Montana Department of
ENVIRONMENTAL QUALITY
Brian Schweitzer, Governor
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February 6, 2012

Mr. Leo Zwemke
Knife River
P.O. Box 80066
Billings, MT 59108

Dear Mr. Zwemke:

Montana Air Quality Permit #2570-04 is deemed final as of February 4, 2012, by the Department of Environmental Quality (Department). This permit is for a portable crushing/screening operation. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Vickie Walsh
Air Permitting Program Supervisor
Air Resources Management Bureau
(406) 444-9741

Deanne Fischer, P.E.
Environmental Engineer
Air Resources Management Bureau
(406) 444-3403

VW:DF
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #2570-04

Knife River Corporation
P.O. Box 80066
Billings, MT 59108

February 4, 2012

MONTANA AIR QUALITY PERMIT

Issued To: Knife River Corporation
P.O. Box 80066
Billings, MT 59108

Permit #2570-04
Administrative Amendment (AA)
Request Received: 01/05/2012
Department's Decision on AA: 01/19/2012
Permit Final: 02/04/2012
AFS #777-2570

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Knife River Corporation (Knife River), 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. Plant Location

Knife River operates a portable crushing/screening operation that will originally locate in the SW ¼ of Section 7, Township 1 North, Range 27 East, in Yellowstone County, Montana. However, MAQP #2570-04 applies while operating at any location in Montana, except within those areas having a Department of Environmental Quality (Department) approved permitting program, those areas considered tribal lands, or those areas in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) nonattainment areas. *A Missoula County air quality permit will be required for locations within Missoula County, Montana*. Knife River will be required to obtain an addendum to this air quality permit to operate at locations in or within 10 km of certain PM_{10} nonattainment areas. A complete list of the permitted equipment is contained in Section I.A of the Permit Analysis.

B. Current Permit Action

On December 23, 2011, the Department received a request to add 2 cone crushers (maximum capacity up to 350 tons per hour (TPH) and 505 TPH) and 2 Triple-Deck Screens (maximum capacity up to 400 TPH each) to the Knife River portable crushing/screening operation. Additional information to support the request was received by the Department on January 5, 2012. Because potential emissions resulting from the addition of the 2 cone crushers and 2 Triple-Deck Screens are less than 5 tons per year (TPY), the current permit action is considered an administrative amendment in accordance with ARM 17.8.764. In addition to accounting for the new emitting sources, the permit action updates the permit to reflect current permit language and rule references used by the Department.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. All visible emissions from any Standards of Performance for New Stationary Source (NSPS) – affected crusher shall not exhibit an opacity in excess of the following averaged over 6 consecutive minutes:

- For crushers that commence construction, modification, or reconstruction on or after April 22, 2008: 12% opacity (ARM 17.8.340 and 40 CFR 60, Subpart OOO)

- For crushers that commence construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008: 15% opacity (ARM 17.8.340, 17.8.752, and 40 CFR 60, Subpart OOO)

2. All visible emissions from any other NSPS-affected equipment (such as screens and conveyors) shall not exhibit an opacity in excess of the following averaged over six consecutive minutes:

   - For equipment that commence construction, modification, or reconstruction on or after April 22, 2008: 7% opacity (ARM 17.8.340 and 40 CFR 60, Subpart OOO)

   - For equipment that commence construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008: 10% opacity (ARM 17.8.340, 17.8.752, and 40 CFR 60, Subpart OOO)

3. All visible emissions from any non-NSPS affected equipment shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304 and ARM 17.8.752).

4. Water and water spray bars shall be available on site at all times and operated, as necessary, to maintain compliance with the opacity limitations in Sections II.A.1, II.A.2, and II.A.3 (ARM 17.8.752).

5. Knife River shall not cause or authorize to be discharged into the atmosphere from any street, road, or parking lot any visible fugitive emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.308 and ARM 17.8.752).

6. Knife River 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.5 (ARM 17.8.749).

7. Knife River shall not operate more than 3 crushers at any given time and the combined maximum rated design capacity of the crushers shall not exceed 1,205 TPH (ARM 17.8.749).

8. Knife River shall not operate more than 3 screening units at any given time and the combined maximum rated design capacity of the screens shall not exceed 1,800 TPH (ARM 17.8.749).

9. Knife River shall not operate more than one diesel engine/generator at any given time and the maximum rated design capacity of the engine/generator shall not exceed 314 horsepower (hp) (ARM 17.8.749).

10. If the permitted equipment is used in conjunction with any other equipment owned or operated by Knife River, at the same site, production shall be limited to correspond with an emission level that does not exceed 250 tons during any rolling 12-month period. Any calculations used to establish production levels shall be approved by the Department (ARM 17.8.749).

11. Knife River shall comply with all applicable standards and limitations, monitoring, reporting, recordkeeping, testing, and notification requirements contained in 40 CFR 60, Subpart OOO, *Standards of Performance for Nonmetallic Mineral Processing Plants* (ARM 17.8.340 and 40 CFR 60, Subpart OOO).

12. Knife River shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* and 40 CFR 63, Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, for any applicable diesel engine (ARM 17.8.340, 40 CFR 60, Subpart IIII, ARM 17.8.342, and 40 CFR 63, Subpart ZZZZ).

B. Testing Requirements

1. Within 60 days after achieving maximum production, but no later than 180 days after initial start-up, an Environmental Protection Agency (EPA) Method 9 opacity test and/or other methods and procedures, as specified in 40 CFR 60.675, must be performed on all NSPS-affected equipment to demonstrate compliance with the emissions limitations contained in Sections II.A.1 and II.A.2 (ARM 17.8.340 and 40 CFR 60, Subpart A and Subpart OOO). Additional testing may be required by 40 CFR 60, Subpart OOO (ARM 17.8.340 and 40 CFR 60, Subpart OOO).

2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

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

C. Operational Reporting Requirements

1. If this crushing/screening plant is moved to another location, an Intent to Transfer form must be sent to the Department and a Public Notice Form for Change of Location must be published in a newspaper of general circulation in the area to which the transfer is to be made, at least 15 days prior to the move. The proof of publication (affidavit) of the Public Notice Form for Change of Location must be submitted to the Department prior to the move. These forms are available from the Department (ARM 17.8.749 and ARM 17.8.765).

2. Knife River 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 not be limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

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

3. Knife River shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include ***the addition of a new emission unit,*** change in control equipment, stack height, stack diameter,

stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to 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. Knife River shall maintain on-site records showing daily hours of operation and daily production rates for the last 12 months. The records compiled in accordance with this permit shall be maintained by Knife River as a permanent business record for at least 5 years following the date of the measurement, must be submitted to the Department upon request, and must be available at the plant site for inspection by the Department (ARM 17.8.749).

D. Notification

1. Within 30 days of commencement of construction of any NSPS-affected equipment, Knife River shall notify the Department of the date of commencement of construction of the affected equipment (ARM 17.8.340 and 40 CFR 60, Subpart A, Subpart OOO, and Subpart IIII).

2. Within 15 days of the actual start-up date of any NSPS-affected equipment, Knife River shall submit written notification to the Department of the initial start-up date of the affected equipment (ARM 17.8.340 and 40 CFR 60, Subpart A, Subpart OOO, and Subpart IIII).

3. Within 15 days of the actual start-up date of any non-NSPS-affected equipment, Knife River shall submit written notification to the Department of the initial start-up date of the affected equipment (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection - Knife River 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 all the terms, conditions, and matters stated herein shall be deemed accepted if Knife River fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving Knife River of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided for 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. Air Quality Operation Fees - Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Knife River may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

I. The Department may modify the conditions of this permit based on local conditions of any future site. These factors may include, but are not limited to, local terrain, meteorological conditions, proximity to residences, etc.

J. Knife River shall comply with the conditions contained in this permit while operating at any location in Montana, except within those areas that have a Department-approved permitting program or areas considered tribal lands.

Montana Air Quality Permit (MAQP) Analysis
Knife River Corporation
MAQP #2570-04

I. Introduction/Process Description

Knife River Corporation (Knife River) owns and operates a portable non-metallic mineral processing plant.

A. Permitted Equipment

The portable crushing/screening facility consists of:

- Two portable cone crushers (up to 350 tons per hour (TPH) each),
- One portable cone crusher (up to 505 TPH),
- A pug mill (up to 1,000 TPH),
- Two screens (up to 400 TPH each),
- One screen (up to 1,000 TPH),
- 22 conveyors (28 transfer points),
- One 205 kilowatt (kW) diesel engine/generator (maximum of 314 horsepower (hp)),
- Two feed traps, and,
- Associated equipment.

B. Source Description

Knife River's home pit is located at SW ¼ of Section 7, Township 1 North, Range 27 East, in Yellowstone County, Montana. Knife River is allowed to move the portable crushing/screening facility to various locations throughout Montana, except those areas in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) nonattainment areas, those areas having a Department of Environmental Quality (Department)-approved permitting program, and those areas considered tribal lands. An addendum to Montana Air Quality Permit (MAQP) #2570-04 will be required to operate in or within 10 km of certain PM_{10} nonattainment areas. *A Missoula County air quality permit will be required for locations within Missoula County*.

Knife River proposes to use this crushing/screening plant and associated equipment to crush sand and gravel materials for use in various construction operations. For a typical operational setup, materials are loaded into the crushing/screening plant by a feeder, transferred by conveyor, and passed through the crusher. Materials are crushed by the crusher and sent to the screens. Materials are screened, separated, and sent to stockpile for sale and use in construction operations.

C. Permit History

On April 27, 1989, **MAQP #2570-00** was issued to Figgins Sand and Gravel to operate a portable 1964 Cedar Rapids jaw crusher (maximum production rate 500 TPH), a 1964 El-jay cone crusher (maximum production rate 500 TPH), a 1985 Barmac Impact crusher (maximum production rate 500 TPH), and associated equipment. This permit became final on April 12, 1995.

On August 9, 1996, Figgins submitted a complete permit application to operate a portable 1964 Cedar Rapids jaw crusher (maximum production rate 500 TPH), a 1979 El-jay cone crusher (maximum production rate 500 TPH), a 1985 Barmac impact crusher (maximum production rate 500 TPH), a 1985 Allis Chalmers screen (maximum production rate 500 TPH), 10 conveyors, and associated equipment. This permit became final on September 21, 1996, and replaced the 1964 El-jay cone crusher with a 1979 El-jay cone crusher. The facility was permitted to initially operate at Section 7, Township 1 South, Range 5 East, in Gallatin County, Montana. **MAQP #2570-01** replaced MAQP #2570-00.

On June 2, 2005, Empire submitted a complete permit application to remove the portable 1964 Cedar Rapids jaw crusher (maximum production rate 500 TPH), 1979 El-jay cone crusher (maximum production rate 500 TPH), 1985 Barmac Impact crusher (maximum production rate 500 TPH), 1985 Allis Chalmers screen and to generalize the permit by adding 12 conveyors, one 150 TPH crusher, one 350 TPH crusher, two 350 TPH screens, two 400 TPH screens, a 820 kW diesel generator, a 205 kW diesel generator, and associated equipment. Further, Empire purchased Figgins Sand and Gravel, Inc. on May 15, 2002. On July 8, 2005, the Department of Environmental Quality (Department) received the proper transfer of ownership request from Empire. **MAQP #2570-02** replaced MAQP #2570-01.

On January 24, 2008, the Department received a request to change the permittee name from JTL Group, Inc. to Knife River. The permit action was an administrative amendment pursuant to ARM 17.8.764 that changed the permittee name as requested. In addition, the 820 kilowatt (kW) diesel-fired generator was removed from this permit at the request of Knife River, production limitations for the four screens were corrected to a total of 1500 tons per hour (TPH), the emissions inventory was updated to reflect the above changes as well as updated emission factors, permit restrictions imposed due to the superseded emission calculations were removed, and potentially applicable regulatory references for the diesel engine were added. **MAQP #2570-03** replaced MAQP #2570-02.

D. Current Permit Action

On December 23, 2011, the Department received a request to add 2 cone crushers (maximum capacity up to 350 tons per hour (TPH) and 505 TPH) and 2 Triple-Deck Screens (maximum capacity up to 400 TPH each) to the Knife River portable crushing/screening operation. Additional information to support the request was received by the Department on January 5, 2012. Because potential emissions resulting from the addition of the 2 cone crushers and 2 Triple-Deck Screens are less than 5 tons per year (TPY), the current permit action is considered an administrative amendment in accordance with ARM 17.8.764. In addition to adding the aforementioned crushers and screens, the current permit action corrects the description of an existing screen as having a maximum capacity of 1,000 TPH rather than the 400 TPH rate listed in previous versions of the permit. The permit action also clarifies that a 150 TPH cone crusher, a 400 TPH triple deck screen, and two 350 TPH screens have been omitted from the permit and are no longer on site. Knife River also clarified that the truck loading and bulk loading emitting sources listed in the previous permit are actually feed traps and the emissions from these sources are included as two of the 28 conveyor transfer points in the emissions inventory. The size of the diesel engine on the 205 kilowatt (kW) generator was corrected from 319 brake horsepower (bhp) to 314 bhp. In addition to accounting for the changes in emitting sources, the permit action updates the permit to reflect current permit language and rule references used by the Department.

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 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 where appropriate.

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

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

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   Knife River shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

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

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

Knife River must maintain compliance with the applicable ambient air quality standards.

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

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Knife River 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 rule requires that no person shall cause or authorize 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 rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank truck or trailer is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). Knife River is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.

a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:

b. 40 CFR 60, Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants. In order for a crushing/screening plant to be subject to the requirements of this subpart, the facility must meet the definition of an affected facility and, the affected equipment must have been constructed, reconstructed, or modified after August 31, 1983. Based on the information submitted by Knife River, the crushing/ screening equipment is currently an NSPS-affected facility because of the equipment operational sizes and equipment dates of manufacture that are allowed to operate under the current permit conditions.

c. 40 CFR 60, Subpart IIII - Stationary Compression Ignition Internal Combustion Engines, Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE), indicates that NSPS requirements apply to owners or operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE is manufactured after April 1, 2006, and is not a fire pump engine. This NSPS will apply if the engine remains or will remain at the permitted location for more than 12 months, or a shorter period of time for an engine located at a seasonal source. A seasonal source remains at a single location on a permanent basis (at least 2 years) and operates 3 months or more each year.

The 314-hp diesel generator engine is a CI ICE manufactured before April 1, 2006. Therefore, NSPS requirements do not apply to this particular engine. However, since this permit is written in a de minimis-friendly manner, NSPS requirements may apply to future engines.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This rule incorporates, by reference, 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Categories. This facility is not a NESHAP-affected source because it does not meet the definition of any NESHAPs Subpart defined in 40 CFR Part 63.

a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to an NESHAPs Subpart as listed below:

b. 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. As an area source, any diesel RICE engine operated by Knife River that is new or reconstructed after June 12, 2006, will be subject to this MACT standard if the engine remains or will remain at the permitted location for more than 12 months, or a shorter period of time for an engine located at a seasonal source. A seasonal source remains at a single location on a permanent basis (at least 2 years) and operates 3 months or more each year.

The 314-hp diesel generator engine is a CI ICE manufactured before June 12, 2006. Therefore, MACT requirements do not apply to this particular engine. However, since this permit is written in a de minimis-friendly manner, MACT requirements may apply to future engines.

D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. A permit fee is not required for the current permit action because the permit action is considered an administrative permit change.

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.

   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 modification to construct, modify, or use any asphalt plant, crusher, or screen that has the potential to emit (PTE) greater than 15 tons per year of any pollutant. Knife River has a PTE greater than 15 tons per year of total PM, and oxides of nitrogen (NO_x); therefore, an air quality 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, modification, or use of a source. A permit application was not required for the current permit action because the permit change is considered an administrative permit change. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. An affidavit of publication of public notice was not required for the current permit action because the permit change is considered an administrative permit change.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Knife River of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. (1) This rule states that an MAQP may be transferred from one location to another if the Department receives a complete notice of intent to transfer location, the facility will operate in the new location for less than 1 year, the facility will comply with the FCAA and the Clean Air Act of Montana, and the facility complies with other applicable rules. (2) 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.

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

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

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

   This facility is not a major stationary source because it is not a listed source and does not have a PTE greater than 250 tons per year (excluding fugitive emissions) of any air pollutant.

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

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

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

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

   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 MAQP #2570-04 for the Knife River facility, 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 current NSPS standards (40 CFR 60, Subpart A - General Provisions, Subpart OOO - Non-Metallic Mineral Processing

Plants, and potentially Subpart IIII - Stationary Compression Ignition Internal Combustion Engines).

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

f. This source is not a Title IV affected source.

g. This source is not a solid waste combustion unit.

h. This source is not an EPA designated Title V source.

Based on these facts, the Department has determined that Knife River will be a minor source of emissions as defined under Title V and is not subject to the Title V Operating Permit Program. However, if minor sources subject to NSPS are required to obtain a Title V Operating Permit, Knife River will be required to obtain a Title V Operating Permit.

III. BACT Analysis

A BACT determination is required for each new or modified source. Knife River shall install on the new or modified source the maximum air pollution control capability which is technologically practicable and economically feasible, except that BACT shall be utilized. A BACT determination was not required for the current permit action because the permit change is considered an administrative permit change.

IV. Emission Inventory

		tons/year					
Emission Source	**PM**	**PM_{10}**	**$PM_{2.5}$**	**NOx**	**CO**	**VOC**	**SO2**
Handling/Conveyors (28 transfer points)	17.17	5.64	1.59	--	--	--	--
Pile forming	7.22	3.41	0.52	--	--	--	--
Screen (1000 TPH)	9.64	3.24	0.22	--	--	--	--
Screen (400 TPH)	3.85	1.30	0.09	--	--	--	--
Screen (400 TPH)	3.85	1.30	0.09	--	--	--	--
350 TPH Cone Crusher	1.84	0.83	0.15	--	--	--	--
350 TPH Cone Crusher	1.84	0.83	0.15	--	--	--	--
505 TPH Cone Crusher	2.65	1.19	0.22		--		
Haul Roads / Vehicle Traffic	4.36	1.20	0.12	--	--	--	--
314 hp Diesel Engine Generator	3.03	3.03	3.03	42.63	9.19	3.46	2.82
Total Emissions	**55.46**	**21.97**	**6.18**	**42.63**	**9.19**	**3.46**	**2.82**

****** CO = carbon monoxide
HAPs = hazardous air pollutants
hp = horsepower
lb = pound
ND = no data available
NO_X = oxides of nitrogen
PM = particulate matter
PM_{10} = particulate matter with an aerodynamic diameter of 10 microns or less
$PM_{2.5}$ = particulate matter with an aerodynamic diameter of 2.5 microns or less
SO_X = oxides of sulfur
TPH = tons per hour
TPY = tons per year
VOC = volatile organic compounds
yr = year
N/A = not applicable

Conveyor Transfer Point (SCC 3-05-020-06) (exist)

Maximum Process Rate = 1,000 ton/hr (Maximum plant process rate)	1,000	ton/hr
Maximum Hours of Operation = 8,760 hrs/yr	8,760.00	hrs/yr
Number of Transfers = 28 transfer (Company Information)	28	transfer

Total PM Emissions:

Emission Factor = 0.00014 lb/ton (0.0030 uncontrolled, 0.00014 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00014	lb/ton
Control Efficiency = 0%	0	%
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00014 lb/ton) * (ton/2000 lb) * (28 transfer) =	**17.17**	ton/yr
Calculation: (1,000 ton/hr)* (8760 hrs/yr)* (0.00014 lb/ton)* (ton/2000 lb)* (28 transfer) * (1 - 0/100) =	**17.17**	ton/yr

Total PM_{10} Emissions:

Emission Factor = 0.000046 lb/ton (0.00110 uncontrolled, 0.000046 controlled, AP 42, Table 11.19.2-2, 8/04)	0.000046	lb/ton
Control Efficiency = 0%	0	%
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.000046 lb/ton) * (ton/2000 lb) * (28 transfer) =	**5.64**	ton/yr
Calculation: (1,000 ton/hr)* (8760 hrs/yr)* (0.000046 lb/ton)* (ton/2000 lb) * (28 transfer) * (1 - 0/100) =	**5.64**	ton/yr

Total $PM_{2.5}$ Emissions:

Emission Factor = 0.000013 lb/ton 0.000046 controlled, AP 42, Table 11.19.2-2, 8/04)	**0.000013**	lb/ton
Control Efficiency = 0%	**0**	%
Calculation: (1,000 ton/hr)* (8760 hrs/yr)* (0.000013 lb/ton)* (ton/2000 lb) * (28 transfer) =	**1.59**	ton/yr
Calculation: (1,000 ton/hr)* (8760 hrs/yr)* (0.000013 lb/ton)* (ton/2000 lb) * (28 transfer) * (1 - 0/100) =	**1.59**	ton/yr

Storage Piles

Maximum Process Rate = 1,000 ton/hr (Maximum plant process rate)	1,000	ton/hr
Maximum Hours of Operation = 8,760 hrs/yr	8,760	hrs/yr
Number of Piles = 1 piles by # of piles, or exclude #piles from calcs	1	piles

PM Emissions:

Predictive equation for emission factor provided per AP 42, Sec. 13.2.4.3, 11/06.		
Emission Factor = k (0.0032) * (U/5)^1.3 * (M / 2)^-1.4 = 0.00330 lb/ton	0.00330	lb/ton
Where: k = particle size multiplier = 0.74 (Value for PM < 30 microns per AP 42, Sec. 13.2.4.3, 11/06)	0.74	
U = mean wind speed = 8.2 mph (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)	8.2	mph
M = material moisture content = 2.5% (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)	2.5	%
Control Efficiency = 50% (Water or chemical spray)	50	%
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00330 lb/ton) * (ton/2000 lb) * (1 piles) =	**14.44**	ton/yr
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00330 lb/ton) * (ton/2000 lb) * (1 piles) * (1 - 50/100) =	**7.22**	ton/yr

Total PM_{10} Emissions:

Predictive equation for emission factor provided per AP 42, Sec. 13.2.4.3, 11/06.		
Emission Factor = k (0.0032) * (U/5)^1.3 * (M / 2)^-1.4 = 0.00156 lb/ton	0.00156	lb/ton
Where: k = particle size multiplier = 0.35 (Value for PM < 10 microns per AP 42, Sec. 13.2.4.3, 11/06)	0.35	
U = mean wind speed = 8.2 mph (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)	8.2	mph
M = material moisture content = 2.5% (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)	2.5	%
Control Efficiency = 50% (Water or chemical spray)	50	%
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00156 lb/ton) * (ton/2000 lb) * (1 piles) =	**6.83**	ton/yr
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00156 lb/ton) * (ton/2000 lb) * (1 piles) * (1 - 50/100) =	**3.41**	ton/yr

Total $PM_{2.5}$ Emissions:

Predictive equation for emission factor provided per AP 42, Sec. 13.2.4.3, 11/06.		
Emission Factor = k (0.0032) * (U/5)^1.3 * (M / 2)^-1.4 = 0.00024 lb/ton	0.00024	lb/ton
Where: k = particle size multiplier = 0.053 (Value for PM < 2.5 microns per AP 42, Sec. 13.2.4.3, 11/06)	0.053	
U = mean wind speed = 8.2 mph (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)	8.2	mph
M = material moisture content = 2.5% (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)	2.5	%
Control Efficiency = 50% (Water or chemical spray)	50	%
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00024 lb/ton) * (ton/2000 lb) * (1 piles) =	1.03	ton/yr
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00024 lb/ton) * (ton/2000 lb) * (1 piles) * (1 - 50/100) =	0.52	ton/yr

Screening (SCC 3-05-020-02, 03) (existing)

Maximum Process Rate = 1,000 ton/hr	1,000	ton/hr
Maximum Hours of Operation = 8,760 hrs/yr	8,760.00	hrs/yr
Number of Screens = 1 screen(s) (Company Information)	1	screen(s)
Total PM Emissions:		
Emission Factor = 0.0022 lb/ton (0.025 uncontrolled, 0.0022 controlled, AP 42, Table 11.19.2-2, 8/04)	0.0022	lb/ton
Control Efficiency = 0%	0	%
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.0022 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**9.64**	ton/yr
Calculation: (1,000 ton/hr) * (8760 hrs/yr)* (0.0022 lb/ton)* (ton/2000 lb)* (1 screen(s)) * (1 - 0/100) =	**9.64**	ton/yr
Total PM_{10} Emissions:		
Emission Factor = 0.00074 lb/ton (0.0087 uncontrolled, 0.00074 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00074	lb/ton
Control Efficiency = 0%	0	%
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00074 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**3.24**	ton/yr
Calculation: (1,000 ton/hr)* (8760 hrs/yr)*(0.00074 lb/ton)*(ton/2000 lb)* (1 screen(s))*(1 - 0/100) =	**3.24**	ton/yr
Total $PM_{2.5}$ Emissions:		
Emission Factor = 0.00005 lb/ton (0.000050 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00005	lb/ton
Control Efficiency = 0%	0	%
Calculation: (1,000 ton/hr) * (8760 hrs/yr) * (0.00005 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**0.22**	ton/yr
Calculation: (1,000 ton/hr)* (8760 hrs/yr)* (0.00005 lb/ton)* (ton/2000 lb)* (1 screen(s))* (1 - 0/100) =	**0.22**	ton/yr

Screening (SCC 3-05-020-02, 03) (New)

Maximum Process Rate = 400 ton/hr	400	ton/hr
Maximum Hours of Operation = 8,760 hrs/yr	8,760.00	hrs/yr
Number of Screens = 1 screen(s) (Company Information)	1	screen(s)
Total PM Emissions:		
Emission Factor = 0.0022 lb/ton (0.025 uncontrolled, 0.0022 controlled, AP 42, Table 11.19.2-2, 8/04)	0.0022	lb/ton
Control Efficiency = 0%	0	%
Calculation: (400 ton/hr) * (8760 hrs/yr) * (0.0022 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**3.85**	ton/yr
Calculation: (1,000 ton/hr) * (8760 hrs/yr)* (0.0022 lb/ton)* (ton/2000 lb)* (1 screen(s)) * (1 - 0/100) =	**3.85**	ton/yr
Total PM_{10} Emissions:		
Emission Factor = 0.00074 lb/ton (0.0087 uncontrolled, 0.00074 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00074	lb/ton
Control Efficiency = 0%	0	%
Calculation: (400 ton/hr) * (8760 hrs/yr) * (0.00074 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**1.30**	ton/yr
Calculation: (400 ton/hr)* (8760 hrs/yr) * (0.00074 lb/ton) * (ton/2000 lb) * (1 screen(s)) * (1 - 0/100) =	**1.30**	ton/yr
Total $PM_{2.5}$ Emissions:		
Emission Factor = 0.00005 lb/ton (0.000050 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00005	lb/ton
Control Efficiency = 0%	0	%
Calculation: (400 ton/hr) * (8760 hrs/yr) * (0.00005 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**0.09**	ton/yr
Calculation: (400 ton/hr)* (8760 hrs/yr)* (0.00005 lb/ton)* (ton/2000 lb)* (1 screen(s)) * (1 - 0/100) =	**0.09**	ton/yr

Screening (SCC 3-05-020-02, 03) (New)

Maximum Process Rate = 400 ton/hr	400	ton/hr
Maximum Hours of Operation = 8,760 hrs/yr	8,760.00	hrs/yr
Number of Screens = 1 screen(s) (Company Information)	1	screen(s)

Total PM Emissions:

Emission Factor = 0.0022 lb/ton (0.025 uncontrolled, 0.0022 controlled, AP 42, Table 11.19.2-2, 8/04)	0.0022	lb/ton
Control Efficiency = 0%	0	%
Calculation: (400 ton/hr) * (8760 hrs/yr) * (0.0022 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**3.85**	ton/yr
Calculation: (1,000 ton/hr)* (8760 hrs/yr)* (0.0022 lb/ton)* (ton/2000 lb) * (1 screen(s)) * (1 - 0/100) =	**3.85**	ton/yr

Total PM_{10} Emissions:

Emission Factor = 0.00074 lb/ton (0.0087 uncontrolled, 0.00074 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00074	lb/ton
Control Efficiency = 0%	0	%
Calculation: (400 ton/hr) * (8760 hrs/yr) * (0.00074 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**1.30**	ton/yr
Calculation: (400 ton/hr)* (8760 hrs/yr)* (0.00074 lb/ton)* (ton/2000 lb) * (1 screen(s)) * (1 - 0/100) =	**1.30**	ton/yr

Total $PM_{2.5}$ Emissions:

Emission Factor = 0.00005 lb/ton (0.000050 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00005	lb/ton
Control Efficiency = 0%	0	%
Calculation: (400 ton/hr) * (8760 hrs/yr) * (0.00005 lb/ton) * (ton/2000 lb) * (1 screen(s)) =	**0.09**	ton/yr
Calculation: (400 ton/hr) * (8760 hrs/yr) * (0.00005 lb/ton)* (ton/2000 lb)* (1 screen(s)) * (1 - 0/100) =	**0.09**	ton/yr

Crushing [Cone Crusher] (SCC 3-05-020-03)

Maximum Process Rate = 350 ton/hr (Maximum plant process rate)	350	ton/hr
Maximum Hours of Operation = 8,760 hrs/yr	8,760.00	hrs/yr

PM Emissions:

Based on AP-42

Emission Factor = 0.0012 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.0012	lb/ton
Control Efficiency = 0%	0	%
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.0012 lb/ton) * (ton/2000 lb) =	**1.84**	ton/yr
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.0012 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**1.84**	ton/yr

PM_{10} Emissions:

Based on AP-42

Emission Factor = 0.00054 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.00054	lb/ton
Control Efficiency = 0%	0	%
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.00054 lb/ton) * (ton/2000 lb) =	**0.83**	ton/yr
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.00054 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**0.83**	ton/yr

Total $PM_{2.5}$ Emissions:

Based on AP-42

Emission Factor = 0.0001 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.0001	lb/ton
Control Efficiency = 0%	0	%
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.0001 lb/ton) * (ton/2000 lb) =	**0.15**	ton/yr
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.0001 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**0.15**	ton/yr

Crushing [Cone Crusher] (SCC 3-05-020-03)

Maximum Process Rate = 350 ton/hr (Maximum plant process rate)	350	ton/hr
Maximum Hours of Operation = 8,760 hrs/yr	8,760.00	hrs/yr

PM Emissions:

Based on AP-42

Emission Factor = 0.0012 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.0012	lb/ton
Control Efficiency = 0%	0	%
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.0012 lb/ton) * (ton/2000 lb) =	**1.84**	ton/yr
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.0012 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**1.84**	ton/yr

PM_{10} Emissions:

Based on AP-42

Emission Factor = 0.00054 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.00054	lb/ton
Control Efficiency = 0%	0	%
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.00054 lb/ton) * (ton/2000 lb) =	**0.83**	ton/yr
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.00054 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**0.83**	ton/yr

Total $PM_{2.5}$ Emissions:

Based on AP-42

Emission Factor = 0.0001 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.0001	lb/ton
Control Efficiency = 0%	0	%
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.0001 lb/ton) * (ton/2000 lb) =	**0.15**	ton/yr
Calculation: (350 ton/hr) * (8760 hrs/yr) * (0.0001 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**0.15**	ton/yr

Crushing [Cone Crusher] (SCC 3-05-020-03)

Maximum Process Rate = 505 ton/hr (Maximum plant process rate)	505	ton/hr
Maximum Hours of Operation = 8,760 hrs/yr	8,760.00	hrs/yr

PM Emissions:

Based on AP-42

Emission Factor = 0.0012 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.0012	lb/ton
Control Efficiency = 0%	0	%
Calculation: (505 ton/hr) * (8760 hrs/yr) * (0.0012 lb/ton) * (ton/2000 lb) =	**2.65**	ton/yr
Calculation: (505 ton/hr) * (8760 hrs/yr) * (0.0012 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**2.65**	ton/yr

PM_{10} Emissions:

Based on AP-42

Emission Factor = 0.00054 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.00054	lb/ton
Control Efficiency = 0%	0	%
Calculation: (505 ton/hr) * (8760 hrs/yr) * (0.00054 lb/ton) * (ton/2000 lb) =	**1.19**	ton/yr
Calculation: (505 ton/hr) * (8760 hrs/yr) * (0.00054 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**1.19**	ton/yr

Total $PM_{2.5}$ Emissions:

Based on AP-42

Emission Factor = 0.0001 lb/ton (tertiary crushing, controlled, AP 42, Table 11.19.2-2, 8/04)	0.0001	lb/ton
Control Efficiency = 0%	0	%
Calculation: (505 ton/hr) * (8760 hrs/yr) * (0.0001 lb/ton) * (ton/2000 lb) =	**0.22**	ton/yr
Calculation: (505 ton/hr) * (8760 hrs/yr) * (0.0001 lb/ton) * (ton/2000 lb) * (1 - 0/100) =	**0.22**	ton/yr

Diesel Engine Generator

Note: Emissions are based on the power output of the engine (314 hp).		
Operational Capacity of Engine = 314 hp	314.00	hp
Hours of Operation = 8,760.00 hours	8,760	hours
PM Emissions:		
PM Emissions = 3.03 ton/yr (Assume PM = PM10= PM2.5)	**3.03**	ton/yr
PM Emissions = 6,051.41 lbs/yr (Assume PM = PM10)	**6,051.41**	lbs/yr
Total PM_{10} Emissions:		
Emission Factor = 0.0022 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.20E-03	lbs/hp-hr
Calculation: (8,760 hours) * (314 hp) * (0.0022 lbs/hp-hr) * (ton/2000 lb) = 3.03 ton/yr	**3.03**	ton/yr
Calculation: (8,760 hours) * (314 hp) * (0.0022 lbs/hp-hr) = 6,051.41 lbs/yr	**6,051.41**	lbs/yr
Total $PM_{2.5}$ Emissions:		
Emission Factor = 0.0022 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.20E-03	lbs/hp-hr
Calculation: (8,760 hours) * (314 hp) * (0.0022 lbs/hp-hr) * (ton/2000 lb) = 3.03 ton/yr	**3.03**	ton/yr
Calculation: (8,760 hours) * (314 hp) * (0.0022 lbs/hp-hr) = 6,051.41 lbs/yr	**6,051.41**	lbs/yr
NOx Emissions:		
Emission Factor = 0.031 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	3.10E-02	lbs/hp-hr
Calculation: (8,760 hours) * (314 hp) * (0.031 lbs/hp-hr) * (ton/2000 lb) = 42.63 ton/yr	**42.63**	ton/yr
Calculation: (8,760 hours) * (314 hp) * (0.031 lbs/hp-hr) = 85,269.84 lbs/yr	**85,269.84**	lbs/yr
CO Emissions:		
Emission Factor = 0.00668 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	6.68E-03	lbs/hp-hr
Calculation: (8,760 hours) * (314 hp) * (0.00668 lbs/hp-hr) * (ton/2000 lb) = 9.19 ton/yr	**9.19**	ton/yr
Calculation: (8,760 hours) * (314 hp) * (0.00668 lbs/hp-hr) = 18,374.28 lbs/yr	**18,374.28**	lbs/yr
VOC Emissions:		
Emission Factor = 0.0025141 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, TOC, Exhaust + Crankcase, 10/96)	2.51E-03	lbs/hp-hr
Calculation: (8,760 hours) * (314 hp) * (0.0025141 lbs/hp-hr) * (ton/2000 lb) = 3.46 ton/yr	**3.46**	ton/yr
Calculation: (8,760 hours) * (314 hp) * (0.0025141 lbs/hp-hr) = 6,915.38 lbs/yr	**6,915.38**	lbs/yr
SOx Emissions:		
Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.05E-03	lbs/hp-hr
Calculation: (8,760 hours) * (314 hp) * (0.00205 lbs/hp-hr) * (ton/2000 lb) = 2.819 ton/yr	**2.82**	ton/yr
Calculation: (8,760 hours) * (314 hp) * (0.00205 lbs/hp-hr) = 5,638.81 lbs/yr	**5,638.81**	lbs/yr

Haul Roads

Vehicle Miles Traveled (VMT) per Day = 5 VMT/day (Estimate)	5	VMT/day
VMT per hour = (5 VMT/day) * (day/24 hrs) = 0.21 VMT/hr	0.21	VMT/hr
Hours of Operation = 8,760 hrs/yr	8,760	hrs/yr
PM Emissions:		
Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.		
Emission Factor = k * (s / 12)^a * (W / 3)^b = 9.56 lb/VMT	9.56	lb/VMT
Where: k = constant = 4.9 lbs/VMT (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06)	4.9	lbs/VMT
s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06)	7.1	%

W = mean vehicle weight = 30 tons (U.S. Dept. of Transportation Comprehensive Truck Size and Weight Study, page II-3 and Table III-4, max. 30 tons)	30	tons
a = constant = 0.7 (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06)	0.7	
b = constant = 0.45 (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant, 4/8/93 guidance)	50	%
Calculation: (8760 hrs/yr) * (0.21 VMT/hr) * (9.56 lb/VMT) * (ton/2000 lb) =	**8.73**	tons/yr
Calculation: (8760 hrs/yr) * (0.21 VMT/hr) * (9.56 lb/VMT) * (ton/2000 lb) * (1-50/100) =	**4.36**	tons/yr

Total PM_{10} Emissions:

Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.

Emission Factor = k * (s / 12)^a * (W / 3)^b = 2.64 lb/VMT	2.64	lb/VMT
Where: k = constant = 1.5 lbs/VMT (Value for PM10, AP 42, Table 13.2.2-2, 11/06)	1.5	lbs/VMT
s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06)	7.1	%
W = mean vehicle weight = 30 tons (U.S. Dept. of Transportation Comprehensive Truck Size and Weight Study, page II-3 and Table III-4, max. 30 tons)	30	tons
a = constant = 0.9 (Value for PM10, AP 42, Table 13.2.2-2, 11/06)	0.9	
b = constant = 0.45 (Value for PM10, AP 42, Table 13.2.2-2, 11/06)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant, 4/8/93 guidance)	50	%
Calculation: (8760 hrs/yr) * (0.21 VMT/hr) * (2.64 lb/VMT) * (ton/2000 lb) =	**2.41**	tons/yr
Calculation: (8760 hrs/yr) * (0.21 VMT/hr) * (2.64 lb/VMT) * (ton/2000 lb) * (1-50/100) =	**1.20**	tons/yr

Total $PM_{2.5}$ Emissions:

Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.

Emission Factor = k * (s / 12)^a * (W / 3)^b = 0.26 lb/VMT	0.26	lb/VMT
Where: k = constant = 0.15 lbs/VMT (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)	0.15	lbs/VMT
s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06)	7.1	%
W = mean vehicle weight = 30 tons (U.S. Dept. of Transportation Comprehensive Truck Size and Weight Study, page II-3 and Table III-4, max. 30 tons)	30	tons
a = constant = 0.9 (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)	0.9	
b = constant = 0.45 (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant, 4/8/93 guidance)	50	%
Calculation: (8760 hrs/yr) * (0.21 VMT/hr) * (0.26 lb/VMT) * (ton/2000 lb) =	**0.24**	tons/yr
Calculation: (8760 hrs/yr) * (0.21 VMT/hr) * (0.26 lb/VMT) * (ton/2000 lb) * (1-50/100) =	**0.12**	tons/yr

V. Existing Air Quality

MAQP #2570-04 is issued for the operation of a portable crushing/screening facility to originally locate in the SW¼ of Section 7, Township 1 North, Range 27 East, in Yellowstone County, Montana. This facility would be allowed to operate at any area designated as attainment or unclassified for all National Ambient Air Quality Standards (NAAQS); excluding those counties that have a Department-approved permitting program, those areas considered tribal lands, or those areas in or within 10 km of certain PM_{10} nonattainment areas. *A Missoula County air quality permit would be required for locations within Missoula County, Montana*. Knife River will be required to obtain an addendum to this air quality permit to operate at locations in or within 10 km of certain PM_{10} nonattainment areas.

VI. Air Quality Impacts

This permit is for a portable crushing/screening plant to be located at various locations around Montana. This permit contains conditions and limitations that would protect air quality for this site and the surrounding area. Furthermore, this facility is a portable source that would operate on an intermittent and temporary basis, so any effects to air quality will be minor and short-lived.

VII. Ambient Air Impact Analysis

Based on the information provided and the conditions established in MAQP #2570-04, the Department determined that the impact from this permitting action will be minor.

VIII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

IX. Environmental Assessment

This permitting action will not result in an increase of emissions from the facility and is considered an administrative action; therefore, an environmental assessment is not required.

Analysis prepared by: Deanne Fischer
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