

July 3, 2017

Jeremiah B. Bowser, P.E.  
Environmental Manager  
Helena Sand & Gravel, Inc.  
2209 Airport Road  
P.O. Box 5960  
Helena, MT 59604

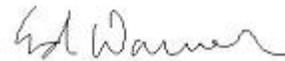
Dear Mr. Bowser:

Montana Air Quality Permit #2735-06 is deemed final as of July 1, 2017, by the Department of Environmental Quality (Department). This permit is for a portable asphalt plant. 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,



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



Ed Warner  
Lead Engineer – Permitting Services Section  
Air Quality Bureau  
(406) 444-2467

JM:EW  
Enclosure

Montana Department of Environmental Quality  
Air, Energy, and Mining Division

Montana Air Quality Permit #2735-06

Helena Sand & Gravel, Inc.  
2209 Airport Road  
P.O. Box 5960  
Helena, MT 59604

July 1, 2017



## MONTANA AIR QUALITY PERMIT

Issued To: Helena Sand & Gravel, Inc.  
2209 Airport Road  
P.O. Box 5960  
Helena, MT 59604

MAQP: #2735-06  
Administrative Amendment (AA)  
Request Received: 5/16/2017  
Department's Decision on AA: 6/15/2017  
Permit Final: 7/01/2017

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Helena Sand & Gravel, Inc. (Helena Sand & Gravel) 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

Helena Sand & Gravel operates a portable parallel drum-mix asphalt plant and associated equipment. The home location for this equipment is Section 19, Township 10 North, Range 2 West, in Lewis and Clark County, Montana. However, MAQP #2735-06 applies while operating at any location in Montana, except those areas having a Department of Environmental Quality (Department) approved permitting program or those areas considered tribal lands. *A Missoula County air quality permit will be required for locations within Missoula County, Montana.*

MAQP #2735-06 and the additional more stringent conditions of Addendum 6 apply to the Helena Sand & Gravel 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<sub>10</sub>) nonattainment areas during the Summer Season (April 1 – September 30) and at sites approved by the Department of Environmental Quality – Air Quality Bureau during the Winter Season (October 1 – March 31). A complete list of permitted equipment is contained in Section I.A. of the permit analysis.

#### B. Current Permit Action

On May 16, 2017, the Department received a de minimis notification from Helena Sand & Gravel regarding the replacement of a 67 horsepower (hp) generator engine with an 80 hp generator engine. The current permit action updates the permit conditions related to the generator engines to reflect this replacement engine.

### SECTION II: Conditions and Limitations

#### A. Emission Limitations

1. Helena Sand & Gravel's asphalt plant particulate matter (PM) 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. Helena Sand & Gravel 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 17.8.752, ARM 17.8.340, and 40 CFR 60, Subpart I).
3. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from any New Source Performance Standard (NSPS)-affected equipment, including 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 20% or greater averaged over 6 consecutive minutes (ARM 17.8.752, ARM 17.8.340, and 40 CFR 60, Subpart I).
4. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere, from any non-NSPS affected equipment, any visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
5. Water and spray bars shall be available on site at all times and operated as necessary to maintain compliance with the opacity limitations in Sections II.A.3 and II.A.4 (ARM 17.8.749).
6. Helena Sand & Gravel 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 and ARM 17.8.752).
7. Helena Sand & Gravel shall treat all unpaved portions of the haul roads, access roads, parking lots, or the general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.6. (ARM 17.8.749 and ARM 17.8.752).
8. Helena Sand & Gravel shall install, operate, and maintain a fabric filter baghouse for air pollution control on the lime silo (ARM 17.8.749).
9. Helena Sand & Gravel shall install, operate, and maintain a baghouse for air pollution control on the drum mix asphalt plant (ARM 17.8.749).
10. Helena Sand & Gravel must install and maintain a device to measure the pressure drop (magnehelic gauge, manometer, etc.) across the control devices. Pressure drop must be measured in inches of water. Helena Sand & Gravel must also install and maintain temperature indicators at the control device inlet and outlet (ARM 17.8.749).
11. Once a stack test is performed, the asphalt production rate shall be limited to the average production rate during the last source test demonstrating compliance (ARM 17.8.749).
12. Operation of the asphalt plant shall not exceed 4400 hours during any rolling 12-month time period (ARM 17.8.749 and ARM 17.8.1204).

13. Helena Sand & Gravel shall not operate or have on site more than 2 diesel generator engines at one time (ARM 17.8.749).
14. The maximum rated capacity of the 2 diesel engines driving the generators shall not exceed 676-bhp and 80-bhp (ARM 17.8.749).
15. Emissions from the 676 bhp diesel generator engine shall not exceed the following limits, on a pounds per brake-horsepower hour (lb/bhp-hr) basis (ARM 17.8.752):
 

Oxides of Nitrogen (NO <sub>x</sub> ):	0.020 lb/bhp-hr
Carbon Monoxide (CO):	0.0007 lb/bhp-hr
Volatile Organic Compounds (VOC):	0.0012 lb/bhp-hr
PM <sub>10</sub> :	0.0007 lb/bhp-hr
16. Operation of the diesel engines driving the generators shall not exceed 4400 hours each during any rolling 12-month time period (ARM 17.8.749 and ARM 17.8.1204).
17. If the permitted equipment is used in conjunction with any other equipment owned or operated by Helena Sand & Gravel, at the same site, production shall be limited to correspond with an emission level that does not exceed 250 tons during any rolling 12-month period. Any calculations used to establish production levels shall be approved by the Department (ARM 17.8.749).
18. Helena Sand & Gravel shall comply with all applicable standards and limitations, and the reporting, recordkeeping, 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).
19. Helena Sand & Gravel shall comply with all applicable standards and limitations, and the reporting, record keeping, 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 engines (ARM 17.8.340 and 40 CFR 60, Subpart IIII, ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

B. Testing Requirements

1. Within 60 days after achieving maximum production, but no later than 180 days after initial start-up, an Environmental Protection Agency (EPA) 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 and/or other methods and procedures as specified in 40 CFR Part 60.675 must be performed on all NSPS-affected equipment to demonstrate compliance with the emission limitations contained in Sections 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. Helena Sand & Gravel may retest at any time in order to test at a higher production rate (ARM 17.8.749).
4. The asphalt plant baghouse pressure drop and temperature must be recorded daily and kept on-site, according to Section II.C.5 (ARM 17.8.749).
5. Temperature and pressure drop across the pollution control device must be recorded during the compliance source test and reported as part of the test results (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 Reporting Requirements

1. If this portable asphalt plant is moved to another location, an Intent to Transfer form must be sent to the Department and a Public Notice Form for Change of Location must be published in a newspaper of general circulation in the area to which the transfer is to be made, at least 15 days prior to the move. The proof of publication (affidavit) of the Public Notice Form for Change of Location must be submitted to the Department prior to the move. These forms are available from the Department (ARM 17.8.749 and ARM 17.8.765).
2. Helena Sand & Gravel shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in Section I.A of the permit analysis.

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

3. Helena Sand & Gravel 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).
4. If the 676 horsepower diesel generator engine is replaced under De Minimis, Helena Sand & Gravel shall provide notification to the Department in conformance with Section II.C.3 as well as 40 CFR Part 60 and Part 63 (ARM 17.8.745, ARM 17.8.340 and ARM 17.8.342).
5. Helena Sand & Gravel shall maintain on-site records showing daily hours of operation and daily production rates for the last 12 months including:
  - Daily hours of operation for the asphalt plant,
  - Daily hours of operation for the engines/generators,
  - Daily asphalt production, and
  - Daily pressure drop and temperature readings across the asphalt plant baghouse.

The records compiled in accordance with this permit shall be maintained by Helena Sand & Gravel as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

6. Helena Sand & Gravel shall document, by month, the hours of operation for the asphalt plant. By the 25<sup>th</sup> day of each month, Helena Sand & Gravel shall calculate the hours of operation for the asphalt plant during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section 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. Helena Sand & Gravel shall document, by month, the hours of operation of the diesel generator engines. By the 25<sup>th</sup> day of each month, Helena Sand & Gravel shall calculate the hours of operation for the diesel generator engines for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.16. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

8. Helena Sand & Gravel shall annually certify that its actual emissions are less than those that would require the source 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 with the annual emissions inventory information (ARM 17.8.1204).

D. Addendum

Helena Sand & Gravel shall comply with all conditions in Addendum 6 to MAQP #2735-06 when operating in or within 10 km of certain PM<sub>10</sub> nonattainment areas as described in Addendum 6 (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – Helena Sand & Gravel 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) or 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 Helena Sand & Gravel fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Helena Sand & Gravel of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided for in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties, or other enforcement, as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefor, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.

- G. Air Quality Operation Fees – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Helena Sand & Gravel 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. Helena Sand & Gravel 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  
Helena Sand & Gravel, Inc.  
MAQP #2735-06

I. Introduction/Process Description

Helena Sand & Gravel, Inc. owns and operates a portable drum-mix asphalt plant.

A. Permitted Equipment

Equipment used at the facility includes:

- 1992 Portable Asphalt Plant – parallel flow drum mix process, with baghouse (maximum 240 tons per hour (ton/hr) asphalt production);
- Asphalt hot oil storage with diesel burner (approx. 7.5 gallons per hour (gph));
- Aggregate storage piles, storage bins, screens, and conveyors;
- Lime silo with dust control (30 ton capacity, 2.5 ton/hr throughput rate);
- Hot mix asphalt storage silo filling & truck loadout;
- 676 brake horsepower (bhp) backup diesel generator engine (454 kilowatt (kW));
- 80 bhp diesel generator engine;
- Diesel fuel storage tank (up to 10,000 gallons); and
- Associated equipment.

B. Source Description

For a typical operational set-up, stockpiled aggregate is loaded into the cold feeder. The aggregate is dispensed from the bins, and dumped onto feeder conveyors that transfer the aggregate to the drum-mix dryer. The aggregate travels through the rotating drum where asphalt oil and lime are added to the dryer. The dryer drum mixes the asphalt oil, lime, and the aggregate. The resulting hot mix asphalt is loaded into a hot mix asphalt storage silo, where it is stored until the asphalt is dumped into trucks for transport to the project site.

C. Permit History

On July 2, 1992, **MAQP #2735-00** was issued to Helena Sand & Gravel, doing business as Blahnik (Blahnik) to operate a portable asphalt plant. The facility was originally operated in the southwest 1/4, of the northeast 1/4 of Section 12, Township 6 N, Range 21 W, in Ravalli County, Montana.

On September 9, 1997, Blahnik requested an addendum to MAQP #2735-00 to operate in Lots 3 and 4 of Section 3, Township 31 N, Range 19 W of Flathead County, Montana. This site location is within 10 kilometers (km) of the Columbia Falls particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) nonattainment area. **MAQP #2735-01** replaced MAQP #2735-00 and **Addendum 1** to MAQP #2735-01 was established.

On December 15, 1998, Blahnik requested a modification of MAQP #2735-01 and Addendum 1. The modified permit allowed for Summer Season operation (April 1 - September 30) in or within 10 km of any of the following PM<sub>10</sub> non-attainment areas (NAAs): Kalispell, Whitefish, Columbia Falls, Butte, Libby, and Thompson Falls. **MAQP #2735-02** replaced MAQP #2735-01 and **Addendum 2** replaced Addendum 1.

On January 22, 2008, the Department of Environmental Quality – Air Quality Bureau (Department) received a request from Blahnik for a permit modification. Specifically, the permit modification added a 676 bhp diesel genset unit with associated diesel fuel storage tank, and updated Addendum 2 (which expired in 1999) to **Addendum 3**, to allow for operation in or within 10 km of certain PM<sub>10</sub> nonattainment areas. Further, the Department updated the emission inventory for the permitted facility to reflect up-to-date published emission factors for hot mix asphalt plants and updated Addendum 3 to reflect current Department modeling guidance for portable or temporary sources operating in or within 10 km of certain PM<sub>10</sub> nonattainment areas during the Winter Season. **MAQP #2735-03** replaced MAQP #2735-02 and **Addendum 3** replaced Addendum 2.

On March 9, 2012, Blahnik submitted a request to amend MAQP #2735-04 to add one 67 bhp generator engine to the permitted equipment. The additional equipment did not result in the increase of any pollutant emissions by 5 tons or greater per year. Therefore, the generator engine was added as a de minimis change in accordance with Administrative Rules of Montana (ARM) 17.8.745. This permit action also added the 67 bhp engine/generator to the addendum, updated the rule references, the permit format, and the emissions inventory. **MAQP #2735-04** replaced MAQP #2735-03 and **Addendum 4** replaced Addendum 3.

On February 6, 2015, the Department received from Helena Sand & Gravel a request to change the home pit location for the equipment associated with this permit, and to change the name of the owner/operator to Helena Sand & Gravel. Helena Sand & Gravel posted a public notice regarding the change in location, also indicating this location will be the home pit location for this equipment. This equipment is expected to operate in a portable fashion; however, the equipment would reside at the aforementioned location between jobs. This equipment is not expected to operate at the same time as other equipment located at this same site, with exception of training needs or as a backup function. As required by permit condition, in no case are combined operations permitted to exceed 250 tons per year of any pollutant. **MAQP #2735-05** replaced MAQP #2734-04 and **Addendum 5** replaced Addendum 4.

D. Current Permit Action

On May 16, 2017, the Department received a de minimis notification from Helena Sand & Gravel regarding the replacement of a 67 horsepower (hp) generator engine with an 80 hp generator engine. The notification was the result of an inspection finding by the Department that Helena Sand & Gravel had been operating an 80 hp generator engine, which exceeded the maximum rated capacity allowable by the MAQP #2735-05 of 67 hp. The Department estimated the maximum potential emissions from the operation of the 80 hp engine for 4,400 hours per year as limited by MAQP #2735-05 and determined that it would not emit more than five tons per year of any regulated pollutant. Therefore, the 80 hp generator engine qualified as a de minimis change in accordance with ARM 17.8.745 and it could replace the 67 hp generator engine in the list of permitted equipment for MAQP #2735-05 with an administrative amendment via ARM 17.8.764. The current permit action updates the permit conditions related to the generator engines to reflect this replacement engine. **MAQP #2735-06** replaces MAQP #2734-05 and **Addendum 6** replaces Addendum 5.

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 initial 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 ARM and are available, upon request, from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, 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).

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

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

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

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM<sub>10</sub>

Helena Sand & Gravel must maintain compliance with the applicable ambient air quality standards.

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

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter (PM). (2) Under this rule, Helena Sand & Gravel shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Processes. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.
6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank truck or trailer is equipped with a vapor loss control device as described in (1) of this rule.
7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). Helena Sand & Gravel is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts:
  - a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
  - b. 40 CFR 60, Subpart I - Standards of Performance for Hot Mix Asphalt Facilities, applies to a hot mix asphalt facility constructed or modified after June 11, 1973. Therefore, the facility is subject to the requirements of 40 CFR 60, Subpart I.
  - 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. This NSPS will apply if the engine is operated as a stationary source.
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. Helena Sand & Gravel is considered a NESHAP-affected facility under 40 CFR Part 63 and is subject to the requirements of the following subparts:

- a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAPs Subpart as listed below:
- b. 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants 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.

Based on the information submitted by Helena Sand & Gravel, the RICE equipment to be used under this MAQP may potentially be subject to this subpart because it operates a compression ignition RICE at an area source of HAP emissions. This subpart would become applicable if a RICE is operated as a stationary source.

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

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. A permit fee is not required for the current permit action because the permit action is considered an administrative permit change.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department.

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

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

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any asphalt plant, crusher or screen that has the potential to emit (PTE) greater than 15 tons per year (TPY) of any pollutant.

Helena Sand & Gravel has a PTE greater than 15 TPY of PM, PM<sub>10</sub>, oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC); therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification or use of a source. A permit application was not required for the current permit action because the permit change is considered an administrative permit change. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. An affidavit of publication of public notice was not required for the current permit action because the permit change is considered an administrative permit change.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Helena Sand & Gravel of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. (1) This rule states that an MAQP may be transferred from one location to another if the Department receives a complete notice of intent to transfer location, the facility will operate in the new location for less than 1 year, the facility will comply with the FCAA and the Clean Air Act of Montana, and the facility complies with other applicable rules. (2) This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

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

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications-  
-Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source because it is not a listed source and the facility's PTE is less than 250 TPY (excluding fugitive emissions) of any air pollutant.

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

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
  - a. PTE > 100 TPY of any pollutant;
  - b. PTE > 10 TPY of any one hazardous air pollutant (HAP), PTE > 25 TPY of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
  - c. PTE > 70 TPY of PM<sub>10</sub> in a serious PM<sub>10</sub> 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 #2735-06 for Helena Sand & Gravel, the following conclusions were made:
  - a. The facility's PTE is less than 100 TPY for any pollutant.
  - b. The facility's PTE is less than 10 TPY for any one HAP and less than 25 TPY of all HAPs.
  - c. The source is not located in a serious PM<sub>10</sub> nonattainment area.
  - d. The facility is subject to current NSPS (40 CFR Part 60, Subparts A, I, and potentially IIII).
  - e. This facility may be subject to current NESHAP. (The facility may be subject to the area source MACT 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.

Helena Sand & Gravel 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 Helena Sand & Gravel is a synthetic minor source of emissions as defined under 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 required 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. Helena Sand & Gravel shall install on the new or modified source the maximum air pollution control capability which is technologically practicable and economically feasible, except that BACT shall be utilized.

A BACT determination was not required for the current permit action because the permit change is considered an administrative permit change.

#### IV. Emission Inventory

Emitting Unit	Potential to Emit TPY (restricted)						
	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>
Cold Aggregate Storage Piles	3.41	1.61	0.24	--	--	--	--
Cold Aggregate Handling/Conveyors (3 transfers)	0.15	0.05	0.54	--	--	--	--
Cold Aggregate Screen	5.70	3.48	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	--	--	--	--	0.020	--	--
240 TPH Drum Mix Asphalt Dryer	17.94	12.55	11.86	29.04	68.64	16.90	5.81
Asphalt Surge Bin (silo) Filling	0.31	0.31	0.31	--	0.62	6.05	--
Lime Silo	0.75	0.38	0.23	--	--	--	--
Plant Load-Out	0.28	0.28	0.28	--	0.71	2.06	--
Haul Roads / Vehicle Traffic	2.86	0.79	0.08	--	--	--	--
676 hp Diesel Engine Generator (676 bhp)	1.10	1.10	1.10	29.74	1.04	1.78	3.05
Diesel Engine Generator (80 bhp)	0.39	0.39	0.39	5.46	1.18	0.44	0.36
<b>Total</b>	<b>32.89</b>	<b>20.94</b>	<b>15.03</b>	<b>64.24</b>	<b>72.21</b>	<b>27.23</b>	<b>9.22</b>

Note: The potential to emit is based on restricted annual operations of less than 4400 hours/year.

#### Emission Calculations

##### Cold Aggregate Storage Piles

Maximum Process Rate = (Maximum plant process rate) 240 ton/hr  
 Maximum Hours of Operation = 4,400 hrs/yr  
 Number of Piles = 2 piles

##### **PM Emissions:**

Predictive equation for emission factor provided per AP 42, Sec. 13.2.4.3, 11/06.

Emission Factor =  $k (U/5)^{1.3} * (M / 2)^{-1.4} =$  0.00322 lb/ton

Where: k = particle size multiplier = 0.74 (Value for PM < 30 microns) 0.74

U = mean wind speed = 8.15 mph (Estimate based on values provided in AP 42) 8.15 mph

M = material moisture content = 2.525% (Estimate based on values provided in AP 42) 2.525 %

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

Calculation: (240 ton/hr) \* (4400 hrs/yr) \* (0.00322 lb/ton) \* (ton/2000 lb) \* (2 pile) = 3.41 ton/yr

Note: Based on the conditions assumed in the predictive equation without add'l water spray control.

##### **PM<sub>10</sub> Emissions:**

Predictive equation for emission factor provided per AP 42, Sec. 13.2.4.3, 11/06.

Emission Factor =  $k (U/5)^{1.3} * (M / 2)^{-1.4} =$  0.00153 lb/ton

Where: k = particle size multiplier = 0.35 (Value for PM < 10 microns) 0.35

U = mean wind speed = 8.15 mph (Estimate based on values provided in AP 42) 8.15 mph

M = material moisture content = 2.525% (Estimate based on values provided in AP 42) 2.525 %

Control Efficiency = 0% (Water or chemical spray) 0 %

Calculation: (240 ton/hr) \* (4400 hrs/yr) \* (0.00153 lb/ton) \* (ton/2000 lb) \* (2 pile) = 1.61 ton/yr

Note: Based on the conditions assumed in the predictive equation without add'l water spray control.

**Filterable PM<sub>2.5</sub> Emissions:**

Predictive equation for emission factor provided per **AP 42, Sec. 13.2.4.3, 11/06.**

Emission Factor = $k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} =$	0.00023	lb/ton
Where: k = particle size multiplier = 0.053 (Value for PM < 2.5 microns)	0.053	
U = mean wind speed = 8.15 mph (Estimate based on values provided in AP 42)	8.15	mph
M = material moisture content = 2.525% (Estimate based on values provided in AP 42)	2.5	%
Control Efficiency = 0% (Water or chemical spray)	0	%
Calculation: (240 ton/hr) * (4400 hrs/yr) * (0.00023 lb/ton) * (ton/2000 lb) * (2 pile) =	<b>0.24</b>	ton/yr

**Cold Aggregate Handling/Conveyor Transfer Points (SCC 3-05-02006)**

Maximum Process Rate = (Maximum plant process rate)	240	ton/hr
Maximum Hours of Operation =	4,400	hrs/yr
Number of Transfers = (Company Information)	2	transfers

**Total PM Emissions:**

Emission Factor = 0.00014 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.00014	lb/ton
Calculation: (240 ton/hr)* (4400 hrs/yr)* (2 transfers)* (ton/2000 lb)* (0.00014 lb/ton) =	<b>0.15</b>	ton/yr

**Total PM<sub>10</sub> Emissions:**

Emission Factor = 0.000046 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.000046	lb/ton
Calculation: (240 ton/hr)*(4400 hrs/yr)*(0.5376 lbs/day)*(ton/2000 lb)*(0.00014 lb/ton) =	<b>0.05</b>	ton/yr

**Cold Aggregate Screen (SCC 3-05-020-21)**

Maximum Process Rate =	240	ton/hr
Maximum Hours of Operation =	4,400	hrs/year
Number of Screens =	3	screens

**Total PM Emissions:**

Emission Factor = 0.0036 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.0036	lb/ton
Control Efficiency = 0% (Dept Guidance 4/8/93)	0	%
Calculation: (240 ton/hr) * (4400 hrs/year) * (3 screens) * (ton/2000 lb) * (0.0036 lb/ton)	<b>5.7</b>	ton/yr
=		
Note: Based on controlled emissions factors		

**Total PM<sub>10</sub> Emissions:**

Emission Factor = 0.0022 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.0022	lb/ton
Control Efficiency = 0% (Dept Guidance 4/8/93)	0	%
Calculation: (240 ton/hr) * (4400 hrs/year) * (3 screens) * (ton/2000 lb) * (0.0022 lb/ton)	<b>3.48</b>	ton/yr
=		

**Diesel Fired Asphalt Oil Heater**

Production Rate = 7.50 gal/hr (Company Information - runs @ 6 gph, 80% capacity)	7.50	gal/hr
Maximum Hours of Operation =	4,400	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) 0.0012 lb/gal  
 Control Efficiency = 0% 0 %  
 Calculation: (4400 hrs/yr) \* (7.50 gal/hr) \* (0.0012 lb/gal) \* (ton/2000 lb) = **0.020** ton/yr

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

Maximum Process Rate = (Application information) 240 ton/hr  
 Maximum Hours of Operation = 4,400 hrs/yr  
 Dry Standard Volumetric Flowrate (from previous versions of permit): 10,200 dscfm

**Filterable PM Emissions:***Based on Emission Limit*

Emission Factor = (permit limit) 0.04 gr/dscf  
 Calculation: (0.04 gr/dscf) \* (10,200 dscfm) \* (1 lb / 7000 gr) \* (60 min/hr) = **3.50** lb/hr  
 Calculation: (3.50 lb/hr) \* (4400 hrs/yr) \* (0.0005 ton/lb) = **7.69** ton/yr

**Filterable PM<sub>10</sub> Emissions:***Based on Emission Limit*

Emission Factor = 0.012 gr/dscf (AP-42 Table 11.1-4, PM<sub>10</sub> is 30% of filterable PM) 0.012 gr/dscf  
 Calculation: (0.012 gr/dscf) \* (10,200 dscfm) \* (1 lb / 7000 gr) \* (60 min/hr) = **1.05** lb/hr  
 Calculation: (1.05 lb/hr) \* (4400 hrs/yr) \* (0.0005 ton/lb) = **2.31** ton/yr

**Filterable PM<sub>2.5</sub> Emissions:***Based on Emission Limit*

Emission Factor = 0.0084 gr/dscf (AP-42 Table 11.1-4, PM<sub>10</sub> is 21% of filterable PM) 0.0084 gr/dscf  
 Calculation: (0.0084 gr/dscf) \* (10,200 dscfm) \* (1 lb / 7000 gr) \* (60 min/hr) = **0.73** lb/hr  
 Calculation: (0.73 lb/hr) \* (4400 hrs/yr) \* (0.0005 ton/lb) = **1.62** ton/yr

**CO Emissions:**

Emission Factor = 0.13 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04) 0.13 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation: (240 ton/hr) \* (4400 hrs/yr) \* (0.13 lb/ton) \* (ton/2000 lb) = **68.64** ton/yr

**NO<sub>x</sub> Emissions:**

Emission Factor = 0.055 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04) 0.055 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation: (240 ton/hr) \* (4400 hrs/yr) \* (0.055 lb/ton) \* (ton/2000 lb) = **29.04** ton/yr

**SO<sub>2</sub> Emissions:**

Emission Factor = 0.011 lb/ton (0.011 lb/ton #2 fuel oil, AP 42, Table 11.1-7, 3/04) 0.011 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation: (240 ton/hr) \* (4400 hrs/yr) \* (0.011 lb/ton) \* (ton/2000 lb) = **5.81** ton/yr

**VOC Emissions:**

Emission Factor = 0.032 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-8, 3/04) 0.032 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation: (240 ton/hr) \* (4400 hrs/yr) \* (0.032 lb/ton) \* (ton/2000 lb) = **16.90** ton/yr

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

Maximum Process Rate = (Maximum plant process rate) 240 ton/hr  
 Maximum Hours of Operation = 4,400 hr/year

**Total PM Emissions:**

(Total PM is assumed to be predominantly PM<sub>2.5</sub> since emissions consist of condensed vapors; AP 42, Table 11.1-14.)

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

Emission Factor = 0.000332 + 0.00105(-V)e<sup>^</sup>((0.0251)(T + 460) - 20.43) = 0.00059 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  
 Control Efficiency = 0% 0 %  
 Calculation: (240 ton/hr) \* (4400 hr/year) \* (0.00059 lb/ton) \* (ton/2000 lb) = **0.31** TPY

**VOC Emissions: (VOC = TOC \* 94%, AP-42, Table 11.1-16, 3/04)**

Predictive equation for TOC emission factor provided per AP 42, Table 11.1-14, 3/04.  
 Emission Factor =  $0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$  \* (94%) = 0.01146 lb/ton 0.01146 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  
 Control Efficiency = 0% 0 %  
 Calculation: (240 ton/hr) \* (4400 hr/year) \* (0.01146 lb/ton) \* (ton/2000 lb) = **6.05** TPY

**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  
 Control Efficiency = 0% 0 %  
 Calculation: (240 ton/hr) \* (4400 hr/year) \* (0.00118 lb/ton) \* (ton/2000 lb) = **0.62** TPY

**Lime Silo**

Flow Capacity = 1,000 cfm (similar sized facility) 1,000 cfm  
 Maximum Hours of Operation = 4,400 hrs/yr

**Total PM Emissions:**

Emission Factor = 0.04 gr/dscf (Permit limit per NSPS) 0.04 gr/dscf  
 Control Efficiency = 0% 0 %  
 Calculation: (1000 cfm) \* (4400 hrs/year) \* (0.04 gr/dscf) \* (lb/7000 gr) \* (60 min/hr) \* 1/2000 = **0.75** TPY

**Total PM<sub>10</sub> Emissions:**

Emission Factor = 0.02 gr/dscf Assume PM<sub>10</sub> = 50% of PM, Department Policy 0.02 gr/dscf  
 Control Efficiency = 0% 0 %  
 Calculation: (1000 cfm) \* (4400 hrs/year) \* (0.02 gr/dscf) \* (lb/7000 gr) \* (60 min/hr) \* 1/2000 = **0.38** TPY

**Total PM<sub>2.5</sub> Emissions:**

Emission Factor = 0.012 gr/dscf Assume PM<sub>2.5</sub> = 30% of PM, AP-42, Appendix B-2, Category 4 0.012 gr/dscf  
 Control Efficiency = 0% 0 %  
 Calculation: (1000 cfm) \* (4400 hrs/year) \* (0.012 gr/dscf) \* (lb/7000 gr) \* (60 min/hr) \* 1/2000 = **0.23** TPY

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

Maximum Process Rate = (Maximum plant process rate) 240 ton/hr  
 Maximum Hours of Operation = 4,400 hrs/yr

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 0.00052 lb/ton  
 Where: V = Asphalt volatility = -0.5 (Default value per AP 42) -0.5  
 T = HMA mix temperature = 325 F (Default value per AP 42) 325 F  
 Control Efficiency = 0% 0 %  
 Calculation: (240 ton/hr) \* (4400 hrs/yr) \* (0.00052 lb/ton) \* (ton/2000 lb) = **0.276** ton/yr

**VOC Emissions: (VOC = TOC \* 94%, AP-42, Table 11.1-16, 3/04)**

Predictive equation for emission factor provided per AP 42.

$$\text{Emission Factor} = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)} * 94\% = 0.00391 \text{ lb/ton}$$

Where: V = Asphalt volatility = -0.5 (Default value per AP 42) -0.5

T = HMA mix temperature = 325 F (Default value per AP 42) 325 F

Control Efficiency = 0% 0 %

$$\text{Calculation: } (240 \text{ ton/hr}) * (4400 \text{ hrs/yr}) * (0.00391 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 2.06 \text{ ton/yr}$$

**CO Emissions:**

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

$$\text{Emission Factor} = 0.00558(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00135 \text{ lb/ton}$$

Where: V = Asphalt volatility = -0.5 (Default value per AP 42) -0.5

T = HMA mix temperature = 325 F (Default value per AP 42) 325 F

Control Efficiency = 0% 0 %

$$\text{Calculation: } (240 \text{ ton/hr}) * (4400 \text{ hrs/yr}) * (0.00135 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.71 \text{ ton/yr}$$

**Haul Roads**

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

Hours of Operation = 4,400 hrs/yr 4,400 hrs/yr

**PM Emissions:**

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

$$\text{Emission Factor} = k * (s / 12)^a * (W / 3)^b = 12.46 \text{ lb/VMT} \quad 12.46 \text{ lb/VMT}$$

Where: k = constant = 0.15 lbs/VMT (Value for PM<sub>2.5</sub>) 4.9 lbs/VMT

s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area) 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 PM<sub>2.5</sub>) 0.7

b = constant = 0.45 (Value for PM<sub>2.5</sub>) 0.45

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

$$\text{Calculation: } (4400 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (12.46 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) = (\text{Uncontrolled}) \quad 5.71 \text{ tons/yr}$$

$$\text{Calculation: } (4400 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (12.46 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) * (1-50/100) = (\text{Controlled}) \quad 2.86 \text{ tons/yr}$$

**PM<sub>10</sub> Emissions:**

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

$$\text{Emission Factor} = k * (s / 12)^a * (W / 3)^b = 3.43 \text{ lb/VMT} \quad 3.43 \text{ lb/VMT}$$

Where: k = constant = 0.15 lbs/VMT (Value for PM<sub>2.5</sub>) 1.5 lbs/VMT

s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area) 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 PM<sub>2.5</sub>) 0.9

b = constant = 0.45 (Value for PM<sub>2.5</sub>) 0.45

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

$$\text{Calculation: } (4400 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (3.43 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) = (\text{Uncontrolled}) \quad 1.57 \text{ tons/yr}$$

$$\text{Calculation: } (4400 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (3.43 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) * (1-50/100) = (\text{Controlled}) \quad 0.79 \text{ tons/yr}$$

**PM<sub>2.5</sub> Emissions:**

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

$$\text{Emission Factor} = k * (s / 12)^a * (W / 3)^b = 0.34 \text{ lb/VMT} \quad 0.34 \text{ lb/VMT}$$

Where: k = constant = 0.15 lbs/VMT (Value for PM<sub>2.5</sub>) 0.15 lbs/VMT

s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area) 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 PM <sub>2.5</sub> )	0.9
b = constant = 0.45 (Value for PM <sub>2.5</sub> )	0.45
Control Efficiency = 50% (Water spray or chemical dust suppressant)	50 %
Calculation: (4400 hrs/yr) * (0.21 VMT/hr) * (0.34 lb/VMT) * (ton/2000 lb) = (Uncontrolled)	<b>0.16</b> tons/yr
Calculation: (4400 hrs/yr) * (0.21 VMT/hr) * (0.34 lb/VMT) * (ton/2000 lb) * (1-50/100) = (Controlled)	<b>0.08</b> tons/yr

### **Diesel Generator Engine (676 bhp)**

Generator =	454 kw
Operational Capacity of Engine =	676.0 hp
Hours of Operation =	4,400 hours

#### **Total PM/PM<sub>10</sub>/PM<sub>2.5</sub> Emissions:**

Emission Factor = manuf rating (BACT)	7.40E-04 lbs/hp-hr
Calculation: (4,400 hours) * (676 hp) * (0.00074 lbs/hp-hr) * (ton/2000 lb) =	<b>1.10</b> ton/yr

#### **NO<sub>x</sub> Emissions:**

Emission Factor = manuf rating (BACT)	2.00E-02 lbs/hp-hr
Calculation: (4,400 hours) * (676 hp) * (0.02 lbs/hp-hr) * (ton/2000 lb) =	<b>29.74</b> ton/yr

#### **CO Emissions:**

Emission Factor = manuf rating (BACT)	7.00E-04 lbs/hp-hr
Calculation: (4,400 hours) * (676 hp) * (0.0007 lbs/hp-hr) * (ton/2000 lb) =	<b>1.04</b> ton/yr

#### **VOC Emissions:**

Emission Factor = manuf rating (BACT)	1.20E-03 lbs/hp-hr
Calculation: (4,400 hours) * (676 hp) * (0.0012 lbs/hp-hr) * (ton/2000 lb) =	<b>1.78</b> ton/yr

#### **SO<sub>2</sub> Emissions:**

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.05E-03 lbs/hp-hr
Calculation: (4,400 hours) * (676 hp) * (0.00205 lbs/hp-hr) * (ton/2000 lb) =	<b>3.05</b> ton/yr

### **Diesel Generator Engine (80 bhp)**

Generator =	50 kw
Operational Capacity of Engine =	80.0 hp
Hours of Operation =	4,400 hours

#### **Total PM/PM<sub>10</sub>/PM<sub>2.5</sub> Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	2.20E-03 lbs/hp-hr
Calculation: (4,400 hours) * (80 hp) * (0.0022 lbs/hp-hr) * (ton/2000 lb) =	<b>0.39</b> ton/yr

#### **NO<sub>x</sub> Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	3.10E-02 lbs/hp-hr
Calculation: (4,400 hours) * (80 hp) * (0.031 lbs/hp-hr) * (ton/2000 lb) =	<b>5.46</b> ton/yr

#### **CO Emissions:**

Emission Factor (AP-42, Sec. 3.3, Table 3.3-1, 10/96)=	6.68E-03 lbs/hp-hr
Calculation: (4,400 hours) * (80 hp) * (0.00668 lbs/hp-hr) * (ton/2000 lb) =	<b>1.18</b> ton/yr

**VOC Emissions:**

Emission Factor (AP-42, Table 3.3-1, TOC, Exhaust + Crankcase, 10/96)= 2.51E-03 lbs/hp-hr  
Calculation: (4,400 hours) \* (80 hp) \* (0.0025141 lbs/hp-hr) \* (ton/2000 lb) = **0.44** ton/yr

**SO<sub>2</sub> Emissions:**

Emission Factor (AP-42, Sec. 3.3, Table 3.3-1, 10/96) = 2.05E-03 lbs/hp-hr  
Calculation: (4,400 hours) \* (80 hp) \* (0.00205 lbs/hp-hr) \* (ton/2000 lb) = **0.36** ton/yr

V. Existing Air Quality

MAQP #2735-06 is issued for the operation of a portable drum mix asphalt plant while operating at any location within Montana, except within those areas having a Department-approved permitting program or those areas considered to be tribal lands. *A Missoula County air quality permit will be required for locations within Missoula County, Montana.* The Department determined that the amount of controlled emissions generated by this facility will not exceed any set ambient air quality standard. In addition, this source is portable and will likely operate on an intermittent and temporary basis at any given location.

MAQP #2735-06 and Addendum 6 are issued for a facility that will locate at sites in or within 10 km of certain PM<sub>10</sub> 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 likely operate on an intermittent and temporary basis.

Addendum 6 of MAQP #2735-06 applies to the Helena Sand & Gravel facility while operating at specific locations in or within 10 km of certain PM<sub>10</sub> nonattainment areas during the winter season, as approved by the Department, and at any location in or within 10 km of any PM<sub>10</sub> nonattainment areas during the summer months.

VI. Air Quality Impacts

MAQP #2735-06 is issued for a portable drum-mix asphalt plant to be located at various locations throughout Montana. This permit contains operational conditions and limitations that would protect air quality for any given operating site and the surrounding area.

VII. Ambient Air Impact Analysis

Based on the information provided and the conditions established in MAQP #2735-06, the Department determined that there will be no impacts from this permitting action. 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?

YES	NO	
	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.

#### VIII. Environmental Assessment

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

Analysis Prepared By: Ed Warner

Date: 6/13/2017

ADDENDUM 6  
Helena Sand & Gravel, Inc.  
Montana Air Quality Permit (MAQP) #2735-06

An addendum to MAQP #2735-06, containing additional and/or more stringent conditions to allow for operations in specified PM<sub>10</sub> nonattainment areas, is hereby granted to Helena Sand & Gravel, Inc. pursuant to Section 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.765, *et seq.*, as amended, for the following:

I. Permitted Equipment

Helena Sand & Gravel, Inc. (Helena Sand & Gravel) owns and operates a portable drum-mix asphalt plant. Equipment used at the facility includes:

- 1992 Portable Asphalt Plant – parallel flow drum mix process, with baghouse (maximum 240 tons per hour (ton/hr));
- Asphalt hot oil storage with diesel burner (approx. 7.5 gallons per hour (gph));
- Aggregate storage piles, storage bins, screens, and conveyors;
- Lime silo with dust control (30 ton capacity, 2.5 ton/hr throughput rate);
- Hot mix asphalt storage silo filling & truck loadout;
- 676 brake horsepower (bhp) backup power diesel engine/generator (454 kilowatt (kW)) (summer season operation only);
- 80 bhp diesel engine/generator;
- Diesel fuel storage tank (up to 10,000 gallons); and
- Associated equipment.

II. Seasonal and Site Restrictions – **Winter and Summer Seasons**

MAQP #2735-06 and Addendum 6 apply to the operation 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<sub>10</sub>) nonattainment areas (NAAs). Additionally, seasonal and site restrictions apply as follows:

- A. During the Winter Season (October 1 - March 31) - The only location in or within 10 km of a PM<sub>10</sub> nonattainment area where this equipment may operate is:
1. Any site that may be approved, in writing, by the Department of Environmental Quality (Department).

- B. During the Summer Season (April 1 - September 30) – Helena Sand & Gravel may operate at any location in or within 10 km of the Kalispell, Whitefish, Columbia Falls, Butte, Libby, and Thompson Falls PM<sub>10</sub> NAAs.
- C. Helena Sand & Gravel shall comply with the limitations and conditions contained in MAQP #2764-06 and Addendum 6 while operating in or within 10 km of any of the previously identified PM<sub>10</sub> nonattainment areas. Addendum 6 shall be valid until revoked or modified. The Department reserves the authority to modify Addendum 6 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. **Additional or More Stringent Operational Limitations and Conditions: Summer Season (April 1 - September 30)**
  - 1. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from any equipment any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
  - 2. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from the facility any fugitive emissions, including, but not limited to, truck loading or unloading and material transfer operations, which exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
  - 3. Water and water spray bars shall be available on site at all times and operated, as necessary, to maintain compliance with the opacity limitations in Section III.A.1 and III.A.2 (ARM 17.8.749).
  - 4. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property any visible fugitive emissions that exhibit an opacity of 10% or greater (ARM 17.8.749).
  - 5. Helena Sand & Gravel shall treat all unpaved portions of the access roads, parking lots, and general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions and visible fugitive emission limitations in Section III.A.4 (ARM 17.8.749).
- B. **Additional or More Stringent Operational Limitations and Conditions: Winter Season (October 1 - March 31)**
  - 1. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from any equipment any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

2. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from the facility any fugitive emissions, including, but not limited to, truck loading or unloading and material transfer operations, which exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
3. Water and water spray bars shall be available on site at all times and operated, as necessary, to maintain compliance with the opacity limitation in Sections III.B.1 and III.B.2 (ARM 17.8.749).
4. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property any visible fugitive emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
5. Helena Sand & Gravel shall treat all unpaved portions of the access roads, parking lots, and general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions and visible fugitive emission limitations in Section III.B.4 (ARM 17.8.749).
6. During the Winter Season, asphalt plant production shall not exceed 7 hours per day (ARM 17.8.749).
7. During the Winter Season, asphalt plant production shall not exceed 1,680 tons per day (ARM 17.8.749).
8. During the Winter Season, Helena Sand & Gravel shall not operate the 676 bhp diesel generator engine (ARM 17.8.749).

C. Operational Reporting Requirements (**Winter and Summer Seasons**)

1. If this portable 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. During the Winter Season (October 1 - March 31), Helena Sand & Gravel shall document the daily asphalt production and the total hours of operation for the asphalt plant and generator engine. The daily information will be used to verify compliance with the limitations in Section III.B.6, III.B.7, and III.B.8 (ARM 17.8.749).

3. Production information for the sites covered by this addendum must be maintained for 5 years and submitted to the Department upon request. The information shall include (ARM 17.8.749):
  - a. Daily tons of asphalt produced. Helena Sand & Gravel shall document, by day, the total asphalt production. Helena Sand & Gravel shall sum the total asphalt production for the previous day to demonstrate compliance with the limitations in Section III.B.7;
  - b. Daily hours of operation at each site;
  - c. Daily hours of operation and the bhp for each engine at each site;
  - d. Type and amount of fuel used for the:
    - i. Asphalt plant (hot mix dryer),
    - ii. Hot oil heater, and,
    - iii. Diesel engine/generator;
  - e. Fugitive dust information consisting of the daily total miles driven on unpaved roads within the operating site for all plant vehicles.

ADDENDUM 6 ANALYSIS  
Helena Sand & Gravel, Inc.  
Montana Air Quality Permit (MAQP) #2735-06

I. Permitted Equipment

Helena Sand & Gravel, Inc (Helena Sand & Gravel) owns and operates a portable drum-mix asphalt plant. Equipment used at the facility includes:

- 1992 Portable Asphalt Plant – parallel flow drum mix process, with baghouse (maximum 240 tons per hour (ton/hr));
- Asphalt hot oil storage with diesel burner (approx. 7.5 gallons per hour (gph));
- Aggregate storage piles, storage bins, screens, and conveyors;
- Lime silo with dust control (30 ton capacity, 2.5 ton/hr throughput rate);
- Hot mix asphalt storage silo filling & truck loadout;
- 676 horsepower (bhp) backup power diesel engine/generator (454 kilowatt (kW));
- 80 bhp diesel engine/generator;
- Diesel fuel storage tank (up to 10,000 gallons); and
- Associated equipment.

II. Source Description

For a typical operational set-up, stockpiled aggregate is loaded into the cold feeder. The aggregate is dispensed from the bins, and dumped onto feeder conveyors that transfer the aggregate to the drum-mix dryer. The aggregate travels through the rotating drum where asphalt oil and lime is added to the dryer. The dryer drum mixes the asphalt oil, lime, and the aggregate. The resulting hot mix asphalt is loaded into a hot mix asphalt storage silo where it is stored until the asphalt is dumped into trucks for transport to the project site.

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 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 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.
- 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

Summer Season	lbs/day						
Emission Source	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>
Cold Aggregate Storage Piles	37.15	17.57	2.66	--	--	--	--
Cold Aggregate Conveyors (2 transfers)	1.61	0.53	0.00	--	--	--	--
Cold Aggregate Screen	62.21	38.02	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	--	--	--	--	0.2160	--	--
240 TPH Drum Mix Asphalt Dryer	195.68	136.92	50.22	316.80	748.80	184.32	63.36
Asphalt Surge Bin (silo) Filling	3.37	3.37	3.37	--	6.80	65.98	--
Lime Silo	8.23	4.11	2.47	--	--	--	--
Plant Load-Out	3.01	3.01	3.01	--	7.77	22.52	--
Haul Roads / Vehicle Traffic	69.50	19.76	1.98	--	--	--	--
676 hp Diesel Generator Engine (676 bhp)	12.01	12.01	12.01	324.48	11.36	19.47	33.26
Diesel Generator Engine (80 bhp)	4.22	4.22	4.22	59.52	12.83	4.83	3.94
<b>Total Emissions</b>	<b>396.99</b>	<b>239.52</b>	<b>79.94</b>	<b>700.80</b>	<b>787.78</b>	<b>297.12</b>	<b>100.56</b>

a. PM<sub>10</sub> emissions do not exceed 547 lb/day.

Winter Season	lbs/day						
	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>
Cold Aggregate Storage Piles	10.84	5.12	0.78	--	--	--	--
Cold Aggregate Conveyors (2 transfers)	0.47	0.15	0.00	--	--	--	--
Cold Aggregate Screen (controlled)	18.14	11.09	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	--	--	--	--	0.06300	--	--
240 TPH Drum Mix Asphalt Dryer	57.07	39.94	37.73	92.40	218.40	53.76	18.48
Asphalt Surge Bin (silo) Filling	0.98	0.98	0.98	--	1.98	19.25	--
Lime Silo	2.40	1.20	0.72	--	--	--	--
Plant Load-Out	0.88	0.88	0.88	--	2.27	6.57	--
Haul Roads / Vehicle Traffic	20.27	5.76	0.58	--	--	--	--
676 bhp Diesel Generator Engine	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel Generator Engine (80 bhp)	1.23	1.23	1.23	17.36	3.74	1.41	1.15
<b>Total Emissions</b>	<b>112.28</b>	<b>66.35</b>	<b>42.90</b>	<b>109.76</b>	<b>226.45</b>	<b>80.99</b>	<b>19.63</b>

1. Hours of operation restricted to 7hrs/day to keep PM<sub>10</sub> emissions below 82 lbs/day

### Cold Aggregate Storage Piles

Maximum Process Rate (Maximum plant process rate)	240	ton/hr
Number of Piles	2	pile
Maximum Hours of Operation (summer hours)	24	hrs/day
Maximum Hours of Operation (winter hours)	7	hrs/day

#### **PM Emissions:**

Predictive equation for emission factor provided per **AP 42, Sec. 13.2.4.3, 11/06.**

$$\text{Emission Factor} = k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} = 0.00322 \text{ lb/ton}$$

Where: k = particle size multiplier = 0.74 (Value for PM < 30 microns per AP 42) 0.74

U = mean wind speed = 8.15 mph (Estimate based on values provided in AP 42) 8.15 mph

M = material moisture content = 2.525% (Estimate based on values provided in AP 42) 2.525 %

Control Efficiency = 0% (Water or chemical spray) 0 %

Summer Calculation: (240 ton/hr) \* (24 hrs/day) \* (0.00322 lb/ton) \* (2 pile) = **37.15** lb/day

Winter Calculation: (240 ton/hr) \* (7 hrs/day) \* (0.00322 lb/ton) \* (2 pile) = **10.84** lb/day

Note: Based on the conditions assumed in the predictive equation without add'l water spray control.

#### **PM<sub>10</sub> Emissions:**

Predictive equation for emission factor provided per **AP 42, Sec. 13.2.4.3, 11/06.**

$$\text{Emission Factor} = k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} = 0.00153 \text{ lb/ton}$$

Where: k = particle size multiplier = 0.35 (Value for PM < 10 microns per AP 42) 0.35

U = mean wind speed = 8.15 mph (Estimate based on values provided in AP 42) 8.15 mph

M = material moisture content = 2.525% (Estimate based on values provided in AP 42) 2.525 %

Control Efficiency = 0% (Water or chemical spray) 0 %

Summer Calculation: (240 ton/hr) \* (24 hrs/day) \* (0.00153 lb/ton) \* (2 pile) = **17.57** lb/day

Winter Calculation: (240 ton/hr) \* (7 hrs/day) \* (0.00153 lb/ton) \* (2 pile) = **5.12** lb/day

Note: Based on the conditions assumed in the predictive equation without add'l water spray control.

#### **Filterable PM<sub>2.5</sub> Emissions:**

Predictive equation for emission factor provided per **AP 42, Sec. 13.2.4.3, 11/06.**

$$\text{Emission Factor} = k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} = 0.00023 \text{ lb/ton}$$

Where: k = particle size multiplier = 0.053 (Value for PM < 2.5 microns per AP 42) 0.053

U = mean wind speed = 8.15 mph (Estimate based on values provided in AP 42) 8.15 mph

M = material moisture content = 2.525% (Estimate based on values provided in AP 42) 2.5 %

Control Efficiency = 0% (Water or chemical spray) 0 %

Summer Calculation: (240 ton/hr) \* (24 hrs/day) \* (0.00023 lb/ton) \* (2 pile) = **2.66** lb/day

Winter Calculation: (240 ton/hr) \* (7 hrs/day) \* (0.00023 lb/ton) \* (2 pile) = **0.78** lb/day

**Cold Aggregate Handling/Conveyors (2 transfers) (SCC 3-05-02006)**

Maximum Process Rate	240	ton/hr
Maximum Hours of Operation (summer hours)	24	hrs/day
Maximum Hours of Operation (winter hours)	7	hrs/day
Number of Transfers (Company Information)	2	transfers

**Total PM Emissions:**

Emission Factor = 0.00014 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.00014	lb/ton
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (2 transfers) * (0.00014 lb/ton) =	<b>1.61</b>	lbs/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (2 transfers) * (0.00014 lb/ton) =	<b>0.47</b>	lbs/day

**Total PM<sub>10</sub> Emissions:**

Emission Factor = 0.000046 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.000046	lb/ton
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (2 transfers) * (0.000046 lb/ton) =	<b>0.53</b>	lbs/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (2 transfers) * (0.000046 lb/ton) =	<b>0.15</b>	lbs/day

**Cold Aggregate Screen (SCC 3-05-020-21)**

Maximum Process Rate =	240	ton/hr
Maximum Hours of Operation =	24	hrs/day
Maximum Hours of Operation =	7	hrs/day
Number of Screens =	3	screens

**Total PM Emissions:**

Emission Factor = 0.0036 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.0036	lb/ton
Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (3 screens) * (0.0036 lb/ton) =	<b>62.21</b>	lbs/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (3 screens) * (0.0036 lb/ton) =	<b>18.14</b>	lbs/day
Note: Based on controlled emissions factors		

**Total PM<sub>10</sub> Emissions:**

Emission Factor = 0.0022 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.0022	lb/ton
Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (3 screens) * (0.0022 lb/ton) =	<b>38.02</b>	lbs/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (3 screens) * (0.0022 lb/ton) =	<b>11.09</b>	lbs/day

**Hot Oil Heater**

Production Rate = (Company Information - runs @ 6 gph, 80% capacity)	7.50	gal/hr
Maximum Hours of Operation =	24	hrs/day
Maximum Hours of Operation =	7	hrs/day

**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
Control Efficiency = 0%	0	%
Summer Calculation: (24 hrs/day) * (7.5 gal/hr) * (0.0012 lb/gal) =	<b>0.2160</b>	lbs/day
Winter Calculation: (78 hrs/day) * (7.5 gal/hr) * (0.0012 lb/gal) =	<b>0.0630</b>	lbs/day

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

Maximum Process Rate (Application information)	240	ton/hr
Maximum Hours of Operation (summer hours)	24	hrs/day
Maximum Hours of Operation (winter hours)	7	hrs/day
Dry Standard Volumetric Flowrate:	10,200	dscfm

**Filterable PM Emissions:***Based on Emission Limit*

Emission Factor = 0.04 gr/dscf (permit limit)	0.04	gr/dscf
Calculation: (0.04 gr/dscf) * (10,200 dscfm) * (1 lb / 7000 gr) * (60 min/hr) =	<b>3.50</b>	lb/hr
Summer Calculation: (3.50 lb/hr) * (24 hrs/day) =	<b>83.93</b>	lbs/day
Winter Calculation: (3.50 lb/hr) * (7 hrs/day) =	<b>24.48</b>	lbs/day

**Filterable PM<sub>10</sub> Emissions:***Based on Emission Limit*

Emission Factor = 0.012 gr/dscf (AP-42 Table 11.1-4, PM10 is 30% of filterable PM)	0.012	gr/dscf
Calculation: (0.012 gr/dscf) * (10,200 dscfm) * (1 lb / 7000 gr) * (60 min/hr) =	<b>1.05</b>	lb/hr
Summer Calculation: (1.05 lb/hr) * (24 hrs/day) =	<b>25.18</b>	lbs/day
Winter Calculation: (1.05 lb/hr) * (7 hrs/day) =	<b>7.34</b>	lbs/day

**Filterable PM<sub>2.5</sub> Emissions:***Based on Emission Limit*

Emission Factor = 0.0084 gr/dscf (AP-42 Table 11.1-4, PM10 is 21% of filterable PM)	0.0084	gr/dscf
Calculation: (0.0084 gr/dscf) * (10,200 dscfm) * (1 lb / 7000 gr) * (60 min/hr) =	<b>0.73</b>	lb/hr
Summer Calculation: (0.73 lb/hr) * (24 hrs/day) = 17.63 lbs/day	<b>17.63</b>	lbs/day
Winter Calculation: (0.73 lb/hr) * (7 hrs/day) = 5.88 lbs/day	<b>5.14</b>	lbs/day

**CO Emissions:**

Emission Factor = 0.13 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04)	0.13	lb/ton
Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (0.13 lb/ton) =	<b>748.80</b>	lb/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (0.13 lb/ton) =	<b>218.40</b>	lb/day

**NO<sub>x</sub> Emissions:**

Emission Factor = 0.055 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04)	0.055	lb/ton
Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (0.055 lb/ton) = 316.80 lb/day	<b>316.80</b>	lb/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (0.055 lb/ton) = 105.60 lb/day	<b>92.40</b>	lb/day

**SO<sub>2</sub> Emissions:**

Emission Factor = 0.011 lb/ton (0.011 lb/ton #2 fuel oil, 0.19 lb/ton coal, AP 42, Table 11.1-7, 3/04)	0.011	lb/ton
Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (0.011 lb/ton) =	<b>63.36</b>	lb/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (0.011 lb/ton) =	<b>18.48</b>	lb/day

**VOC Emissions:**

Emission Factor = 0.032 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-8, 3/04)	0.032	lb/ton
Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (0.032 lb/ton) =	<b>184.32</b>	lb/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (0.032 lb/ton) =	<b>53.76</b>	lb/day

**Asphalt Surge Bin (silo) Filling (SCC 3-05-002-13)**

Maximum Process Rate =	240	ton/hr
Maximum Hours of Operation (summer hours)	24	hrs/day
Maximum Hours of Operation (winter hours)	7	hrs/day

**Total PM Emissions:**

(Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors; AP 42, Table 11.1-14).

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

Where: V = Asphalt volatility = -0.5 (Default value per AP 42) -0.5

T = HMA mix temperature = 325 F (Default value per AP 42) 325 F

Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (0.00059 lb/ton) =	<b>3.37</b>	lb/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (0.00059 lb/ton) =	<b>0.98</b>	lb/day

**VOC Emissions: (VOC = TOC \* 94%, AP-42, Table 11.1-16, 3/04)**

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

Emission Factor = $0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$ * (94%) =	0.01146	lb/ton
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Where: V = Asphalt volatility = -0.5 (Default value per AP 42)

-0.5	
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T = HMA mix temperature = 325 F (Default value per AP 42)

325	F
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Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (0.01146 lb/ton) =	<b>65.98</b>	lb/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (0.01146 lb/ton) =	<b>19.25</b>	lb/day

**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
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Where: V = Asphalt volatility = -0.5 (Default value per AP 42)

-0.5	
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T = HMA mix temperature = 325 F (Default value per AP 42)

325	F
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Control Efficiency = 0%	0	%
Summer Calculation: (240 ton/hr) * (24 hrs/day) * (0.00118 lb/ton) =	<b>6.80</b>	lb/day
Winter Calculation: (240 ton/hr) * (7 hrs/day) * (0.00118 lb/ton) =	<b>1.98</b>	lb/day

**Lime Silo**

Flow Capacity = 1,000 cfm (similar sized facility)	1,000	cfm
Maximum Hours of Operation (Summer Hours)	24	hrs/day
Maximum Hours of Operation (Winter Hours)	7	hrs/day

**Total PM Emissions:**

Emission Factor = 0.04 gr/dscf (Permit limit per NSPS)	0.04	gr/dscf
Control Efficiency = 0%	0	%
Summer Calculation: (1000 cfm) * (24 hrs/day) * (0.04 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	<b>8.23</b>	lb/day
Winter Calculation: (1000 cfm) * (7 hrs/day) * (0.04 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	<b>2.40</b>	lb/day

**Total PM<sub>10</sub> Emissions:**

Emission Factor = 0.02 gr/dscf Assume PM10 = 50% of PM, Department Policy	0.02	gr/dscf
Control Efficiency = 0%	0	%
Summer Calculation: (1000 cfm) * (24 hrs/day) * (0.02 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	<b>4.11</b>	lb/day
Winter Calculation: (1000 cfm) * (7 hrs/day) * (0.02 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	<b>1.20</b>	lb/day

**Total PM<sub>2.5</sub> Emissions:**

Emission Factor = 0.012 gr/dscf Assume PM2.5 = 30% of PM, AP-42, Appendix B-2, Category 4	0.012	gr/dscf
Control Efficiency = 0%	0	%
Summer Calculation: (1000 cfm) * (24 hrs/day) * (0.012 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	<b>2.47</b>	lb/day
Winter Calculation: (1000 cfm) * (7 hrs/day) * (0.012 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	<b>0.72</b>	lb/day

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

Maximum Process Rate	240	ton/hr
Maximum Hours of Operation (summer hours)	24	y
Maximum Hours of Operation (winter hours)	7	y

**Total PM Emissions:**

(Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors; AP 42, Table 11.1-14.)

Emission Factor = $0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$ =	0.00052	lb/ton
Where: V = Asphalt volatility = -0.5 (Default value per AP 42)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42)	325	F
Control Efficiency = 0%		
Summer Calculation: $(240 \text{ ton/hr}) * (24 \text{ hrs/day}) * (0.00052 \text{ lb/ton}) * (1 - 0/100)$ =	<b>3.01</b>	lb/day
Winter Calculation: $(240 \text{ ton/hr}) * (7 \text{ hrs/day}) * (0.00052 \text{ lb/ton}) * (1 - 0/100)$ =	<b>0.88</b>	lb/day

**VOC Emissions: (VOC = TOC \* 94%, AP-42, Table 11.1-16, 3/04)**

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)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42)	325	F
Control Efficiency = 0%		
Summer Calculation: $(240 \text{ ton/hr}) * (24 \text{ hrs/day}) * (0.00391 \text{ lb/ton}) * (1 - 0/100)$ =	<b>22.52</b>	lb/day
Winter Calculation: $(240 \text{ ton/hr}) * (7 \text{ hrs/day}) * (0.00391 \text{ lb/ton}) * (1 - 0/100)$ =	<b>6.57</b>	lb/day

**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)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42)	325	F
Control Efficiency = 0%		F
Summer Calculation: $(240 \text{ ton/hr}) * (24 \text{ hrs/day}) * (0.00135 \text{ lb/ton}) * (1 - 0/100)$ =	<b>7.77</b>	lb/day
Winter Calculation: $(240 \text{ ton/hr}) * (7 \text{ hrs/day}) * (0.00135 \text{ lb/ton}) * (1 - 0/100)$ =	<b>2.27</b>	lb/day

**Haul Roads**

Vehicle Miles Traveled (VMT) per Day (Estimate)	5	VMT/day
VMT per hour = $(5 \text{ VMT/day}) * (\text{day}/24 \text{ hrs})$ =	0.21	VMT/hr
Maximum Hours of Operation (summer hours)	24	hrs/day
Maximum Hours of Operation (winter hours)	7	hrs/day

**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 = $k * (s / 12)^a * (W / 3)^b$ =	13.90	lb/VMT
Where: k = constant = 4.9 lbs/VMT (Value for PM30/TSP, AP 42)	4.9	lbs/VMT
s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area, AP- 42)	8.3	%
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)	0.7	
b = constant = 0.45 (Value for PM30/TSP, AP 42)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant)	50	%
Summer Calculation: $(0.21 \text{ VMT/hr}) * (24 \text{ hrs/day}) * (13.90 \text{ lb/VMT})$ =	<b>69.50</b>	lb/day
Summer Calculation: $(24 \text{ hrs/day}) * (0.21 \text{ VMT/hr}) * (13.90 \text{ lb/VMT}) (1-50/100)$ =	<b>34.75</b>	lb/day
Winter Calculation: $(0.21 \text{ VMT/hr}) * (7 \text{ hrs/day}) * (13.90 \text{ lb/VMT})$ =	<b>20.27</b>	lb/day
Winter Calculation: $(7 \text{ hrs/day}) * (0.21 \text{ VMT/hr}) * (13.90 \text{ lb/VMT}) * (1-50/100)$ =	<b>10.13</b>	lb/day

**PM<sub>10</sub> Emissions:**

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

Emission Factor = $k * (s / 12)^a * (W / 3)^b =$	3.95	lb/VMT
Where: k = constant = 1.5 lbs/VMT (Value for PM10, AP 42)	1.5	lbs/VMT
s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area)	8.3	%
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)	0.9	
b = constant = 0.45 (Value for PM10, AP 42)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant)	50	%
Summer Calculation: $(0.21 \text{ VMT/hr}) * (24 \text{ hrs/day}) * (3.95 \text{ lb/VMT}) =$	<b>19.76</b>	lb/day
Summer Calculation: $(24 \text{ hrs/day}) * (0.21 \text{ VMT/hr}) * (3.95 \text{ lb/VMT}) * (1-50/100) =$	<b>9.88</b>	lb/day
Winter Calculation: $(0.21 \text{ VMT/hr}) * (7 \text{ hrs/day}) * (3.95 \text{ lb/VMT}) =$	<b>5.76</b>	lb/day
Winter Calculation: $(7 \text{ hrs/day}) * (0.21 \text{ VMT/hr}) * (3.95 \text{ lb/VMT}) * (1-50/100) =$	<b>2.88</b>	lb/day

**PM<sub>2.5</sub> Emissions:**

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

Emission Factor = $k * (s / 12)^a * (W / 3)^b =$	0.40	lb/VMT
Where: k = constant = 0.15 lbs/VMT (Value for PM2.5, AP 42)	0.15	lbs/VMT
s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area, AP 42)	8.3	%
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)	0.9	
b = constant = 0.45 (Value for PM2.5, AP 42)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant)	50	%
Summer Calculation: $(0.21 \text{ VMT/hr}) * (24 \text{ hrs/day}) * (0.40 \text{ lb/VMT}) =$	<b>1.98</b>	lb/day
Summer Calculation: $(24 \text{ hrs/day}) * (0.21 \text{ VMT/hr}) * (0.40 \text{ lb/VMT}) * (1-50/100) =$	<b>0.99</b>	lb/day
Winter Calculation: $(0.21 \text{ VMT/hr}) * (7 \text{ hrs/day}) * (0.40 \text{ lb/VMT}) =$	<b>.58</b>	lb/day
Winter Calculation: $(7 \text{ hrs/day}) * (0.21 \text{ VMT/hr}) * (0.40 \text{ lb/VMT}) * (1-50/100) =$	<b>00.29</b>	lb/day

**Diesel Engine Generator (676 bhp)**

Generator Rating =	454	kw
Operational Capacity of Engine =	676.0	hp
Maximum Hours of Operation (summer hours)	24	hrs/day
Maximum Hours of Operation (winter hours)	0	hrs/day

**Total PM/PM<sub>10</sub>/PM<sub>2.5</sub> Emissions:**

Emission Factor = 0.00074 lbs/hp-hr manuf rating	7.40E-04	lbs/hp-hr
Summer Calculation: $(24 \text{ hrs/day}) * (676 \text{ hp}) * (0.00074 \text{ lbs/hp-hr}) =$	<b>12.01</b>	lbs/day

**NO<sub>x</sub> Emissions:**

Emission Factor = 0.02 lbs/hp-hr manuf rating	2.00E-02	lbs/hp-hr
Summer Calculation: $(24 \text{ hrs/day}) * (676 \text{ hp}) * (0.02 \text{ lbs/hp-hr}) =$	<b>324.48</b>	lbs/day

**CO Emissions:**

Emission Factor = 0.0007 lbs/hp-hr manuf rating	7.00E-04	lbs/hp-hr
Summer Calculation: $(24 \text{ hrs/day}) * (676 \text{ hp}) * (0.0007 \text{ lbs/hp-hr}) =$	<b>11.36</b>	lbs/day

**VOC Emissions:**

Emission Factor = 0.0012 lbs/hp-hr manuf rating	1.20E-03	lbs/hp-hr
Summer Calculation: $(24 \text{ hrs/day}) * (676 \text{ hp}) * (0.0012 \text{ lbs/hp-hr}) =$	<b>19.47</b>	lbs/yr

**SO<sub>2</sub> Emissions:**

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.05E-03	lbs/hp-hr
Summer Calculation: $(24 \text{ hrs/day}) * (676 \text{ hp}) * (0.00205 \text{ lbs/hp-hr}) =$	<b>33.26</b>	lbs/yr

### **Diesel Engine Generator (80 bhp)**

Generator Rating =	50	kw
Operational Capacity of Engine =	80.0	hp
Maximum Hours of Operation (summer hours)	24	hrs/day
Maximum Hours of Operation (winter hours)	7	hrs/day

#### **Total PM/PM<sub>10</sub>/PM<sub>2.5</sub> Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	2.20E-03	lbs/hp-hr
Summer Calculation: (24 hrs/day) * (80 hp) * (0.0022 lbs/hp-hr) =	<b>4.22</b>	lbs/day
Winter Calculation: (7 hrs/day) * (80 hp) * (0.0022 lbs/hp-hr) =	<b>1.23</b>	lbs/day

#### **NO<sub>x</sub> Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	3.10E-02	lbs/hp-hr
Summer Calculation: (24 hrs/day) * (80 hp) * (0.031 lbs/hp-hr) =	<b>59.52</b>	lbs/day
Winter Calculation: (7 hrs/day) * (80 hp) * (0.031 lbs/hp-hr) =	<b>17.36</b>	lbs/day

#### **CO Emissions:**

Emission Factor (AP-42, Sec. 3.3, Table 3.3-1, 10/96)=	6.68E-03	lbs/hp-hr
Summer Calculation: (24 hrs/day) * (80 hp) * (0.00668 lbs/hp-hr) =	<b>12.83</b>	lbs/day
Winter Calculation: (7 hrs/day) * (80 hp) * (0.00668 lbs/hp-hr) =	<b>3.74</b>	lbs/day

#### **VOC Emissions:**

Emission Factor (AP-42, Table 3.3-1, TOC, Exhaust + Crankcase, 10/96)=	2.51E-03	lbs/hp-hr
Summer Calculation: (24 hrs/day) * (80 hp) * (0.0025141 lbs/hp-hr) =	<b>4.83</b>	lbs/yr
Winter Calculation: (7 hrs/day) * (80 hp) * (0.0025141 lbs/hp-hr) =	<b>1.41</b>	lbs/day

#### **SO<sub>2</sub> Emissions:**

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.05E-03	lbs/hp-hr
Summer Calculation: (24 hrs/day) * (80 hp) * (0.00205 lbs/hp-hr) =	<b>3.94</b>	lbs/yr
Winter Calculation: (7 hrs/day) * (80 hp) * (0.00205 lbs/hp-hr) =	<b>1.15</b>	lbs/day

## 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<sub>10</sub>). Due to exceedances of the national standards for PM<sub>10</sub>, 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<sub>10</sub>. As a result of this designation, the EPA required the Department and the City-County Health Departments to submit PM<sub>10</sub> 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<sub>10</sub> emissions.

Addendum 6 to MAQP #2735-06 is for a portable plant that will locate at sites in or within 10 kilometers (km) of certain PM<sub>10</sub> 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 be expected to operate on an intermittent and temporary basis and any effects on air quality would be expected to be minor and short-lived.

VI. Air Quality Impacts

MAQP #2735-06 and Addendum 6 will cover the operations of this portable asphalt plant while operating at any location within Montana, excluding those counties that have a Department approved permitting program and those areas that are tribal lands. Addendum 6 will cover the operations of this portable asphalt plant, while operating in or within 10 km of the certain PM<sub>10</sub> nonattainment areas during the winter season (October 1 through March 31). Additionally, the facility will also be allowed to operate in or within 10 km of PM<sub>10</sub> nonattainment areas during the summer months (April 1 through September 30).

Screen3 dispersion modeling was previously performed for the generator engine and the asphalt plant for winter season operations, to ensure that point source emissions did not have an ambient impact over 5 µg/m<sup>3</sup>. Based on the stack characteristics and the maximum hourly emission rate, Screen3 predicted the facility’s highest impact would be at 165 meters. In accordance with Department policy, the 1-hour impact was converted to a 24-hr restricted impact by using a multiplier of 0.4 and scaling for the restricted hours of operation. Analysis of the maximum 24-hour impacts from the diesel generator engine and the asphalt plant indicated that operational scenarios could include either (1) both the generator engine and the asphalt plant for up to 4.5 hours/day or (2) only the asphalt plant for up to 7 hours/day. The latter was chosen as most desirable for this equipment for winter season nonattainment area operations. In the view of the Department, the conditions and limitations contained in Addendum 6 are protective of the PM<sub>10</sub> nonattainment areas.

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 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?

YES	NO	
	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.

VIII. Environmental Assessment

The current permit action is an administrative amendment; therefore, an environmental assessment is not required for the proposed project.

Addendum Analysis by: Ed Warner

Date: 6/13/2017