DEQ
Montana Department of Environmental Quality

Air, Energy & Mining Division

May 22, 2018

Joe Smith
Knife River Corporation – Mountain West
4800 Wilkie Road
Missoula, MT 59808

Dear Mr. Smith:

Montana Air Quality Permit #5036-02 is deemed final as of May 22, 2018, by the Department of Environmental Quality (Department). This permit is for a Portable Asphalt Facility. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

Julie A. Merkel
Permitting Services Section Supervisor
Air Quality Bureau
(406) 444-3626

John P. Proulx
Air Quality Specialist
Air Quality Bureau
(406) 444-5391

JM:JPP
Enclosure

Montana Department of Environmental Quality
Air, Energy & Mining Division

Montana Air Quality Permit #5036-02

Knife River Corporation – Mountain West
4800 Wilkie Road
Missoula, MT 59808

May 22, 2018

MONTANA AIR QUALITY PERMIT

Issued to: Knife River Corporation
Mountain West
4800 Wilkie Road
Missoula, MT 59808

MAQP: #5036-02
Administrative Amendment (AA)
Received: 4/5/2018
Department Decision on AA: 5/4/2018
Permit Final: 5/22/2018
AFS: #777-5036

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Knife River Corporation – Mountain West (Knife River) pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and the 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 counter-flow drum mix asphalt plant and associated equipment with a 450 ton per hour (TPH) maximum production capacity. A complete list of permitted equipment is contained in Section I.A of the permit analysis. The asphalt plant will initially be located within Section 22, Township 29 North, Range 21 West in Flathead County, Montana. However, MAQP #5036-02 applies while operating at any location in Montana, except those areas having a Department of Environmental Quality (Department) approved permitting program, areas considered tribal lands, or 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.*

Addendum #3 will apply to the Knife River facility while operating at locations in or within 10 km of certain PM_{10} nonattainment areas.

B. Current Permit Action

On April 4, 2018, the Department received an Administrative Amendment request from Knife River requesting that MAQP #5036 be transferred from JTL Group Inc. dba Knife River Idaho Division to Knife River Corporation – Mountain West.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. Knife River shall install, operate, and maintain a baghouse for control of particulate matter from the asphalt drum mix drier exhaust stack. A device to measure the pressure drop (magnehelic gauge, manometer, etc.) on the control device (baghouse) must be installed and maintained. Pressure drop must be measured in inches of water. Temperature indicators at the control device inlet and outlet must be installed and maintained (ARM 17.8.752).

2. Asphalt plant particulate matter emissions shall be limited to 0.04 grains per dry standard cubic feet (gr/dscf) (ARM 17.8.752; ARM 17.8.340 and 40 Code of Federal Regulations (CFR) 60, Subpart I).

3. Knife River shall not cause or authorize to be discharged into the atmosphere from the asphalt plant stack emissions that exhibit 20% opacity or greater averaged over 6 consecutive minutes (ARM 17.8.304; ARM 17.8.340 and 40 CFR 60, Subpart I).

4. Knife River shall not cause or authorize to be discharged into the atmosphere from systems for screening, handling, storing, and weighing hot aggregate; systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems, any visible emissions that exhibit opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.308).

5. 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 (ARM 17.8.308).

6. Knife River shall treat all unpaved portions of the haul roads, access roads, and the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.4 (ARM 17.8.749).

7. Knife River shall be limited to a maximum of 945,000 tons of asphalt production during any rolling 12-month period (ARM 17.8.1204).

8. Operation of the hot-mix asphalt plant, including associated non-road diesel engine(s), shall not exceed 2,100 hours during any rolling 12-month time period (ARM 17.8.1204).

9. The asphalt hot-mix drum dryer is authorized to fire recycled waste oil, No. 2 fuel oil, propane, or natural gas as fuel (ARM 17.8.749).

10. Knife River shall only use diesel, propane, or natural gas as fuel to fire the asphalt oil heater (ARM 17.8.749).

11. The asphalt production rate shall be limited to the average production rate during the last source test demonstrating compliance (ARM 17.8.749).

12. Knife River may have on site and operate one or more diesel-fired non-road engines, including generator sets, where the combined maximum rated design capacity of these engine(s) shall not exceed 1,581 brake-horsepower (bhp) (ARM 17.8.1204).

13. Knife River shall comply with all applicable standards and limitations, and the reporting, recordkeeping, testing, and notification requirements contained in 40 CFR 60, Subpart I, *Standards of Performance for Hot Mix Asphalt Facilities* (ARM 17.8.340 and 40 CFR 60, Subpart I).

14. Knife River shall comply with all applicable standards and limitations, and the reporting, recordkeeping, testing, 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).

15. 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 of emissions during any rolling 12-month time period. Any calculations used to establish production levels shall be approved by the Department (ARM 17.8.749).

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) Methods 1-5 source test shall be performed on the asphalt drum mix drier exhaust stack to demonstrate compliance with Section II.A.2. An EPA Method 9 opacity test shall be performed in conjunction with all particulate tests to demonstrate compliance with the conditions specified in Section II.A.3. Testing shall continue on an every 4-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105, ARM 17.8.340, ARM 17.8.749, and 40 CFR 60 Subpart I).

2. Since asphalt production will be limited to the average production rate during the compliance source test, it is suggested that the test be performed at the highest practical production rate (ARM 17.8.749).

3. Temperature and pressure drop across the drier baghouse, and pressure drop across the lime silo baghouse, must be recorded daily and kept on site according to Section II.C.2 (ARM 17.8.749).

4. Temperature and pressure drop across the drier baghouse must be recorded during the compliance source test and reported as part of the test results (ARM 17.8.749).

5. Knife River may retest at any time in order to test at a higher production rate (ARM 17.8.749).

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

C. Reporting Requirements

1. If this 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. The facility shall not operate in the new location for more than one year (ARM 17.8.749 and ARM 17.8.765).

2. Knife River shall maintain on-site records showing daily hours of operation, daily production rates, and daily pressure drop and temperature readings from the baghouses 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, shall be submitted to the Department upon request, and shall be available at the plant for inspection by the Department (ARM 17.8.749).

3. 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).

4. 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 emissions unit,*** change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

5. Knife River shall document, by month, total asphalt production from the asphalt plant. By the 25th day of each month, Knife River shall total the asphalt production for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.7. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

6. Knife River shall document, by month, the hours of operation of the asphalt plant and the generator set(s). By the 25th day of each month, Knife River shall total the hours of operation for each equipment for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitations in Sections II.A.8 and II.A.12. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

7. Knife River shall annually certify that its emissions are less than those that would require the facility to obtain an air quality operating permit as required by ARM 17.8.1204(3)(b). The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emissions inventory information (ARM 17.8.749 and ARM 17.8.1204).

D. Notification

1. Within 30 days of commencement of construction of any New Source Performance Standard (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 and Subpart I).

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 and Subpart I).

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 (Continuous Emissions Monitoring System (CEMS), Continuous Emissions Rate Monitoring System (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 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 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 Permit 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 in 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 – Mountain West
MAQP #5036-02

I. Introduction/Process Description

Knife River Corporation – Mountain West (Knife River) proposes to install and operate a portable counter-flow rotary drum hot-mix asphalt plant with a maximum rated design capacity of 450 tons per hour (TPH) of asphalt production.

A. Permitted Equipment

The following list of permitted equipment is provided for reference, as MAQP #5036-02 is written de minimis friendly whereby operational flexibility is provided so that alternate equipment may be utilized as long as maximum permitted capacities are not exceeded. See Section II of the MAQP for specific equipment limitations and/or conditions. Equipment permitted under this action includes, but is not limited to the following:

- 2007 Gencor 400 Ultra counter-flow rotary drum dryer-mix asphalt plant with baghouse control
- Hauck StarJet dryer burner - 135 million British Thermal Units per hour (mmbtu/hr) dryer (Waste/used oil, No. 2 or No. 6 fuel oil, propane, natural gas)
- 2007 Gencor HYCGO asphalt oil storage tank and heater – 1.0 mmbtu/hr dual fuel (Propane or diesel)
- Cedarapids 80SE-500 Asphalt storage silo
- 1999 Eagle Iron Works pugmill
- Shop built lime silo
- 2007 Caterpillar C32 1,350 brake-horse power (bhp) diesel-fired generator set (primary generator)
- 1997 INVECO 231 bhp secondary diesel-fired generator set (night generator)
- Material handling equipment; conveyors, aggregate bins, RAP bin, etc.
- Associated Equipment

B. Source Description

The asphalt plant will initially be located within Section 22, Township 29 North, Range 21 West in Flathead County, Montana. However, MAQP #5036-02 applies while operating at any location in Montana, except those areas having a Department of Environmental Quality (Department) approved permitting program, areas considered tribal lands, or 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.*

Addendum #3 will apply to the Knife River facility while operating at locations in or within 10 km of certain PM_{10} nonattainment areas.

For a typical operational set-up, aggregate material and recycled asphalt pavement (RAP) are taken from the on-site aggregate stockpiles and dumped via a front-end loader into the process feed bins. Aggregate is transferred from the cold feed bins via conveyor to a screen and weigh bridge conveyor which feeds the drum mixer. The plant is also set-up to utilize reclaimed asphalt pavement (RAP) material, which is feed directly into the drum via a designated RAP bin. Liquid asphalt cement is introduced into the aggregate within the drum mixer. The material is dried and heated within the drum mixer which is fired with various fuels (waste oil, No. 6 or No. 2 fuel oil), propane or natural gas. Exhaust from the dryer vents to the atmosphere through the primary baghouse. Liquid asphalt cement is delivered through hoses from the portable hot oil heater tank. Once all the raw materials have been introduced into the drum mixer they are continuously mixed and heated by the drum mixer burner.

After heating and mixing is completed, the asphalt product is transferred from the drum mixer to the asphalt product silo via a conveyor. The asphalt remains in the asphalt silo until it is loaded into trucks for transport to a given job location. A primary diesel-fired generator set powers the production equipment, while a secondary diesel-fired gen-set is utilized for supplemental power during non-production.

C. Permit History

On January 4, 2014, Knife River submitted a complete permit application to operate a portable drum mix asphalt plant. Equipment included a drum mix asphalt plant with a maximum production capacity of 450 TPH, two diesel-fired engine/generators with a combined maximum capacity of up to 1,581hp, and associated equipment. In addition, Knife River also requested an addendum to operate in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) nonattainment areas. The application was assigned **MAQP #5036-00** and **Addendum #1** was established.

On June 29, 2015, the Department contacted Knife River with regards to lowering their permitted emissions to below 80 TPY. The Department proposed that Knife River voluntarily reduce their operating limitations from 2,650 hours during any rolling 12 month period to 2,100 hours per any rolling 12 month period. On July 7, 2015, Knife River accepted the proposed limit reduction to 2,100 hours and requested MAQP#5036-00 be amended to reflect the new operating permit limit. The permit action reflects the change and updated the permit language to reflect current permit language and references. **MAQP #5036-01** replaced MAQP #5036-00 and **Addendum #2** replaced Addendum #1.

D. Current Permit Action

On April 4, 2018, the Department received an Administrative Amendment request from Knife River requesting that MAQP #5036 be transferred from JTL Group Inc. dba Knife River Idaho Division to Knife River Corporation – Mountain West. **MAQP #5036-02** replaces MAQP #5036-01 and **Addendum #3** replaces Addendum #2.

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 location of complete copies of all applicable rules and regulations or copies where appropriate.

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

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

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

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

   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 (SO_2)
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide (NO_2)
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide (CO)
5. ARM 17.8.211 Ambient Air Quality Standards for Ozone (O_3)
6. ARM 17.8.220 Ambient Air Quality Standards for Settled Particulate Matter (PM)
7. ARM 17.8.221 Ambient Air Quality Standard for Visibility
8. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

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 are 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 Process. 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. This rule incorporates, by reference, 40 Code of Federal Regulations (CFR) Part 60, Standards of Performance for New Stationary Sources (NSPS). Based on the information submitted by Knife River the portable drum mix-asphalt plant and associated equipment are subject to NSPS (40 CFR 60), as follows:

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

   b. 40 CFR 60, Subpart I – Standards of Performance of Hot Mix Asphalt Facilities. This subpart applies to any hot mix asphalt facility. Therefore, this facility is subject to this subpart.

   c. 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE). Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines, and owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005, are subject to this subpart. As the permit is written de minimis-friendly, Knife River may substitute compression ignition internal combustion engine(s), therefore applicability to this subpart shall be dependent upon the date of construction and/or manufacture of the diesel engine utilized and the length of time it operates at a single location.

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. Based on the information submitted by Knife River the diesel-fired engines associated with MAQP #5036-02 is applicable to NESHAP (40 CFR 63), as follows:

   a. 40 CFR 63, Subpart A – General Provisions. This subpart applies to all equipment or facilities subject to a NESHAP subpart as listed below:

   b. 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants (NESHAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. As Knife River is considered an area source of HAP emissions and operates RICE equipment, the engine(s) are potentially subject to this subpart. Subpart ZZZZ applies to stationary RICE equipment; therefore, applicability will depend upon the nature of operations.

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; the air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

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

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

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an MAQP 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 (tpy) of any pollutant. Knife River has a PTE greater than 15 tpy of oxides of nitrogen (NO_X), PM, PM_{10}, CO, SO_2, and volatile organic compounds (VOC); therefore, an MAQP is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the MAQP program.

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

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application. (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 MAQPs 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 MAQP 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 MAQP 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 MAQP 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 MAQP 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 Modification--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 the facility's PTE is less than 250 tons per year of any pollutant (excluding fugitive emissions).

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

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

   a. PTE > 100 tpy of any pollutant;

b. PTE > 10 tpy of a single hazardous air pollutant (HAP), PTE > 25 tpy of combined HAPs, or lesser quantity as the Department may establish by rule; or

c. PTE > 70 tpy 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 #5036-02 for Knife River, the following conclusions were made:

a. Knife River has requested that federally-enforceable permit operating limits be established to maintain the facility's PTE to less than 100 tpy.

b. The facility's PTE is less than 10 tpy for any single HAP and less than 25 tpy of combined HAPs.

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

d. This facility is subject to a current NSPS (40 CFR 60, Subpart I and Subpart IIII (potentially)).

e. This facility is potentially subject to a current NESHAP (40 CFR 63, Subpart ZZZZ).

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.

Knife River requested federally-enforceable permit limitations to remain a minor source of emissions with respect to Title V. Based on these limitations, the Department determined that this facility is not subject to the Title V Operating Permit Program. However, in the event that the EPA makes minor sources that are subject to NSPS obtain a Title V Operating Permit; this source will be subject to the Title V Operating Permit Program.

i. ARM 17.8.1204(3). The Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's PTE.

i. In applying for an exemption under this section the owner or operator of the facility shall certify to the Department that the source's PTE does not require the source to obtain an air quality operating permit.

ii. Any source that obtains a federally enforceable limit on PTE shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. The compliance certification submittal by ARM 17.8.1204(3) shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this subchapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

III. BACT Determination

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 technically 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

Controlled Emissions	**Tons Per Year**								
Emission Source	**PM**	**PM$_{10}$**	**PM$_{2.5}$**	**NO$_x$**	**CO**	**VOC**	**SO$_x$**	**CO_2e**	**Total HAPs**
Cold Aggregate Storage Piles	1.56	0.74	0.11	--	--	--	--		
Cold Aggregate Handling/Conveyors	2.84	1.04	0.01	--	--	--	--		
Cold Aggregate Screens	2.08	0.70	0.05	--	--	--	--		
450 TPH Drum Mix Asphalt Plant Dryer	22.19	11.01	10.54	25.99	61.43	15.12	27.41	15712	4.73
Asphalt Product Silo Filling	0.28	0.28	0.28	--	0.56	5.76	--	0.11	
Plant Load-Out	0.00	0.00	0.25	--	0.64	1.85	--	2.68	
Haul Roads / Vehicle Traffic	1.36	0.38	0.04	--	--	--	--		
1581 hp Diesel Engine Generator	3.65	3.65	3.65	51.46	11.09	4.17	3.40	1909	
Asphalt Oil Heater	0.15	0.15	0.15	1.07	0.01	0.29	1.69	4507	
Total Emissions	**34.11**	**17.94**	**15.07**	**78.52**	**73.72**	**27.19**	**32.50**	**22130**	**4.73**

Calculations:

Cold Aggregate Storage Piles

Maximum Process Rate = 450 ton/hr (Maximum plant process rate)	450	**ton/hr**
Maximum Hours of Operation = 2,100 hrs/yr	2100	**hrs/yr**
Number of Piles = 0 piles	1	**piles**
Filterable PM Emissions:		
Predictive equation for emission factor provided per AP 42, Sec. 13.2.4.3, 11/06.		
	0.003	
Emission Factor = k (0.0032) * (U/5)^1.3 * (M / 2)^-1.4 = 0.00331 lb/ton	31	**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 = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)	10	**mph**
M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)	3	**%**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00331 lb/ton) * (ton/2000 lb) * (0 piles) = 0.00 ton/yr	1.56	**ton/yr**
Filterable PM10 Emissions:		
Predictive equation for emission factor provided per AP 42, Sec. 13.2.4.3, 11/06.		
	0.001	
Emission Factor = k (0.0032) * (U/5)^1.3 * (M / 2)^-1.4 = 0.00156 lb/ton	56	**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 = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)	10	**mph**
M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)	3	**%**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00156 lb/ton) * (ton/2000 lb) * (0 piles) = 0.00 ton/yr	0.74	**ton/yr**
Filterable PM2.5 Emissions:		
Predictive equation for emission factor provided per AP 42, Sec. 13.2.4.3, 11/06.		
	0.000	
Emission Factor = k (0.0032) * (U/5)^1.3 * (M / 2)^-1.4 = 0.00024 lb/ton	24	**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 = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)	10	**mph**
M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)	3	**%**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00024 lb/ton) * (ton/2000 lb) * (0 piles) = 0.00 ton/yr	0.11	**ton/yr**

Condensable PM2.5 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 = 0.00000 lb/ton	0.000 00	**lb/ton**
Where: k = particle size multiplier = 0 (non-combustion source; therefore, no CPM)	0	
U = mean wind speed = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)	10	**mph**
M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)	3	**%**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00000 lb/ton) * (ton/2000 lb) * (0 piles) = 0.00 ton/yr	0.00	**ton/yr**

Conveyor Transfer Point (SCC 3-05-02006)

Maximum Process Rate = 450 ton/hr (Maximum plant process rate)	450	**ton/hr**
Maximum Process Rate = 2,100 hrs/yr	2100	**hrs/yr**
Number of Transfers = 2 transfer (Company Information, Excludes RAP transfers)	2	**transfe r**
Filterable PM Emissions:		
Emission Factor = 0.003 lb/ton (0.0030 uncontrolled, 0.00014 controlled, AP 42, Table 11.19.2-2, 8/04)	0.003	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.003 lb/ton) * (ton/2000 lb) * (2 transfer) = 2.84 ton/yr	2.835	**ton/yr**
Filterable PM10 Emissions:		
Emission Factor = 0.0011 lb/ton (0.00110 uncontrolled, 0.000046 controlled, AP 42, Table 11.19.2-2, 8/04)	0.001 1	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.0011 lb/ton) * (ton/2000 lb) * (2 transfer) = 1.04 ton/yr	1.039 5	**ton/yr**
Filterable PM2.5 Emissions:		
Emission Factor = 0.000013 lb/ton (0.000013 controlled, AP 42, Table 11.19.2-2, 8/04)	0.000 013	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.000013 lb/ton) * (ton/2000 lb) * (2 transfer) = 0.01 ton/yr	0.012 285	**ton/yr**
Condensable PM2.5 Emissions:		
Emission Factor = 0 lb/ton (non-combustion source; therefore, no CPM)	0	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0 lb/ton) * (ton/2000 lb) * (2 transfer) = 0.00 ton/yr	0	**ton/yr**

Fines Screening (SCC 3-05-020-21)

Maximum Process Rate = 450 ton/hr (Maximum plant process rate)	450	**ton/hr**
Maximum Hours of Operation = 2,100 hrs/yr	2100	**hrs/yr**
Number of Screens = 2 screen(s) (Company Information, Excludes RAP screen)	2	**screen(s)**
Total PM Emissions:		

Emission Factor = 0.0022 lb/ton (0.0022 controlled, AP 42, Table 11.19.2-2, 8/04)	0.0022	**lb/ton**
Calculation: (450 ton/hr) * (2100) * (0.0022 lb/ton) * (ton/2000 lb) * (2 screen(s)) = 2.08 ton/yr	2.079	**ton/yr**
Total PM10 Emissions:		
Emission Factor = 0.00074 lb/ton (0.00074 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00074	**lb/ton**
Calculation: (450 ton/hr) * (2100) * (0.00074 lb/ton) * (ton/2000 lb) * (2 screen(s)) = 0.70 ton/yr	0.6993	**ton/yr**
Total PM2.5 Emissions:		
Emission Factor = 0.00005 lb/ton (0.000050 controlled, AP 42, Table 11.19.2-2, 8/04)	0.00005	**lb/ton**
Calculation: (450 ton/hr) * (2100) * (0.00005 lb/ton) * (ton/2000 lb) * (2 screen(s)) = 0.05 ton/yr	0.0475	**ton/yr**

Hot Oil Heater

Production Rate = 7.30 gal/hr (Company information)	7.30	**gal/hr**
Maximum Hours of Operation = 2,100 hrs/yr	2100	**hrs/yr**
PM Emissions:		
Emission Factor = 0.0193 lb/MMBtu (Manufacturer data provided in application)	0.0193	**lb/MMBtu**
Calculation: (7.3 gal/hr) * (2,100.00 hrs/yr) * (0.0193 lb/MMBtu) * (ton/2000 lb) = 0.15 ton/yr	0.147	**ton/yr**
CO Emissions:		
Emission Factor = 0.0012 lb/gal (AP-42, Section 11.1, Table 11.1-13, No. 2 Fuel Oil, 3/04)	0.0012	**lb/gal**
Calculation: (7.3 gal/hr) * (2,100.00 hrs/yr) * (0.0012 lb/gal) * (ton/2000 lb) = 0.01 ton/yr	0.0092	**ton/yr**
NOx Emissions:		
Emission Factor = 0.14 lb/MMBtu (Manufacturer data provided in application)	0.14	**lb/MMBtu**
Calculation: (7.3 gal/hr) * (2,100.00 hrs/yr) * (0.14 lb/MMBtu) * (ton/2000 lb) = 1.07 ton/yr	1.07	**ton/yr**
SOx Emissions:		
Emission Factor = 0.2205 lb/MMBtu (Manufacturer data provided in application)	0.2205	**lb/MMBtu**
Calculation: (7.3 gal/hr) * (2,100.00 hrs/yr) * (0.2205 lb/MMBtu) * (ton/2000 lb) = 1.69 ton/yr	1.69	**ton/yr**
VOC Emissions:		
Emission Factor = 0.038 lb/MMBtu (Manufacturer data provided in application)	0.038	**lb/MMBtu**
Calculation: (7.3 gal/hr) * (2,100.00 hrs/yr) * (0.038 lb/MMBtu) * (ton/2000 lb) = 0.29 ton/yr	0.29	**ton/yr**

CO2 Emissions:

Emission Factor = 28 lb/gal (AP-42, Section 11.1, Table 11.1-13, No. 2 Fuel Oil, 3/04)	28	**lb/gal**
Calculation: (7.3 gal/hr) * (2,100.00 hrs/yr) * (28 lb/gal) * (ton/2000 lb) = 214.62 ton/yr	214.62	**ton/yr**

Dryer, fabric filter (SCC 3-05-002-05, -55 to -63)

Maximum Process Rate = 450 ton/hr (Application information)	450	**ton/hr**
Maximum Hours of Operation = 2,100 hrs/yr	2100	**hrs/yr**

Filterable PM Emissions:

Based on Emission Limit

Emission Factor = 0.04 gr/dscf (permit limit)	0.04	**gr/dscf**
Calculation: (0.04 gr/dscf) * (36,190 dscfm) * (1 lb / 7000 gr) * (60 min/hr) = 12.41 lb/hr	12.41	**lb/hr**
Calculation: (12.41 lb/hr) * (2100 hrs/yr) * (0.0005 ton/lb) = 13.03 ton/yr	13.03	**ton/yr**

Filterable PM10 Emissions:

Emission Factor = 0.0039 lb/ton (fabric filter, AP 42, Table 11.1-3, 3/04)	0.0039	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.0039 lb/ton) * (ton/2000 lb) = 1.84 ton/yr	1.84	**ton/yr**

Filterable PM2.5 Emissions:

Emission Factor = 0.0029 lb/ton (fabric filter, AP 42, Table 11.1-4, 3/04)	0.0029	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.0029 lb/ton) * (ton/2000 lb) = 1.37 ton/yr	1.37	**ton/yr**

Condensable PM2.5 Emissions:

Emission Factor = 0.0194 lb/ton (fabric filter, AP 42, Table 11.1-3, 3/04)	0.0194	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.0194 lb/ton) * (ton/2000 lb) = 9.17 ton/yr	9.17	**ton/yr**

CO Emissions:

Emission Factor = 0.13 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-7, 3/04)	0.13	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.13 lb/ton) * (ton/2000 lb) = 61.43 ton/yr	61.43	**ton/yr**

NOx Emissions:

Emission Factor = 0.055 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-7, 3/04)	0.055	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.055 lb/ton) * (ton/2000 lb) = 25.99 ton/yr	25.99	**ton/yr**

SO2 Emissions:

Emission Factor = 0.058 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-7, 3/04)	0.058	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.058 lb/ton) * (ton/2000 lb) = 27.41 ton/yr	27.41	**ton/yr**
TOC Emissions:		
Emission Factor = 0.044 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-8, 3/04)	0.044	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.044 lb/ton) * (ton/2000 lb) = 20.79 ton/yr	20.79	**ton/yr**
CH4 Emissions:		
Emission Factor = 0.012 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-8, 3/04)	0.012	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) *(0.012 lb/ton) * (ton/2000 lb) = 5.67 ton/yr	5.67	**ton/yr**
	119.0	
CO2e = 5.67 * 21 = 5.67 ton/yr	7	**ton/yr**
VOC Emissions:		
Emission Factor = 0.032 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-8, 3/04)	0.032	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.032 lb/ton) * (ton/2000 lb) = 15.12 ton/yr	15.12	**ton/yr**
Total HAPs Emissions:		
Emission Factor = 0.01 lb/ton (Waste oil-fired dryer with fabric filter, AP 42, Table 11.1-10, 3/04)	0.01	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.01 lb/ton) * (ton/2000 lb) = 4.73 ton/yr	4.73	**ton/yr**
CO2 Emissions:		
Emission Factor = 33 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-7, 3/04)	33	**lb/ton**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (33 lb/ton) * (ton/2000 lb) = 15,592.50 ton/yr	15592 .50	**ton/yr**

Silo Filling (SCC 3-05-002-13)

Maximum Process Rate = 450 ton/hr (Maximum plant process rate)	450	**ton/hr**
Maximum Hours of Operation = 2,100 hrs/yr	2100	**hrs/yr**
Filterable PM2.5 Emissions:		
Assume all PM is CPM, AP 42, Table 11.1-14, footnote b, 3/04.		
Condensable PM2.5 Emissions:		
Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = 0.000332 + 0.00105(-V)e^((0.0251)(T + 460) - 20.43) = 0.00059 lb/ton (Total PM, AP-42, Table 11.1-14, footnote b, 3/04)	0.000 586	**lb/ton**
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	

T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	**F**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00059 lb/ton) * (ton/2000 lb) = 0.28 ton/yr	0.28	**ton/yr**
VOC Emissions:		
Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = 0.0504(-V)e^((0.0251)(T + 460) - 20.43) = 0.01219 lb/ton	0.0122	**lb/ton**
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	**F**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.01219 lb/ton) * (ton/2000 lb) = 5.76 ton/yr	5.76	**ton/yr**
CO Emissions:		
Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = 0.00488(-V)e^((0.0251)(T + 460) - 20.43) = 0.00118 lb/ton	0.00118	**lb/ton**
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	**F**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00118 lb/ton) * (ton/2000 lb) = 0.56 ton/yr	0.56	**ton/yr**
CH4 Emissions:		
Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = 0.0172(-V)e^((0.0251)(T + 460) - 20.43) * 0.26% = 0.00001 lb/ton	0.0000108	**lb/ton**
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	**F**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00001 lb/ton) * (ton/2000 lb) = 0.01 ton/yr	0.005	**ton/yr**
CO2e = 0.01 * 21 = 0.11 ton/yr	0.11	**ton/yr**

Plant Load-Out (SCC 3-05-002-14)

Maximum Process Rate = 450 ton/hr (Maximum plant process rate)	450	**ton/hr**
Maximum Hours of Operation = 2,100 hrs/yr	2100	**hrs/yr**
Filterable PM2.5 Emissions:		
Assume all PM is CPM, AP 42, Table 11.1-14, footnote b, 3/04.		

Condensable PM2.5 Emissions:
Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.

Emission Factor = 0.000181 + 0.00141(-V)e^((0.0251)(T + 460) - 20.43) = 0.00052 lb/ton (Total PM, AP-42, Table 11.1-14, footnote b, 3/04)	0.000521937	**lb/ton**
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	**F**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00052 lb/ton) * (ton/2000 lb) = 0.25 ton/yr	0.25	**ton/yr**

VOC Emissions:
Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.

Emission Factor = 0.0172(-V)e^((0.0251)(T + 460) - 20.43) * 94% = 0.00391 lb/ton	0.003909411	**lb/ton**
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	**F**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00391 lb/ton) * (ton/2000 lb) = 1.85 ton/yr	1.85	**ton/yr**

CH4 Emissions:
Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.

Emission Factor = 0.0172(-V)e^((0.0251)(T + 460) - 20.43) * 6.5% = 0.00027 lb/ton	0.000270332	**lb/ton**
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	**F**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00027 lb/ton) * (ton/2000 lb) = 0.00 ton/yr	0.000035	**ton/yr**
CO2e = 0.00 * 21 = 0.00 ton/yr	0.000725	**ton/yr**

CO Emissions:
Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.

Emission Factor = 0.00558(-V)e^((0.0251)(T + 460) - 20.43) = 0.00135 lb/ton	0.001349241	**lb/ton**
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	

T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	**F**
Calculation: (450 ton/hr) * (2100 hrs/yr) * (0.00135 lb/ton) * (ton/2000 lb) = 0.64 ton/yr	0.64	**ton/yr**

Lime Silo

Flow Capacity = 8 cfm (silo emissions routed to primary baghouse)	8.36	**cfm**
Maximum Hours of Operation = 2,100 hrs/yr	2100	**hrs/yr**
Filterable PM Emissions:		
Emission Factor = 0.04 gr/dscf (Permit limit per NSPS)	0.04	**gr/dscf**
Calculation: (8.36 cfm) * (2100 hrs/yr) * (0.04 gr/dscf) * (lb/7000 gr) *	0.003	
(ton/2000 lb) * (60 min/hr) = 0.00 ton/yr	0	**ton/yr**
Filterable PM10 Emissions:		
Emission Factor = 0.02 gr/dscf (Department Policy)	0.02	**gr/dscf**
Calculation: (8.36 cfm) * (2100 hrs/yr) * (0.02 gr/dscf) * (lb/7000 gr) *	0.001	
(ton/2000 lb) * (60 min/hr) = 0.00 ton/yr	5	**ton/yr**
Filterable PM2.5 Emissions:		
Emission Factor = 0.012 gr/dscf (Assume PM2.5 = 30% of PM, AP-42, Appendix B-2, Category 4)	0.012	**gr/dscf**
Calculation: (8.36 cfm) * (2100 hrs/yr) * (0.012 gr/dscf) * (lb/7000 gr) *	0.000	
(ton/2000 lb) * (60 min/hr) = 0.00 ton/yr	9	**ton/yr**
Condensable PM2.5 Emissions:		
Emission Factor = 0 gr/dscf (non-combustion source; therefore, no CPM)	0	**gr/dscf**
Calculation: (8.36 cfm) * (2100 hrs/yr) * (0 gr/dscf) * (lb/7000 gr) * (ton/2000 lb) * (60 min/hr) = 0.00 ton/yr	0	**ton/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 = 2,100 hrs/yr	2100	**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 = 12.46 lb/VMT	12.46	**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 = 54 tons (1994 average loaded/unloaded or a 40 ton truck)	54	**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)	50	**%**
Calculation: (2100 hrs/yr) * (0.21 VMT/hr) * (12.46 lb/VMT) * (ton/2000 lb) = 2.73 tons/yr (Uncontrolled Emissions)	2.73	**tons/yr**
Calculation: ( ) * (0.00) * (12.46 lb/VMT) * (ton/2000 lb) * (1-50/100) = 1.36 tons/yr (Apply 50% control efficiency)	1.36	**tons/yr**

PM10 Emissions:
Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.

		lb/VMT
Emission Factor = k * (s / 12)^a * (W / 3)^b = 3.43 lb/VMT	3.43	**lbs/VMT**
Where: k = constant = 1.5 lbs/VMT (Value for PM10, AP 42, Table 13.2.2-2, 11/06)	1.5	
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 = 54 tons (1994 average loaded/unloaded or a 40 ton truck)	54	**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)	50	**%**
Calculation: (2100 hrs/yr) * (0.21 VMT/hr) * (3.43 lb/VMT) * (ton/2000 lb) = 0.75 tons/yr (Uncontrolled Emissions)	0.75	**tons/yr**
Calculation: ( ) * (0.00) * (3.43 lb/VMT) * (ton/2000 lb) * (1-50/100) = 0.38 tons/yr (Apply 50% control efficiency)	0.38	**tons/yr**

PM2.5 Emissions:
Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.

		lb/VMT
Emission Factor = k * (s / 12)^a * (W / 3)^b = 0.34 lb/VMT	0.34	**lbs/VMT**
Where: k = constant = 0.15 lbs/VMT (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)	0.15	
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 = 54 tons (1994 average loaded/unloaded or a 40 ton truck)	54	**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)	50	**%**
Calculation: (2100 hrs/yr) * (0.21 VMT/hr) * (0.34 lb/VMT) * (ton/2000 lb) = 0.08 tons/yr (Uncontrolled Emissions)	0.08	**tons/yr**
Calculation: ( ) * (0.00) * (0.34 lb/VMT) * (ton/2000 lb) * (1-50/100) = 0.04 tons/yr (Apply 50% control efficiency)	0.04	**tons/yr**

Diesel Engine Generator

Note: Emissions are based on the power output of the engine (1581 hp).		
Operational Capacity of Engine = 1,581 hp	1581	**hp**
Hours of Operation = 2,100 hours	2100	**hours**
Total PM/PM10/PM2.5 Emissions:		
Emission Factor = 0.0022 lbs/hp-hr (All PM < 1 mm, AP-42, Sec. 3.3, Table 3.3-1, 10/96)	0.0022	**lbs/hp-hr**
Calculation: (2,100 hours) * (1,581 hp) * (0.0022 lbs/hp-hr) * (ton/2000 lb) = 3.65 ton/yr	3.65	**ton/yr**
Calculation: (2,100 hours) * (1,581 hp) * (0.0022 lbs/hp-hr) = 7,304.22 lbs/yr	7304.22	**lbs/yr**
NOx Emissions:		
Emission Factor = 0.031 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	0.031	**lbs/hp-hr**
Calculation: (2,100 hours) * (1,581 hp) * (0.031 lbs/hp-hr) * (ton/2000 lb) = 51.46 ton/yr	51.46	**ton/yr**
Calculation: (2,100 hours) * (1,581 hp) * (0.031 lbs/hp-hr) = 102,923.10 lbs/yr	10292 3.10	**lbs/yr**
CO Emissions:		
Emission Factor = 0.00668 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	0.006 68	**lbs/hp-hr**
Calculation: (2,100 hours) * (1,581 hp) * (0.00668 lbs/hp-hr) * (ton/2000 lb) = 11.09 ton/yr	11.09	**ton/yr**
Calculation: (2,100 hours) * (1,581 hp) * (0.00668 lbs/hp-hr) = 22,178.27 lbs/yr	22178 .27	**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)	0.002 5141	**lbs/hp-hr**
Calculation: (2,100 hours) * (1,581 hp) * (0.0025141 lbs/hp-hr) * (ton/2000 lb) = 4.17 ton/yr	4.17	**ton/yr**
Calculation: (2,100 hours) * (1,581 hp) * (0.0025141 lbs/hp-hr) = 8,347.06 lbs/yr	8347. 06	**lbs/yr**
SOx Emissions:		
Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	0.002 05	**lbs/hp-hr**
Calculation: (2,100 hours) * (1,581 hp) * (0.00205 lbs/hp-hr) * (ton/2000 lb) = 3.40 ton/yr	3.40	**ton/yr**
Calculation: (2,100 hours) * (1,581 hp) * (0.00205 lbs/hp-hr) = 6,806.21 lbs/yr	6806. 21	**lbs/yr**
CO2 Emissions:		
Emission Factor = 1.15 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	1.15	**lbs/hp-hr**
Calculation: (2,100 hours) * (1,581 hp) * (1.15 lbs/hp-hr) * (ton/2000 lb) = 1,909.06 ton/yr	1909. 06	**ton/yr**

	38181	
Calculation: (2,100 hours) * (1,581 hp) * (1.15 lbs/hp-hr) = 3,818,115.00 lbs/yr	15.00	**lbs/yr**

V. Existing Air Quality

The initial location (Section 22, Township 29 North, Range 21 West in Flathead County, Montana) and those areas for which this facility is permitted to operate under MAQP #5036-02 has been designated unclassified/attainment with all ambient air quality standards and there are no major air pollution sources in the surrounding area. MAQP #5036-02 applies while operating at any location in Montana, except those areas having a Department-approved permitting program, areas considered tribal lands, or areas 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, Montana.*

MAQP# 5036-02 and Addendum #3 to this permit will apply to the source while operating in or within 10 km of any nonattainment areas.

VI. Air Quality Impacts

MAQP #5036-02 covers operation of this asphalt plant while operating in areas within Montana that are classified as attainment or unclassifiable with federal ambient air quality standards, excluding counties that have a Department-approved permitting program and areas that are tribal lands. This permit contains conditions and limitations that would protect air quality, and limit the facility's emissions below the major source threshold. 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 of limited duration.

If the source locates and operates in or within 10 km of any PM_{10} nonattainment area, Knife River will be required to operate in accordance with MAQP #5036-02 and Addendum #3, which includes more stringent limits and conditions to ensure that the proposed operation does not result in additional degradation of air quality in the affected nonattainment area. A more detailed discussion and analysis of ambient impacts from operations locating in or within 10 km of certain PM_{10} nonattainment areas is contained in the Addendum Analysis to Addendum #3 of MAQP #5036-02.

VII. Ambient Air Impact Analysis

The Department determined that there will be no significant impact from this permit action because this permitting action is considered an administrative action. Furthermore, the Department believes that the amount of emissions generated by this project will not exceed any set ambient standard.

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

Analysis prepared by: John P. Proulx
Date: April 23, 2018

Addendum #3
Knife River Corporation – Mountain West
Montana Air Quality Permit (MAQP) #5036-02

An addendum to MAQP #5036-02 is issued to Knife River Corporation – Mountain West (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:

I. Permitted Equipment

Knife River owns and operates a portable rotary drum-mix asphalt plant and baghouse with a maximum rated design capacity of 450 tons per hour (TPH) of asphalt production.

II. Seasonal and Site Restrictions

Addendum #3 applies to the Knife River facility while operating at any location in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) nonattainment areas. Additionally, seasonal and site restrictions apply to the facility as follows:

A. During the winter season (October 1 – March 31) – Knife River may operation at any locations in or within 10 km of the Butte, Columbia Falls, Kalispell, Libby, Thompson Falls, and Whitefish PM_{10} nonattainment areas in accordance with Section III.A.

B. During the summer season (April 1 – September 30) – Knife River may operation at any locations in or within 10 km of the Butte, Columbia Falls, Kalispell, Libby, Thompson Falls, and Whitefish PM_{10} nonattainment areas in accordance with Section III.B

C. Knife River shall comply with the limitations and conditions contained in Addendum #3 to MAQP #5036-02 while operating in or within 10 km of any of the previously identified PM_{10} nonattainment areas. Addendum #3 shall be valid until revoked or modified. The Department of Environmental Quality (Department) reserves the authority to modify Addendum #3 at any time based on local conditions of any future site. These conditions may include, but are not limited to, local terrain, meteorological conditions, proximity to residences or other businesses, etc.

III. Limitations and Conditions

A. Operational Limitations and Conditions – **Winter Season** (October 1 – March 31)

1. Asphalt plant particulate matter emissions shall be limited to 0.04 grains per dry standard cubic feet (gr/dscf) (ARM 17.8.752 and 40 Code of Federal Regulations (CFR) 60, Subpart I).

2. All visible emissions from the asphalt plant stack shall not exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

3. Knife river shall not cause or authorize to be discharged into the atmosphere from any equipment, such as systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

4. Knife River shall not cause or authorize to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant area, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

5. Knife River shall treat all unpaved portions of the haul roads, access roads, parking lots, and general plant area with water and/or chemical dust suppressant, as necessary to maintain compliance with the 10% opacity limitation contained in Section III.A.4 (ARM 17.8.749).

6. Hot-mix asphalt production shall not exceed 1,575 tons during any rolling 24-hour time period (ARM 17.8.749).

7. Operation of the hot-mix asphalt plant, including the diesel-fired generator sets, shall not exceed 3.5 hours per day (ARM 17.8.749).

B. Operational Limitations and Conditions – **Summer Season** (April 1 – September 30)

1. Asphalt plant particulate matter emissions shall be limited to 0.04 grains per dry standard cubic feet (gr/dscf) (ARM 17.8.752 and 40 Code of Federal Regulations (CFR) 60, Subpart I).

2. All visible emissions from the asphalt plant stack shall not exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

3. Knife river shall not cause or authorize to be discharged into the atmosphere from any equipment, such as systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

4. Knife River shall not cause or authorize to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant area, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

5. Knife River shall treat all unpaved portions of the haul roads, access roads, parking lots, and general plant area with water and/or chemical dust suppressant, as necessary to maintain compliance with the 10% opacity limitation contained in Section III.A.4 (ARM 17.8.749).

6. Hot-mix asphalt production shall not exceed 10,800 tons during any rolling 24-hour time period (ARM 17.8.749).

C. Operational Reporting Requirements

1. If this asphalt plant is moved to another nonattainment 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. Production information for the sites covered by this addendum must be maintained for five years and submitted to the Department upon request. The information must include (ARM 17.8.749):

   a. Daily tons of asphalt production at each site. Knife River shall document, by day, the total asphalt production. Knife River shall sum the total asphalt production for the previous day to demonstrate compliance with the limitations in Sections III.A.6 and III.B.6.

   b. Daily hours of operation of the hot-mix asphalt plant and the diesel-fired generator set(s) at each site. Knife River shall document, by day, the hours operated. Knife River shall sum the total operating hours for the previous day to demonstrate compliance with the limitations in Section III.A.7.

   c. Daily hours of operation at each site.

   d. Daily hours of operation and the hp for each engine at each site.

   e. Daily tons of bulk material loaded at each site (production).

   f. Fugitive dust information consisting of the daily total miles driven on unpaved roads within the operating site for all plant vehicles.

Addendum #3 Analysis
Knife River Corporation – Mountain West
Montana Air Quality Permit (MAQP) #5036-02

I. Permitted Equipment

Knife River Corporation – Mountain West (Knife River) owns and operates a portable rotary drum-mix asphalt plant and baghouse with a maximum rated design capacity of 450 tons per hour (TPH) of asphalt production.

II. Source Description

Knife River proposes to use this asphalt plant in the production of hot-mix asphalt. For a typical operational set-up, aggregate materials are fed via conveyor to the drum mixer, where the aggregate is dried and heated. Subsequently, mineral filler and asphalt oil are introduced into the drum mixer. Mineral filler is delivered from a storage silo to the drum via an enclosed feed auger system. Particulate emissions from the mineral filler storage and feeder system, as well as drum mixer, are routed to a baghouse for control. The raw materials are introduced into the drum mixer and continuously mixed and heated by the drum mixer until desired properties are obtained.

After heating and mixing is complete, the asphalt product is transferred from the drum mixer to the asphalt product silo, where the asphalt remains until it is loaded into trucks for transport. The operation is powered through the use of on-site diesel-fired engine generators.

III. Applicable Rules and Regulations

The following are partial quotations 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 Montana Department of Environmental Quality (Department). Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

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

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

B. 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. A source may not increase its emissions beyond those found in its permit unless the source applies for and receives another permit.

C. ARM 17.8.765 Transfer of Permit. An air quality permit may be transferred from one location to another if:

1. Written notice of Intent to Transfer location and proof of public notice are sent to the Department;

2. The source will operate in the new location for a period of less than 1 year; and

3. The source will not have any significant impact on any nonattainment area or any Class I area.

IV. Emission Inventory

	PM_{10} Emissions [PTE]		
Emission Source	Short-Term Rate lbs/hr	Summer Season [April 1-Sept 30][(a)] lbs/day	Winter Season [Oct 1-Mar 31][(b)] lbs/day
Rotary Drum Mix Asphalt Plant w/ Baghouse	14.850	356.40	51.98
Liquid Asphalt Storage Bin & Heater	0.007	0.18	0.03
Aggregate Handling & Storage Piles	1.883	45.19	6.59
Aggregate Screening &Conveying	0.707	16.98	2.48
Lime Silo transfer & Conveying	0.040	0.95	0.14
Asphalt Storage & Handling	0.264	6.33	0.92
Asphalt Load-Out	0.235	5.64	0.82
Primary Diesel Engine [≤ 1,850 bhp]	2.970	71.28	10.40
Secondary Diesel Engine [≤1000 bhp]	0.508	12.20	1.78
Unpaved Roadways	--	6.34	0.92
TOTAL EMISSIONS ▶	21.464	521.47	76.05

(a) *Emission Inventory reflects operation of the asphalt plant and associated equipment on a 24 hour schedule to demonstrate that potential PM_{10} emissions are below 547 pounds per day threshold.*

(b) *Emission Inventory reflects operation of the asphalt plant and associated equipment on a schedule which demonstrates that potential PM_{10} emissions are below 82 pounds per day threshold.*

ASOS, Automated Surface Observing System
AWOS, Automated Weather Observing System
bhp, brake-horsepower
Btu, million British Thermal Units
dscf, dry standard cubic feet
lbs, pounds
MM, million
PTE, Potential To Emit
PM, particulate matter
PM_{10}, particulate matter with an aerodynamic diameter of 10 microns or less

g, grams	SO_2, sulfur dioxide
gr, grains	TPH, tons per hour
HMA, hot mix asphalt	TPY, tons per year
hr, hour	VOC, volatile organic compounds
kg, kilogram	

Rotary Drum Hot-Mix Asphalt Plant with Baghouse [SCC 3-05-002-55/SCC 3-05-002-63]

1999 Gencor 400 Ultra HMA Plant (Counter-Flow Drum Mixer)
Dryer Burner: Hauck StarJet
Dryer fuel Configuration: Duel fuel - Waste Oil, No. 2 Fuel Oil (Distillate), Natural Gas or Propane
Maximum Rated Heat Input: 135 mmbtu/hr
Control Equipment: Cedarapids16096P/14 Air Pulse Baghouse

		Summer Season	Winter Season
	Tons/Hour		
Production Rate:	450 (Maximum)	10800 Tons/Day	1575 Tons/Day

Power Plant: 1350 bhp Primary Diesel-Fired Generator Set (Asphalt Plant & Production Power Supply)
231 bhp Secondary Diesel-Fired Generator Set (Non-Production Power Supply)
Note: Asphalt Plant May Operate On Utility/commercial Power

Operating Schedule:
Summer Season: 24 Hours/Day (Maximum)
Winter Season: 3.5 Hours/Day (Restricted Maximum)

PM_{10} Emissions:

Emission Rate	0.033 lbs/ton Asphalt Product	[AP-42 Table 11.1-3, 3/04]	
Calculations	(0.033 lbs/ton) * (450 tons/hour) =	14.85 lbs/hr	(controlled)
	(14.85 lbs/hr) * (24 hours/day) =	356.40 lbs/day	(summer season)
	(356.40 lbs/hr) * (3.5 hours/day) =	51.98 lbs/day	(winter season)

CEI 1500 Asphalt Heater [SCC 3-05-002-08 or SCC 3-05-002-06]

Fuel Type: Duel Fuel - Diesel or Natural Gas

Burner Firing Rate: 1.00 mmBtu/hr [Maximum Design]
Fuel Rate (Diesel) gallons/hour [Estimated →19,300 7.3 Btu/lb]

PM_{10} Emissions (filterable):

Emission Factor	lbs/10^3 gallons 1.0	[AP-42 Table 1.3-6, 5/10 - diesel]
Calculations	(1.0 lbs / 1,000 gal) * (7.298 gal/hr) =	0.01 lbs/hr (uncontrolled)
	(0.007 lbs/hr) * (24 hours/day) =	0.18 lbs/day (summer season)
	(0.007 lbs/hr) * (3.5 hours/day) =	0.03 lbs/day (winter season)

** All PM condensable < 1.0 micron in diameter*

Aggregate Handling & Load-in [SCC 30500216]

Process Rate: 400 tons/hour
Number of Piles: 2 pile Transfers [Initial Pile Load-In → Aggregate Load-Out to Feed Bin]

Particulate Emissions (controlled):

Emission Factor: EF = k (0.0032) * [(U/5)^1.3 / (M / 2)^1.4] [AP-42 13.2.4, 11/06]

where:
- EF, Emission Factor = lbs Emitted / ton Processed
- k, Dimensionless Particle Size Multiplier PM_{10} = 0.35 [AP-42 13.2.4, 11/06]
- U, Mean Wind Speed (mph) = 9.3 [ASOS/AWOS AVE-MT 10 yr Ave.]
- M, Material Moisture Content (%) = 2.1 [AP-42 13.2.4-1, 11/06]

PM_{10} Emissions:

Emission Factor	EF = 0.35 * (0.0032) * (7.0/5)^1.3 / (2.1 / 2)^1.4 =	0.0024 lbs/ton
Calculations	(0.0024 lbs/ton) * (400 tons/hr) * (2 pile) =	1.88 lbs/hr (uncontrolled)
	(1.88 lbs/hr) * (24 hours/day) =	45.19 lbs/day (summer season)
	(1.88 lbs/hr) * (3.5 hours/day) =	6.59 lbs/day (winter season)

Aggregate Screening & Conveyor Transfer [SCC 3-05-020-02 & 3-05-020-06]

Process Rate: 450 tons/hour
Number of Transfers: 2 Transfers

PM_{10} Emissions (controlled):

Emission Factor	0.00079	lbs/ton transferred	[AP-42 Table 11.19.2-2, 8/04]
Calculations	(0.00079 lbs/ton) * (450 tons/hr) * (2 Transfers) =	0.71	lbs/hr (controlled)
	(0.71 lbs/hr) * (24 hours/day) =	16.98	lbs/day (summer season)
	(0.71 lbs/hr) * (3.5 hours/day) =	2.48	lbs/day (winter season)

Lime Silo Product transfer & Conveying [SCC 3-05-016-24]

Process Rate: 450 tons/hour

PM_{10} Emissions (controlled):

Emission Factor	0.000088	lbs/ton material transferred	[AP-42 Table 11.17-4, 2/98]
Calculations	(0.000088 lbs/ton) * (450 tons/hr) =	0.040	lbs/hr (controlled)
	(0.04 lbs/hr) * (24 hours/day) =	0.95	lbs/day (summer season)
	(0.04 lbs/hr) * (3.5 hours/day) =	0.14	lbs/day (winter season)

Asphalt Storage & Silo Filling [SCC 3-05-002-13]

Process Rate: 450 tons/hour

Particulate Emissions (uncontrolled):

Emission Factor: $EF = 0.000332+0.00105(-V)e^{((0.0251)(T+460)-20.43)}$ [AP-42 Table 11.1-14, 3/04]

where:
- EF, Emission Factor = lbs emitted / ton HMA produced
- V, Asphalt Volatility = -0.05 [Default value AP-42 Table 11.1-14, 3/04]
- T, HMA temperature = 325ºF [Default value AP-42 Table 11.1-14, 3/04]

PM_{10} Emissions:

Emission Factor	EF = 0.000332 + 0.00105 * (0.05) *e((0.0251) * (325 + 460) - 20.43) =	0.00059	lbs/ton HMA
Calculations	(0.00059 lbs/ton) * (450 tons/hr) =	0.26	lbs/hr (uncontrolled)
	(0.26 lbs/hr) * (24 hours/day) =	6.33	lbs/day (summer season)
	(0.26 lbs/hr) * (3.5 hours/day) =	0.92	lbs/day (winter season)

Asphalt Plant Load-Out [SCC 3-05-002-14]

Process Rate: 450 tons/hour

Particulate Emissions (uncontrolled):

Emission Factor: $EF = 0.000181+0.00141(-V)e^{((0.0251)(T+460)-20.43)}$ [AP-42 Table 11.1-14, 3/04]

where:
EF, Emission Factor = lbs emitted / ton HMA produced
V, Asphalt Volatility = -0.05 [Default value AP-42 Table 11.1-14, 3/04]
T, HMA temperature = 325ºF [Default value AP-42 Table 11.1-14, 3/04]

PM_{10} Emissions:

Emission Factor: EF = 0.000181 + 0.00141 * (0.05) * e ((0.0251) * (325 + 460) - 20.43) = 0.00052 lbs/ton HMA

Calculations:
(0.00052 lbs/ton) * (450 tons/hr) = 0.23 lbs/hr (uncontrolled)
(0.23 lbs/hr) * (24 hours/day) = 5.64 lbs/day (summer season)
(0.23 lbs/hr) * (3.5 hours/day) = 0.82 lbs/day (winter season)

Diesel Generator Engines [SCC 2-02-001-02]

Primary Diesel-Fired Generator Set (Asphalt Plant & Production Power Supply)

Engine Rating: 1350 bhp [Design Maximum Output]

Fuel Input: 9.45 MMBtu/hr [BSFC →7,000 Btu/hp-hr]
69.0 gallons/hour [Estimated →19,300 Btu/lb]

PM_{10} Emissions:

Emission Factor: 0.0022 lb/hp-hr [AP-42 Table 3.3-1, 10/96]

Calculations:
(0.0022 lb/hp-hr) * (1350 hp) = 2.97 lbs/hr (uncontrolled)
(2.97 lbs/hr) * (24 hours/day) = 71.28 lbs/day (summer season)
(2.97 lbs/hr) * (3.5 hours/day) = 10.40 lbs/day (winter season)

Secondary Diesel-Fired Generator Set (Non-Production Power Supply)

Engine Rating: 231 bhp [Design Maximum Output]

Fuel Input: 1.62 MMBtu/hr [BSFC →7,000 Btu/hp-hr]
11.8 gallons/hour [Estimated →19,300 Btu/lb]

PM_{10} Emissions:

	lb/hp-hr	[AP-42 Table 3.3-	
Emission Factor	0.0022	1, 10/96]	
	(0.0022 lb/hp-hr) * (231 hp)		
Calculations	=	0.51	lbs/hr (uncontrolled)
	(0.51 lbs/hr) * (24 hours/day) =	12.20	lbs/day (summer season)
	(0.51 lbs/hr) * (3.5 hours/day) =	1.78	lbs/day (winter season)

Unpaved Roadways (Haul Roads) - Secondary Emissions

Miles Travelled 5 miles/day (Summer Season)
0.21 miles/hour
0.73 miles/day (Winter Season)

Vehicle Weight: 27.5 Tons [Mean Vehicle Weight

Control Method: Water

Control Efficiency 50%

PM_{10} Emissions:

Emission Factor $EF = k(s/12)^{a} * (W/3)^{b}$ [AP-42 13.2.2.2, 11/06]

where: EF, Emission Factor = lbs Emitted Per Vehicle Mile Traveled

k, Empirical Constant PM_{10}	1.5	[AP-42 Table 13.2.2-2, 11/06]
s, Surface Material Silt	7.1	[AP-42 Table 13.2.2-1, 11/06]
W, Mean Vehicle Weight	27.5	[Applicant Provided Data]
a, Empirical Constant PM_{10}	0.9	[AP-42 Table 13.2.2-2, 11/06]
b, Empirical Constant PM -	0.45	[AP-42 Table 13.2.2-2, 11/06]

Emission Factor	EF = 1.5 * (7.1/12)^0.9 *	2.53	lbs/VMT
Calculations	(2.53 lbs/VMT) * (5 miles/day) * (1 -	6.34	lbs/day (Summer
	(0.00 lbs/VMT) * (0.73 miles/day) * (1 - 0.05	0.92	lbs/day (Winter Season)

V. Existing Air Quality

On July 1, 1987, the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}). Due to exceedance of the national standards for PM_{10}, the cities of Kalispell (and the nearby Evergreen area), Columbia Falls, Butte, Whitefish, Libby, Missoula, and Thompson Falls were designated by EPA as nonattainment for PM_{10}. As a result of this designation, the EPA required the Department and the City-County Health Departments to submit PM_{10} State Implementation Plans (SIP). The SIPs consisted of emission control plans that controlled fugitive dust emissions from roads, parking lots, construction, and demolition, since technical studies identified these sources to be the major contributors to PM_{10} emissions.

MAQP #5036-02 and Addendum #3 are for a portable hot-mix asphalt plant that will potentially operate at sites in or within 10 kilometers (km) of certain PM_{10} nonattainment areas. The more stringent operating conditions contained in the addendum will minimize any potential impact on the nonattainment areas and will protect the national ambient air quality standards. Also, this facility is a portable source that would operate on an intermittent and temporary basis and any effects on air quality will be minor and short-lived.

VI. Air Quality Impacts

MAQP #5036-02 and Addendum #3 will cover the operations of this portable hot-mix asphalt plant while operating at any location within Montana, excluding those counties that have a Department approved permitting program.

Addendum #3 will cover the operations of this portable hot-mix asphalt plant, while operating in or within 10 km of any nonattainment area.

VII. Taking or Damaging Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment (see Section VIII of the Permit Analysis for MAQP #5036-02) and determined there are no taking or damaging implications.

VIII. Environmental Assessment

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

Analysis prepared by: John P. Proulx
Date: April 23, 2018