March 5, 2018

Luci Snowden, Environmental Manager
Knife River North Central ND – Plant #2
5454 134th Ave. NW
Williston, ND 58801

Dear Luci:

Montana Air Quality Permit #5039-01 is deemed final as of March 3, 2018, by the Department of Environmental Quality (Department). 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

Craig Henrikson, P.E.
Environmental Engineer
Air Quality Bureau
(406) 444-6711

JM:CH
Enclosure

Montana Department of Environmental Quality
Air, Energy & Mining Division

# Montana Air Quality Permit #5039-01

Knife River North Central ND – Plant #2
5454 134th Ave. NW
Williston, ND 58801

March 3, 2018

MONTANA AIR QUALITY PERMIT

Issued to: Knife River North Central ND - Plant #2
5454 134th Ave. NW
Williston, ND 58801

MAQP: #5039-01
Administrative Amendment (AA)
Request Received: 02/07/2018
Department's Decision Issued: 2/15/2018
Permit Final: 3/3/2018

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Knife River North Central ND - Plant #2 (Knife River North Central) 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 North Central operates a portable parallel-flow drum mix-asphalt plant and associated equipment with a up to a 235 ton per hour (TPH) maximum production capacity, one diesel generator/engine set with a maximum capacity of 1,100-horsepower (hp), and associated equipment. MAQP #5039-01 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.* An addendum will be required for locations in or within 10 km of certain $PM_{10}$ nonattainment areas.

B. Current Permit Action

On February 7, 2018, the Department received a request from Knife River North Central to modify existing permit condition Section II.A.13 to provide flexibility to also use propane in addition to waste oil. The original request served as both de minimis and administrative amendment requests and therefore the permit is administratively being amended to make the requested change.

## SECTION II: Conditions and Limitations

A. Emission Limitations

1. 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).

2. Knife River North Central shall not cause or authorize to be discharged into the atmosphere from the asphalt plant stack any visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.340 and 40 CFR 60 Subpart I).

3. Knife River North Central shall not cause or authorize to be discharged into the atmosphere from dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; transferring and storing lime, 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 17.8.752, ARM 17.8.340 and 40 CFR 60, Subpart I).

4. All visible emissions from any non-New Source Performance Standard (NSPS) affected equipment shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

5. Knife River North Central 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 North Central shall treat all unpaved portions of the haul roads, access roads, parking lots, and the general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.5 (ARM 17.8.749).

7. Knife River North Central shall install, operate, and maintain a baghouse for control of particulate matter on the dryer exhaust. 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 (ARM 17.8.752). Temperature indicators at the control device inlet and outlet must be installed and maintained (ARM 17.8.752).

8. Knife River North Central shall be limited to a maximum of 822,500 tons of asphalt production during any rolling 12-month period (ARM 17.8.749 and ARM 17.8.1204).

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

10. Knife River North Central shall not operate, or have on site, more than one diesel-fired engine/generator set at any given time and the maximum rated design capacity of the diesel engine driving the generator set shall not exceed 1050 brake-horsepower (bhp) (ARM 17.8.1204).

11. Operation of the hot-mix asphalt plant, including the diesel-fired engine/generator set, shall not exceed 3,500 hours during any rolling 12-month time period (ARM 17.8.749).

12. Knife River North Central shall only use #2 diesel as fuel for the asphalt oil heater (ARM 17.8.749).

13. Knife River North Central may use recycled waste oil or propane or an equivalent fuel for the hot mix drier (ARM 17.8.749).

14. Knife River North Central 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).

15. Knife River North Central 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-fired engine (ARM 17.8.340, 40 CFR 60, Subpart IIII; ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

16. If the permitted equipment is used in conjunction with any other equipment owned or operated by Knife River North Central, 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 dryer exhaust stack to demonstrate compliance with Section II.A.1. 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.2 and 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 baghouse must be recorded daily and kept on site according to Section II.C.7 (ARM 17.8.749).

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

5. Knife River North Central 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).

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

C. Operational Recordkeeping and 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 North Central shall maintain on-site records showing daily hours of operation, daily production rates, and daily pressure drop readings from the baghouse for the last 12 months. The records compiled in accordance with this permit shall be maintained by Knife River North Central 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 North Central 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 North Central 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 North Central shall document, by month, the hours of operation of the asphalt plant and the diesel-fired engine/generator sets. By the 25th day of each month, Knife River North Central shall total the hours of operation for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.11. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

6. Knife River North Central shall document, by month, the tons of asphalt production. By the 25th day of each month, Central Specialties shall total the tons of 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.8. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

7. Knife River North Central 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 North Central 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 North Central 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 North Central 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 North Central 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 North Central fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Knife River North Central 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 Operation Fees – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Knife River North Central 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 North Central 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 North Central ND Asphalt Plant #4
MAQP #5039-01

## I. Introduction/Process Description

Knife River North Central ND (Knife River North Central) operates a portable drum mix-asphalt plant and associated equipment with a up to a 235 ton per hour (TPH) maximum asphalt production capacity, two diesel generator engines with a combined maximum capacity of 1,050-horsepower (hp), and associated equipment.

### A. Permitted Equipment

The following list of permitted equipment is provided for reference, as portions of MAQP #5039-01 are 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 limitations and/or conditions. Equipment permitted under this action includes, but is not limited to the following:

- Parallel-flow portable asphalt plant with baghouse for particulate control
- 4-Bin Cold Feed Skid
- Asphalt Storage Tank Heater
- Asphalt Cement Storage Tank
- Asphalt Storage Silo and Load-Out System
- One diesel-fired engine/generator set with a maximum capacity of up to 1,050 brake-horse power (bhp)
- Aggregate handling equipment; conveyors, aggregate bins, etc.
- Unpaved roads

### B. Source Description

For a typical operational set-up, aggregate materials are taken from the on-site aggregate stockpiles and dumped via a front-end loader into the cold aggregate feed bins. The cold aggregate is then transferred from the cold aggregate feed bins via conveyor to the rotary drum. The cold aggregate is dried and heated within the drum mixer. The dryer exhaust vents to the baghouse. A single diesel-fired engine/generator set powers the operation.

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.

### C. Permit History

On May 13, 2014, the Department of Environmental Quality (Department) received an application from Knife River North Central to permit an asphalt plant and associated equipment. **MAQP #5039-00** was issued on June 26, 2014.

D. Current Permit Action

On February 7, 2018, the Department received a request from Knife River North Central requesting a change to existing permit condition Section II.A.13 to provide flexibility to also use propane in addition to waste oil. The original request served as both de minimis and administrative amendment requests and therefore the permit is administratively being amended to make the requested change. **MAQP #5039-01** replaces MAQP #5039-00.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department of Environmental Quality (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 North Central 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 Particulate Matter with an Aerodynamic Diameter of Ten Microns or less ($PM_{10}$)

Knife River North Central 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 North Central 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 North Central 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. In order for an asphalt plant to be subject to 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 North Central, the asphalt plant equipment to be used under MAQP #5039-01 is subject to this subpart because the facility is a hot mix asphalt facility.

   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, the CI ICE equipment to be used by Knife River North Central under MAQP #5039-01 is potentially subject to this Subpart if it stays in a location for twelve consecutive months. Knife River North Central may substitute compression ignition internal combustion engine(s), therefore applicability to this subpart may apply to engines in the future and shall be dependent upon the date of construction and/or manufacture of the diesel-fired engine utilized.

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 North Central the diesel-fired engine associated with MAQP #5039-01 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. An area source of HAP emissions is a source that is not a major source. A RICE is considered stationary if it 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. Based on the information submitted by Knife River North Central, the RICE equipment to be used under this permit may be subject to this subpart because they are an area source of HAP emissions and the engine may remain at the same home pit location for more than 12 consecutive months.

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. Knife River North Central submitted the appropriate application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department.

   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

North Central has a PTE greater than 15 TPY of oxides of nitrogen ($NO_X$), PM, 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. Knife River North Central was not required to submit a permit application for the current permit action because it is considered an administrative amendment. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Knife River North Central was not required to submit a public notice for the current permit action because it is considered an administrative amendment.

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

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

8. ARM 17.8.755 Inspection of Permit. This rule requires that 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 North Central 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 #5039-01 for Knife River North Central, the following conclusions were made:

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

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

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

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

   e. This source is not a Title IV affected source

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

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

   Knife River North Central has requested that federally-enforceable permit operating limits be established to maintain the facility's PTE to less than the Title V major source threshold. Based on these limitations, the Department determined that this facility is a minor source of emissions and therefore, 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 may be subject to the Title V Operating Permit Program.

   h. 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 North Central 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.

| | TPY | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Emission Source** | **PM** | **$PM_{10}$** | **$PM_{2.5}$** | **$NO_x$** | **CO** | **VOC** | **$SO_2$** | **$CO_2e$** | **Total HAPs** |
| Cold Aggregate Storage Piles | 2.72 | 1.29 | 0.19 | -- | -- | -- | -- | | |
| Cold Aggregate Handling/Conveyors | 3.70 | 1.36 | 0.02 | -- | -- | -- | -- | | |
| Cold Aggregate Screens | 0.90 | 0.90 | | -- | -- | -- | -- | | |
| Diesel-Fired Asphalt Oil Heater | -- | -- | | -- | 0.01 | -- | -- | | |
| 235 TPH Drum Mix Asphalt Plant Dryer | 22.06 | 15.02 | 10.94 | 22.62 | 53.46 | 13.16 | 23.85 | 13675 | 4.11 |
| Asphalt Product Silo Filling | 0.24 | 0.24 | 0.24 | -- | 0.49 | 5.01 | -- | 0.09 | |
| Plant Load-Out | 0.21 | 0.21 | 0.21 | -- | 0.55 | 1.61 | -- | 2.33 | |
| Lime Silo (PM routed to baghouse) | 0.00 | 0.00 | 0.00 | -- | -- | -- | -- | | |
| Haul Roads / Vehicle Traffic | 2.27 | 0.63 | 0.06 | -- | -- | -- | -- | | |
| 1050 hp Diesel Engine Main Generator | 4.04 | 4.04 | 4.04 | 56.96 | 12.27 | 4.62 | 3.77 | 2113 | |
| Asphalt Oil Heater | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0 | |
| **Total Emissions** | **36.16** | **23.69** | **15.71** | **79.58** | **66.79** | **24.40** | **27.62** | **15790** | **4.11** |

*a. Emission Inventory reflects enforceable limits on hours of operation and production output to keep emissions below the Title V threshold of 100 TPY of any pollutant and below 80 TPY so that the oversight category for this facility is at a level that is only subject to the State Compliance Monitoring Strategy.*
*b. All PM, $PM_{10}$ and $PM_{2.5}$ values in the table represent the sum of the filterable and condensable fractions*

CO, carbon monoxide
$NO_x$, 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
$SO_2$, oxides of sulfur
VOC, volatile organic compounds

## Calculations

### Cold Aggregate Storage Piles

Maximum Process Rate = 235 ton/hr (Maximum plant process rate)
Maximum Hours of Operation = 3,500 hrs/yr
Number of Piles = 2 piles

**Filterable 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 = 0.00331 lb/ton
Where: k = particle size multiplier = 0.74 (Value for PM < 30 microns per AP 42, Sec. 13.2.4.3, 11/06)
U = mean wind speed = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)
M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00331 lb/ton) * (ton/2000 lb) * (2 piles) = 2.72 ton/yr

**Filterable $PM_{10}$ 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
Where: k = particle size multiplier = 0.35 (Value for PM < 10 microns per AP 42, Sec. 13.2.4.3, 11/06)
U = mean wind speed = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)
M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00156 lb/ton) * (ton/2000 lb) * (2 piles) = 1.29 ton/yr

**Filterable $PM_{2.5}$ 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
Where: k = particle size multiplier = 0.053 (Value for PM < 2.5 microns per AP 42, Sec. 13.2.4.3, 11/06)
U = mean wind speed = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)
M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00024 lb/ton) * (ton/2000 lb) * (2 piles) = 0.19 ton/yr

**Condensable $PM_{2.5}$ 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 = 0.00000 lb/ton
Where: k = particle size multiplier = 0 (non-combustion source; therefore, no CPM)
U = mean wind speed = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)
M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00000 lb/ton) * (ton/2000 lb) * (2 piles) = 0.00 ton/yr

### Conveyor Transfer Point (SCC 3-05-02006)

Maximum Process Rate = 235 ton/hr (Maximum plant process rate)
Maximum Hours of Operation = 3,500 hrs/yr
Number of Transfers = 3 transfer (Company Information, Excludes RAP transfers)

**Filterable PM Emissions:**
Emission Factor = 0.003 lb/ton (0.0030 uncontrolled, 0.00014 controlled, AP 42, Table 11.19.2-2, 8/04)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.003 lb/ton) * (ton/2000 lb) * (3 transfer) = 3.70 ton/yr

**Filterable $PM_{10}$ Emissions:**
Emission Factor = 0.0011 lb/ton (0.00110 uncontrolled, 0.000046 controlled, AP 42, Table 11.19.2-2, 8/04)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.0011 lb/ton) * (ton/2000 lb) * (3 transfer) = 1.36 ton/yr

**Filterable $PM_{2.5}$ Emissions:**
Emission Factor = 0.000013 lb/ton (0.000013 controlled, AP 42, Table 11.19.2-2, 8/04)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.000013 lb/ton) * (ton/2000 lb) * (3 transfer) = 0.02 ton/yr

**Condensable $PM_{2.5}$ Emissions:**
Emission Factor = 0 lb/ton (non-combustion source; therefore, no CPM)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0 lb/ton) * (ton/2000 lb) * (3 transfer) = 0.00 ton/yr

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

Maximum Process Rate = 235 ton/hr (Maximum plant process rate)
Maximum Hours of Operation = 3,500 hrs/yr
Number of Screens = 1 screen(s) (Company Information, Excludes RAP screen)

**Total PM Emissions:**
Emission Factor = 0.0022 lb/ton (0.025 uncontrolled, 0.0022 controlled, AP 42, Table 11.19.2-2, 8/04)
Control Efficiency = 0% (built into emission factor)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.0022 lb/ton) * (ton/2000 lb) * (1 screen(s)) = 0.90 ton/yr

**Total $PM_{10}$ Emissions:**
Emission Factor = 0.0022 lb/ton (0.0087 uncontrolled, 0.00074 controlled, AP 42, Table 11.19.2-2, 8/04)
Control Efficiency = 0% (built into emission factor)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.0022 lb/ton) * (ton/2000 lb) * (1 screen(s)) = 0.90 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)
Control Efficiency = % (built into emission factor)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00005 lb/ton) * (ton/2000 lb) * (1 screen(s)) = 0.02 ton/yr

**Hot Oil Heater**

Production Rate = 2.50 gal/hr (Company information)
Maximum Hours of Operation = 3,500 hrs/yr

**CO Emissions:**
Emission Factor = 0.0012 lb/gal (AP-42, Section 11.1, Table 11.1-13, No. 2 Fuel Oil, 3/04)
Calculation: (3500 hrs/yr) * (2.50 gal/hr) * (0.0012 lb/gal) * (ton/2000 lb) = 0.01 ton/yr

**$CO_2$ Emissions:**
Emission Factor = 28 lb/gal (AP-42, Section 11.1, Table 11.1-13, No. 2 Fuel Oil, 3/04)
Calculation: (3500 hrs/yr) * (2.50 gal/hr) * (28 lb/gal) * (ton/2000 lb) = 122.50 ton/yr

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

Maximum Process Rate = 235 ton/hr (Application information)
Maximum Hours of Operation = 3,500 hrs/yr

**Filterable PM Emissions:**
*Based on Emission Limit*
Emission Factor = 0.04 gr/dscf (permit limit)
Calculation: (0.04 gr/dscf) * (23,477 dscfm) * (1 lb / 7000 gr) * (60 min/hr) = 8.05 lb/hr
Calculation: (8.05 lb/hr) * (3500 hrs/yr) * (0.0005 ton/lb) = 14.09 ton/yr

**Filterable $PM_{10}$ Emissions:**
*Based on Emission Limit*
Emission Factor = 0.02 gr/dscf (permit limit, assume 50% of TSP is PM10, Department policy)
Calculation: (0.02 gr/dscf) * (23,477 dscfm) * (1 lb / 7000 gr) * (60 min/hr) = 4.02 lb/hr
Calculation: (4.02 lb/hr) * (3500 hrs/yr) * (0.0005 ton/lb) = 7.04 ton/yr

**Filterable $PM_{2.5}$ Emissions:**
*Based on Emission Limit*
Emission Factor = 0.0084 gr/dscf (permit limit, assume 21% of TSP is PM2.5, AP 42, Table 11.1-4, 3/04)
Calculation: (0.0084 gr/dscf) * (23,477 dscfm) * (1 lb / 7000 gr) * (60 min/hr) = 1.69 lb/hr
Calculation: (1.69 lb/hr) * (3500 hrs/yr) * (0.0005 ton/lb) = 2.96 ton/yr

**Condensable $PM_{2.5}$ Emissions:**
*Based on AP-42*
Emission Factor = 0.0194 lb/ton (fabric filter, AP 42, Table 11.1-3, 3/04)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.0194 lb/ton) * (ton/2000 lb) = 7.98 ton/yr
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.0194 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 7.98 ton/yr

**CO Emissions:**
Emission Factor = 0.13 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-7, 3/04)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.13 lb/ton) * (ton/2000 lb) = 53.46 ton/yr
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.13 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 53.46 ton/yr

**NOx Emissions:**
Emission Factor = 0.055 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-7, 3/04)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.055 lb/ton) * (ton/2000 lb) = 22.62 ton/yr
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.055 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 22.62 ton/yr

**SO2 Emissions:**
Emission Factor = 0.058 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-7, 3/04)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.058 lb/ton) * (ton/2000 lb) = 23.85 ton/yr
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.058 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 23.85 ton/yr

**TOC Emissions:**
Emission Factor = 0.044 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-8, 3/04)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.044 lb/ton) * (ton/2000 lb) = 18.10 ton/yr
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.044 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 18.10 ton/yr

**$CH_4$ Emissions:**

Emission Factor = 0.012 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-8, 3/04)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.012 lb/ton) * (ton/2000 lb) = 4.94 ton/yr
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.012 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 4.94 ton/yr
CO2e = 4.94 * 21 = 103.64 ton/yr

**VOC Emissions:**

Emission Factor = 0.032 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-8, 3/04)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.032 lb/ton) * (ton/2000 lb) = 13.16 ton/yr
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.032 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 13.16 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)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.01 lb/ton) * (ton/2000 lb) = 4.11 ton/yr
Emission Factor = 5.7575 ton/yr

**$CO_2$ Emissions:**

Emission Factor = 33 lb/ton (Waste oil-fired dryer, AP 42, Table 11.1-7, 3/04)
Control Efficiency = 0%
Calculation: (235 ton/hr) * (3500 hrs/yr) * (33 lb/ton) * (ton/2000 lb) = 13,571.25 ton/yr
Calculation: (235 ton/hr) * (3500 hrs/yr) * (33 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 13,571.25 ton/yr

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

Maximum Process Rate = 235 ton/hr (Maximum plant process rate)
Maximum Hours of Operation = 3,500 hrs/yr

**Filterable $PM_{2.5}$ Emissions:**

Assume all PM is CPM, AP 42, Table 11.1-14, footnote b, 3/04.

**Condensable $PM_{2.5}$ 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)
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00052 lb/ton) * (ton/2000 lb) = 0.21 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
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)
Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00391 lb/ton) * (ton/2000 lb) = 1.61 ton/yr

**$CH_4$ 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

Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)

T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)

Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00027 lb/ton) * (ton/2000 lb) = 0.11 ton/yr

CO2e = 0.11 * 21 = 2.33 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

Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)

T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)

Calculation: (235 ton/hr) * (3500 hrs/yr) * (0.00135 lb/ton) * (ton/2000 lb) = 0.55 ton/yr

**Haul Roads**

Vehicle Miles Traveled (VMT) per Day = 5 VMT/day (Estimate)

VMT per hour = (5 VMT/day) * (day/24 hrs) = 0.21 VMT/hr

Hours of Operation = 3,500 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

Where: k = constant = 4.9 lbs/VMT (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06)

s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06)

W = mean vehicle weight = 54 tons (1994 average loaded/unloaded or a 40 ton truck)

a = constant = 0.7 (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06)

b = constant = 0.45 (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06)

Control Efficiency = 50% (Water spray or chemical dust suppressant)

Calculation: (3500 hrs/yr) * (0.21 VMT/hr) * (12.46 lb/VMT) * (ton/2000 lb) = 4.54 tons/yr (Uncontrolled Emissions)

Calculation: (3500 hrs/yr) * (0.21 VMT/hr) * (12.46 lb/VMT) * (ton/2000 lb) * (1-50/100) = 2.27 tons/yr (Apply 50% control efficiency)

**$PM_{10}$ 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 = 3.43 lb/VMT

Where: k = constant = 1.5 lbs/VMT (Value for PM10, AP 42, Table 13.2.2-2, 11/06)

s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06)

W = mean vehicle weight = 54 tons (1994 average loaded/unloaded or a 40 ton truck)

a = constant = 0.9 (Value for PM10, AP 42, Table 13.2.2-2, 11/06)

b = constant = 0.45 (Value for PM10, AP 42, Table 13.2.2-2, 11/06)

Control Efficiency = 50% (Water spray or chemical dust suppressant)

Calculation: (3500 hrs/yr) * (0.21 VMT/hr) * (3.43 lb/VMT) * (ton/2000 lb) = 1.25 tons/yr (Uncontrolled Emissions)

Calculation: (3500 hrs/yr) * (0.21 VMT/hr) * (3.43 lb/VMT) * (ton/2000 lb) * (1-50/100) = 0.63 tons/yr (Apply 50% control efficiency)

**$PM_{2.5}$ 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 = 0.34 lb/VMT
Where: k = constant = 0.15 lbs/VMT (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)
s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06)
W = mean vehicle weight = 54 tons (1994 average loaded/unloaded or a 40 ton truck)
a = constant = 0.9 (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)
b = constant = 0.45 (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)
Control Efficiency = 50% (Water spray or chemical dust suppressant)
Calculation: (3500 hrs/yr) * (0.21 VMT/hr) * (0.34 lb/VMT) * (ton/2000 lb) = 0.13 tons/yr (Uncontrolled Emissions)
Calculation: (3500 hrs/yr) * (0.21 VMT/hr) * (0.34 lb/VMT) * (ton/2000 lb) * (1-50/100) = 0.06 tons/yr (Apply 50% control efficiency)

**Diesel Engine Main Generator**

Note: Emissions are based on the power output of the engine (1050 hp).
Operational Capacity of Engine = 1,050 hp
Hours of Operation = 3,500.00 hours

**Total $PM/PM_{10}/PM_{2.5}$ Emissions:**

Emission Factor = 0.0022 lbs/hp-hr (All PM < 1 mm, AP-42, Sec. 3.3, Table 3.3-1, 10/96)
Calculation: (3,500 hours) * (1,050 hp) * (0.0022 lbs/hp-hr) * (ton/2000 lb) = 4.04 ton/yr
Calculation: (3,500 hours) * (1,050 hp) * (0.0022 lbs/hp-hr) = 8,085.00 lbs/yr

**NOx Emissions:**

Emission Factor = 0.031 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)
Calculation: (3,500 hours) * (1,050 hp) * (0.031 lbs/hp-hr) * (ton/2000 lb) = 56.96 ton/yr
Calculation: (3,500 hours) * (1,050 hp) * (0.031 lbs/hp-hr) = 113,925.00 lbs/yr

**CO Emissions:**

Emission Factor = 0.00668 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)
Calculation: (3,500 hours) * (1,050 hp) * (0.00668 lbs/hp-hr) * (ton/2000 lb) = 12.27 ton/yr
Calculation: (3,500 hours) * (1,050 hp) * (0.00668 lbs/hp-hr) = 24,549.00 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)
Calculation: (3,500 hours) * (1,050 hp) * (0.0025141 lbs/hp-hr) * (ton/2000 lb) = 4.62 ton/yr
Calculation: (3,500 hours) * (1,050 hp) * (0.0025141 lbs/hp-hr) = 9,239.32 lbs/yr

**SOx Emissions:**

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)
Calculation: (3,500 hours) * (1,050 hp) * (0.00205 lbs/hp-hr) * (ton/2000 lb) = 3.767 ton/yr
Calculation: (3,500 hours) * (1,050 hp) * (0.00205 lbs/hp-hr) = 7,533.75 lbs/yr

**$CO_2$ Emissions:**

Emission Factor = 1.15 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)
Calculation: (3,500 hours) * (1,050 hp) * (1.15 lbs/hp-hr) * (ton/2000 lb) = 2,113.13 ton/yr
Calculation: (3,500 hours) * (1,050 hp) * (1.15 lbs/hp-hr) = 4,226,250.00 lbs/yr

IV. Existing Air Quality

The initial location and those areas for which this facility is permitted to operate under MAQP #5039-01 has been designated unclassified/attainment with all ambient air quality standards and there are no major air pollution sources in the surrounding area. An addendum will be required for locations in or within 10 kilometers (km) of certain $PM_{10}$ nonattainment areas.

VI. Air Quality Impacts

MAQP #5039-01 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 air quality permit contains conditions and limitations that would protect air quality, and would 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.

VII. Ambient Air Impact Analysis

Based on the information provided and the conditions established in MAQP #5039-01, the Department determined that the impact from this permitting action will be minor. The Department believes it will not cause or contribute to a violation of any ambient air quality 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? |
| | | |

| YES | NO | |
|---|---|---|
| | 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

An Environmental Assessment was not required for this permitting action because it is considered an administrative action.