax base and tax revenue because EPM would hire and additional 7 to 10 employees which would add to the overall income base of the area.

D. Agricultural or Industrial Production

The proposed changes would not displace or otherwise affect any agricultural land or practices. In addition, the proposed operations would not impact local industrial production.

E. Human Health

There would be minor effects on human health due to the increase in emissions of pollutants. However, Permit #3039-02 would incorporate conditions to ensure that the facility would be operated in compliance with all applicable rules and standards. These rules and standards are designed to be protective of human health.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed operations would not affect any access to or quality of any recreational or wilderness activities in the area because the site is an existing facility which currently operates for industrial purposes.

G. Quantity and Distribution of Employment

Activities from the proposed operations would have a minor affect on the quantity and distribution of employment in the area. The proposed project would increase the number of permanent employees at the plant by 6 employees.

H. Distribution of Population

The proposed operations could increase the normal population distribution in the area because the number of permanent employees could increase by 7 to 10 as a result of the proposed project. However, many of those employed might come from the existing population in the area.

I. Demands of Government Services

The acquisition of the appropriate permits by the facility (including local building permits and a state air quality permit), any permits for the associated activities of the project, and compliance verification with those permits would also require minor services from the government.

J. Industrial and Commercial Activity

No additional industrial or commercial activity is expected as a result of the proposed changes because the site is an existing facility, which is an industrial operation.

K. Locally Adopted Environmental Plans and Goals

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

L. Cumulative and Secondary Impacts

Overall, this project would result in minor cumulative and secondary impacts to the human environment in the immediate area. Because the proposed area of construction/operation would take place at an existing industrial operation, the proposed project could result in cumulative social and economic impacts; however, as previously described in this environmental assessment, any cumulative impacts would be minor. In addition, the proposed project would not result in any known secondary impacts.

Air pollution from the facility would be controlled by Department-approved BACT and conditions in Permit #3039-02. The Department believes that this facility could be expected to

operate in compliance with all applicable rules and regulations as outlined in Permit #3039-02.

Recommendation: An EIS is not required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The EA was the appropriate level of analysis because the source would be applying the Best Available Control Technology, the analyses indicate compliance with all applicable air quality rules and regulations, and none of the impacts are major or unknown.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society, Montana Natural Heritage Program.

Individuals or groups contributing to this EA: Department of Environmental Quality - Air and Waste Management Bureau; Montana Historical Society; and the Montana Natural Heritage Program.

EA prepared by: Julie Merkel
Date: November 15, 2001