



August 14, 2015

Jeremiah B. Bowser
Helena Sand & Gravel
P.O. Box 5960
Helena, MT 59604

Dear Mr. Bowser:

Montana Air Quality Permit #3167-06 is deemed final as of August 14, 2015, by the Department of Environmental Quality (Department). This permit is for a portable crusher and screen operation. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

A handwritten signature in black ink that reads "Julie A. Merkel".

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

A handwritten signature in black ink that reads "Loni Patterson".

Loni Patterson
Environmental Engineer
Air Quality Bureau
(406) 444-1452

JM:LP
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #3167-06

Helena Sand & Gravel
PO Box 5960
Helena, MT 59604

August 14, 2015



MONTANA AIR QUALITY PERMIT

Issued To:
Helena Sand & Gravel
P.O. Box 5960
Helena, MT 59604

MAQP: # 3167-06
Administrative Amendment (AA) Request
Received: July 14, 2015
Department's Decision on AA: July 29, 2015
Permit Final: August 14, 2015
AFS #:777-3167

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Helena Sand & Gravel (HSG) pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

HSG operates a portable crushing/screening facility at various locations throughout Montana. MAQP #3167-06 applies while operating at any location in Montana, except within those areas having a Department of Environmental Quality (Department) approved permitting program and those areas considered tribal lands. Addendum #5 applies while operating in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) nonattainment areas. *A Missoula County air quality permit will be required for locations within Missoula County.* A list of the permitted equipment is contained in Section I.A of the permit analysis.

B. Current Permit Action

On July 14, 2015, the Department received a request for an administrative amendment to reduce the annual production hours to 2,200 hours in order to reduce their permitted emission levels to below 80 tons per year of any pollutant.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. All visible emissions from any Standards of Performance for New Stationary Source (NSPS) – affected crusher shall not exhibit an opacity in excess of the following averaged over six consecutive minutes (ARM 17.8.340 and 40 CFR 60, Subpart OOO):
 - i. For crushers that commence construction, modification, or reconstruction on or after April 22, 2008: 12% opacity.
 - ii. For crushers that commence construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008: 15% opacity.

2. All visible emissions from any other NSPS-affected equipment (such as screens and conveyors) shall not exhibit an opacity in excess of the following averaged over six consecutive minutes (ARM 17.8.340 and 40 CFR 60, Subpart OOO):
 - i. For equipment that commence construction, modification, or reconstruction on or after April 22, 2008: 7% opacity.
 - ii. For equipment that commence construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008: 10% opacity.
3. All visible emissions from any non-NSPS affected equipment shall not exhibit an opacity of 20% or greater averaged over six consecutive minutes (ARM 17.8.304 and ARM 17.8.752).
4. 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.1, II.A.2, and II.A.3 (ARM 17.8.749 and ARM 17.8.752).
5. HSG 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 (PM) (ARM 17.8.308 and ARM 17.8.752).
6. HSG shall treat all unpaved portions of the haul roads, access roads, parking lots, or the general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.5 (ARM 17.8.749 and ARM 17.8.752).
7. HSG shall not operate more than three crushers at any given time and the combined maximum rated design capacity shall not exceed 1,300 TPH (ARM 17.8.749).
8. Combined crushing production is limited to 11,388,000 tons during any rolling 12-month time period (ARM 17.8.749).
9. HSG shall not operate more than two screens at any given time and the combined maximum rated design capacity shall not exceed 700 TPH (ARM 17.8.749).
10. Combined screening production is limited to 6,132,000 tons during any rolling 12-month time period (ARM 17.8.749).
11. HSG shall not operate more than one diesel-fired engine/generator at any given time and the maximum rated design capacity of the engine shall not exceed 2,220 horsepower (hp) (ARM 17.8.749).
12. Operation of the diesel engine/generator shall not exceed 2,200 hours during any rolling 12-month time period (ARM 17.8.749 and ARM 17.8.1204).
13. If the permitted equipment is used in conjunction with any other equipment owned or operated by HSG, 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).

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

B. Testing Requirements

1. Within 60 days after achieving maximum production, but no later than 180 days after initial start-up, an Environmental Protection Agency (EPA) Method 9 opacity test and/or other methods and procedures as specified in 40 CFR 60.675 must be performed on all NSPS affected equipment to demonstrate compliance with the emission limitations contained in Section II.A.1 and II.A.2 (ARM 17.8.340 and 40 CFR 60, Subpart A and Subpart OOO).
2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
3. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

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

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

3. HSG 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. HSG shall maintain on-site records showing daily hours of operation and daily production rates for the last 12 months. The records compiled in accordance with this permit shall be maintained by HSG as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).
5. HSG shall document, by month, the combined crushing production from the facility. By the 25th day of each month, HSG shall calculate the crushing production from the facility for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.8. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
6. HSG shall document, by month, the combined screening production from the facility. By the 25th day of each month, HSG shall calculate the screening production from the facility for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.10. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
7. HSG shall document, by month, the hours of operation of the diesel engine/generator. By the 25th day of each month, HSG shall calculate the hours of operation for the diesel engine/generator for 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).
8. HSG shall annually certify that its emissions are less than those that would require the facility to obtain an air quality operating permit as required by ARM 17.8.1204(3)(b). The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emissions inventory information (ARM 17.8.749 and ARM 17.8.1204).

SECTION III: Addendum

HSG shall comply with all conditions in Addendum #5 to MAQP #3167-06, as applicable (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection – HSG 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 HSG fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving HSG 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 action 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 the Department 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 HSG 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. HSG 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
MAQP #3167-06

I. Introduction/Process Description

Helena Sand & Gravel (HSG) owns and operates a portable non-metallic mineral crushing/screening plant. The facility is allowed to move to various locations throughout Montana, except those areas with a Department of Environmental Quality (Department) approved permitting program and those areas considered tribal lands. Addendum #5 applies while operating in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) nonattainment areas. A Missoula County air quality permit will be required for locations within Missoula County, Montana.

A. Permitted Equipment

At the time of permit issuance, the facility consists of the following equipment:

- One jaw crusher (700 tons per hour (TPH) maximum capacity)
- Two cone crushers (250 TPH and 350 TPH maximum capacities, 600 TPH total)
- Two screens (350 TPH maximum capacity per screen, 700 TPH total)
- One wash plant (400 TPH maximum capacity)
- One diesel-fired generator (2,220 horsepower (hp) maximum engine capacity)
- One diesel storage tank (10,000 gallon maximum capacity)
- Associated material handling equipment

B. Source Description

HSG uses this crushing/screening plant and associated equipment to crush and sort sand and gravel materials for use in various construction operations. For a typical operational setup, materials are loaded into the crushing/screening plant by a feeder, transferred by conveyor, and passed through the crushers or routed to the wash plant. Materials are either crushed by the crushers and sent to the screens or washed in the wash plant and sorted and stockpiled for sale and use in construction operations. Crushed materials are screened, separated, and sent to stockpile for sale and use in construction operations.

C. Permit History

On September 5, 2001, the Department issued Helena Sand & Gravel **MAQP #3167-00** for the operation of a portable 1998 Nordberg cone crusher (maximum capacity 250 TPH), a 1996 El-Jay 3-deck screen (maximum capacity 350 TPH), a 450 kilowatt (kW) diesel generator, and associated equipment.

On May 15, 2002, Helena Sand & Gravel requested an administrative amendment for the addition of a 1990 Torgerson Crusher and the removal of the 1998 Nordberg Cone Crusher. Because emissions from the new crusher were less than 15 tons per year (TPY), the crusher was added to the permit according to the provisions of the Administrative Rules of Montana (ARM) 17.8.745(1). On June 20, 2002, **MAQP #3167-01** replaced MAQP #3167-00.

On April 13, 2006, Helena Sand & Gravel requested an administrative amendment to allow for wintertime operations (October 1 – March 31) and summertime operations (April 1 – September 30) in or within 10 km of certain PM₁₀ nonattainment areas. MAQP #3167-02 was issued to Helena Sand & Gravel to allow for both wintertime and summertime operations at certain locations in or within 10 km of the Butte, Columbia Falls, Libby, Kalispell, Thompson Falls, and Whitefish PM₁₀ nonattainment areas. In addition, the permit format, language, and rule references were updated. On August 24, 2006, **MAQP #3167-02** replaced MAQP #3167-01 and established **Addendum #1**.

On March 29, 2007, Helena Sand & Gravel submitted a complete MAQP application for the modification of MAQP #3167-02. Specifically, Helena Sand & Gravel requested to remove the 1990 Torgerson Crusher (200 TPH) and the 450-kW diesel-fired generator from the MAQP. In addition, Helena Sand & Gravel requested to add a 1994 Pioneer Jaw Crusher (400 TPH), a 1998 Nordberg Cone Crusher (250 TPH), a 600 TPH screen, a 1500-kW diesel fired generator, and a 10,000 gallon diesel storage tank to the MAQP. Further, Helena Sand & Gravel requested to update Addendum #1 with the new equipment to allow for wintertime operations (October 1-March 31) and summertime operations (April 1 – September 30) in or within 10 km of certain PM₁₀ nonattainment areas. On May 24, 2007, **MAQP #3167-03** replaced MAQP #3167-02 and **Addendum #2** replaced Addendum #1.

On June 25, 2009, the Department received a complete MAQP application from Helena Sand & Gravel for a modification of MAQP #3167-03. The modification consisted of the addition of a cone crusher with a maximum production rate of 350 TPH, a wash plant with a maximum production capacity of 400 TPH, and the corresponding material handling equipment for the new crusher and wash plant to the facility. Helena Sand & Gravel also requested to update Addendum #2 with the new equipment to allow for wintertime operations (October 1 – March 31) and summertime operations (April 1 – September 30) in or within 10 km of certain PM₁₀ nonattainment areas. The maximum production capacities of some of the equipment were also been corrected based on discussions between Helena Sand & Gravel and the Department. These corrections are as follows:

- The jaw crusher has a maximum capacity of 700 TPH rather than 400 TPH.
- Both screens have a maximum capacity of 350 TPH each (700 TPH combined) rather than 350 TPH for one and 600 TPH for the other.
- The diesel engine associated with the 1,500 kW generator has a maximum power rating of 2,220 hp rather than an estimated 2,012 hp.

The permit action incorporated Helena Sand & Gravel's new equipment into the MAQP and Addendum, as well as updated the emission inventory to reflect the new equipment and the corrected maximum production capacities. **MAQP #3167-04** replaced MAQP #3167-03 and **Addendum #3** replaced Addendum #2.

On September 23, 2010, the Department received a request to amend MAQP #3167-05 to allow for a smaller generator to be used during the winter months in non-attainment areas. The conditions pertaining to the operation of the generator are included in the addendum to the permit, and require that only one generator be used at a time. **MAQP #3167-05** replaced MAQP #3167-04 and **Addendum #4** replaced Addendum #3.

D. Current Permit Action

On July 14, 2015, the Department received an administrative amendment request to reduce annual production hours from 2,800 hours per year to 2,200 hours per year in order to reduce their permitted emission levels to below 80 tons per year of any pollutant. **MAQP #3167-06** replaces MAQP #3167-05 and **Addendum #5** replaces Addendum #4.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available, upon request, from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations where appropriate.

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

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

HSG 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 four 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 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
2. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
3. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
4. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
5. ARM 17.8.221 Ambient Air Quality Standard for Visibility
6. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

HSG 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 six consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, HSG 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). HSG is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.
 - a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
 - b. 40 CFR 60, Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants. In order for a crushing plant to be subject to this subpart, the facility must meet the definition of an affected facility and, the affected equipment must have been constructed, reconstructed, or modified after August 31, 1983. Based on the information submitted by HSG, the portable crushing equipment to be used under MAQP #3167-06 is subject to this subpart because it meets the definition of an affected facility and has been constructed or modified after August 31, 1983.
 - c. 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE) This rule indicates that NSPS requirements apply to owners or operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE is manufactured after April 1, 2006, and is not a fire pump engine. In order to keep the permit de minimis-friendly, this permit authorizes the use of a diesel-powered engine up to 2,220 hp. The permit application states that the facility will be powered primarily by a diesel engine that was manufactured in 2009; therefore, this CI ICE will be subject to this Subpart if the engine operates at the same location for more than 12 months or a shorter period of time for an engine located at a seasonal source.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This rule requires that a source, as defined and applied in 40 CFR Part 63, comply with the requirements of 40 CFR Part 63.
 - 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 (HAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). Any diesel RICE engine operated by Helena Sand & Gravel will be subject to this Maximum Available Control Technology (MACT) standard if the engine remains or will remain at the permitted location for more than 12 months, or a shorter period of time for an engine located at a seasonal source. A seasonal source remains at a single location on a permanent basis (at least 2 years) and operates 3 months or more each year. Since the permit is written in a de minimis-friendly manner, area source provisions of the MACT requirements may apply to facility engines.

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

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

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

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

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

(PTE) greater than 15 tons per year of any pollutant. HSG has a PTE greater than 15 tons per year of PM, PM10, oxides of nitrogen (NO_x), and carbon monoxide (CO); 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.
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 HSG 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 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.
 12. 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 one year after the permit is issued.
 13. 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).
 14. 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.
 15. 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 one 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 tons per year of any pollutant (excluding fugitive emissions).

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

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one hazardous air pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tons/year of particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) in a serious PM₁₀ 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 #3167-06 for HSG, the following conclusions were made:
 - a. The facility's PTE is less than 100 tons/year for any pollutant.
 - b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year of all HAPs.
 - c. This source is not located in a serious PM₁₀ nonattainment area.
 - d. This facility is subject to a current NSPS (40 CFR 60, Subpart OOO and potentially IIII).
 - e. This facility is potentially subject to a current NESHAP (40 CFR 63, Subpart ZZZZ).
 - f. This source is not a Title IV affected source
 - g. This source is not a solid waste combustion unit.
 - h. This source is not an EPA designated Title V source.
 - 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. HSG has agreed to accept federally enforceable limitations on the hours of operation of the diesel-fired generator which, when complied with, will result in a PTE less than 100 TPY of any regulated pollutant.

- 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.

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

3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. The compliance certification submittal required by ARM 17.8.1204(3)(a) 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. HSG 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.

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

IV. Emission Inventory**

Emission Inventory

CONTROLLED Emission Source	tons/year						
	PM	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂
2200 hp Diesel Engine Generator ¹	5.32	5.32	5.32	75.02	16.17	6.08	4.96
700 TPH Jaw Crusher	3.68	1.66	0.31	--	--	--	--
600 TPH Cone Crusher	3.15	1.42	0.26	--	--	--	--
Cold Aggregate Screens	6.75	2.27	0.15	--	--	--	--
Wash Plant	3.85	1.30	0.09	--	--	--	--
Cold Aggregate Storage Piles	15.88	7.51	1.14	--	--	--	--
Plant Load-Out	0.18	0.09	0.01	--	--	--	--
Haul Roads / Vehicle Traffic	34.11	9.40	0.94	--	--	--	--
Cold Aggregate Handling/Conveyors	16.19	5.32	1.50	--	--	--	--
Diesel Storage Tank (10,000 gallon)	--	--	--	--	--	0.00	--
Total Emissions	89.11	34.29	9.73	75.02	16.17	6.09	4.96

Footnotes:

1 The hours of operation of the diesel engine/generator are limited to 2,200 hours per any rolling 12 month period to reduce the potential emissions below the major source threshold and 80 TPY.

** CO = carbon monoxide
 HAPs = hazardous air pollutants
 hp = horsepower
 lb = pound
 N/A = not applicable
 ND = no data available
 NO_x = oxides of nitrogen
 PM = particulate matter

PM₁₀ = particulate matter with an aerodynamic diameter of 10 microns or less
 PM_{2.5} = particulate matter with an aerodynamic diameter of 2.5 microns or less
 SO₂ = sulfur dioxide
 TPH = tons per hour
 TPY = tons per year
 VOC = volatile organic compounds
 yr = year

CALCULATIONS

Diesel Generator

Operational Capacity of Engine = 2,220 hp

Hours of Operation = 2,200 hours per year (hrs/yr) (the hours of operation of the diesel engine generator are limited to 2,200 hours per any rolling 12-month period to reduce the potential emissions below the major source threshold and 80 TPY)

PM Emissions:

PM Emissions = 5.32 TPY (AP-42, Section (Sec.) 3.3, Table 3.3-1, 10/96 lists only PM₁₀ emission factor and states that all PM is less than 1 micrometer (µm), Assume PM = PM₁₀)

PM₁₀ Emissions:

Emission Factor = 0.0022 pounds per horsepower-hour (lbs/hp-hr) (AP-42, Section (Sec.) 3.3, Table 3.3-1, 10/96)

Calculation: (2,200 hours) * (2,220 hp) * (0.0022 lbs/hp-hr) * (ton/2000 lb) = 5.32 TPY

PM_{2.5} Emissions:

PM_{2.5} Emissions = 5.32 TPY (AP-42, Section (Sec.) 3.3, Table 3.3-1, 10/96 states that all PM <1 µm)

NO_x Emissions:

Emission Factor = 0.031 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: (2,200 hours) * (2,220 hp) * (0.031 lbs/hp-hr) * (ton/2000 lb) = 75.02 TPY

CO Emissions:

Emission Factor = 0.00668 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: (2,200 hours) * (2,220 hp) * (0.00668 lbs/hp-hr) * (ton/2000 lb) = 16.17 TPY

VOC Emissions:

Emission Factor = 0.0025141 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, TOC, Exhaust & Crankcase, 10/96)

Calculation: (2,200 hours) * (2,220 hp) * (0.0025141 lbs/hp-hr) * (ton/2000 lb) = 6.08 TPY

SO₂ Emissions:

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: (2,200 hours) * (2,220 hp) * (0.00205 lbs/hp-hr) * (ton/2000 lb) = 4.96 TPY

Jaw Crusher

Maximum Process Rate = 700 TPH (Application information)

Maximum Hours of Operation = 8,760 hrs/yr

PM Emissions:

Emission Factor = 0.0012 pounds per ton (lb/ton) (crushing, AP 42, Table 11.19.2-2, 8/04)

Calculation: (700 TPH) * (8760 hrs/yr) * (0.0012 lb/ton) * (ton/2000 lb) = 3.68 TPY

PM₁₀ Emissions:

Emission Factor = 0.00054 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)

Calculation: (700 TPH) * (8760 hrs/yr) * (0.00054 lb/ton) * (ton/2000 lb) = 1.66 TPY

PM_{2.5} Emissions:

Emission Factor = 0.00010 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)

Calculation: (700 TPH) * (8760 hrs/yr) * (0.00010 lb/ton) * (ton/2000 lb) = 0.31 TPY

Cone Crushers

Maximum Process Rate = 600 TPH (Maximum plant process rate, sum of both cone crusher maximum capacities)

Maximum Hours of Operation = 8,760 hrs/yr

PM Emissions:

Emission Factor = 0.0012 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)

Calculation: (600 TPH) * (8760 hrs/yr) * (0.0012 lb/ton) * (ton/2000 lb) = 3.15 TPY

PM₁₀ Emissions:

Emission Factor = 0.00054 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)

Calculation: (600 TPH) * (8760 hrs/yr) * (0.00054 lb/ton) * (ton/2000 lb) = 1.42 TPY

PM_{2.5} Emissions:

Emission Factor = 0.00010 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)

Calculation: (600 TPH) * (8760 hrs/yr) * (0.00010 lb/ton) * (ton/2000 lb) = 0.26 TPY

Cold Aggregate Screens

Maximum Process Rate = 350 TPH (Maximum plant process rate)

Maximum Hours of Operation = 8,760 hrs/yr

Number of Screens = 2 screen(s) (Company Information)

Total PM Emissions:

Emission Factor = 0.0022 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: (350 TPH)*(8760 hrs/yr) * (0.0022 lb/ton) * (ton/2000 lb) * (2 screens) = 6.75 TPY

Total PM₁₀ Emissions:

Emission Factor = 0.00074 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: (350 TPH)*(8760 hrs/yr)*(0.00074 lb/ton)* (ton/2000 lb) * (2 screens) = 2.27 TPY

Total PM_{2.5} Emissions:

Emission Factor = 0.00005 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: (350 TPH)*(8760 hrs/yr)*(0.00005 lb/ton)* (ton/2000 lb) * (2 screens) = 0.15 TPY

Wash Plant

Maximum Process Rate = 400 TPH (Maximum plant process rate)

Maximum Hours of Operation = 8,760 hrs/yr

The Wash Plant is modeled as a controlled screening operation

Total PM Emissions:

Emission Factor = 0.0022 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(400 \text{ TPH}) \cdot (8760 \text{ hrs/yr}) \cdot (0.0022 \text{ lb/ton}) \cdot (\text{ton}/2000 \text{ lb}) = 3.85 \text{ TPY}$

Total PM₁₀ Emissions:

Emission Factor = 0.00074 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(400 \text{ TPH}) \cdot (8760 \text{ hrs/yr}) \cdot (0.00074 \text{ lb/ton}) \cdot (\text{ton}/2000 \text{ lb}) = 1.30 \text{ TPY}$

Total PM_{2.5} Emissions:

Emission Factor = 0.00005 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(400 \text{ TPH}) \cdot (8760 \text{ hrs/yr}) \cdot (0.00005 \text{ lb/ton}) \cdot (\text{ton}/2000 \text{ lb}) = 0.09 \text{ TPY}$

Cold Aggregate Storage Piles

Maximum Process Rate = 1,100 TPH (Maximum plant process rate based on the maximum production capacities of the equipment which discharges to piles which includes 700 TPH in screens and 400 TPH wash plant.)

Maximum Hours of Operation = 8,760 hrs/yr

Number of Piles = 1 piles (although multiple piles are produced during normal production, the calculations are simplified by assuming a maximum potential production rate discharging into a single pile)

PM Emissions:

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

Emission Factor = $k (0.0032) \cdot (U/5)^{1.3} \cdot (M / 2)^{-1.4} = 0.00330 \text{ lb/ton}$

Where: k = particle size multiplier = 0.74 (Value for PM < 30 microns per AP 42, Sec. 13.2.4.3, 11/06)

U = mean wind speed = 8.2 mph (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)

M = material moisture content = 2.5% (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)

Calculation: $(1,100 \text{ TPH}) \cdot (8760 \text{ hrs/yr}) \cdot (0.00330 \text{ lb/ton}) \cdot (\text{ton}/2000 \text{ lb}) \cdot (1 \text{ piles}) = 15.88 \text{ TPY}$

PM₁₀ Emissions:

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

Emission Factor = $k (0.0032) \cdot (U/5)^{1.3} \cdot (M / 2)^{-1.4} = 0.00156 \text{ lb/ton}$

Where: k = particle size multiplier = 0.35 (Value for PM < 10 microns per AP 42, Sec. 13.2.4.3, 11/06)

U = mean wind speed = 8.2 mph (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)

M = material moisture content = 2.5% (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)

Calculation: $(1,100 \text{ TPH}) \cdot (8760 \text{ hrs/yr}) \cdot (0.00156 \text{ lb/ton}) \cdot (\text{ton}/2000 \text{ lb}) \cdot (1 \text{ piles}) = 7.51 \text{ TPY}$

PM_{2.5} Emissions:

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

Emission Factor = $k (0.0032) \cdot (U/5)^{1.3} \cdot (M / 2)^{-1.4} = 0.00024 \text{ lb/ton}$

Where: k = particle size multiplier = 0.053 (Value for PM < 2.5 microns per AP 42, Sec. 13.2.4.3, 11/06)

U = mean wind speed = 8.2 mph (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)

M = material moisture content = 2.5% (Average from values provided in AP 42, Sec. 13.2.4.3, 11/06)

Calculation: $(1,100 \text{ TPH}) \cdot (8760 \text{ hrs/yr}) \cdot (0.00024 \text{ lb/ton}) \cdot (\text{ton}/2000 \text{ lb}) \cdot (1 \text{ piles}) = 1.14 \text{ TPY}$

Bulk Loading

Total PM Emissions:

Emission Factor = 0.000031 lb/ton (PM=PM₁₀ / 51%, AP-42, Appendix B.2, Table B.2.2, Category 3, 9/90)

Calculation: (1,300 ton/hr) * (8760 hrs/yr) * (0.000031 lb/ton) * (ton/2000 lb) = 0.18 ton/yr

Total PM₁₀ Emissions:

Emission Factor = 0.000016 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: (1,300 ton/hr) * (8760 hrs/yr) * (0.000016 lb/ton) * (ton/2000 lb) = 0.09 ton/yr

Total PM_{2.5} Emissions:

Emission Factor = 0.0000024 lb/ton (PM_{2.5} = PM₁₀ * 15%, AP-42, Appendix B.2, Table B.2.2, Category 3, 9/90)

Control Efficiency = 0%

Calculation: (1,300 ton/hr) * (8760 hrs/yr) * (0.0000024 lb/ton) * (ton/2000 lb) * (1 loads) = 0.01 ton/yr

Haul Roads/Vehicle Traffic

Vehicle Miles Traveled (VMT) per Day = 15 VMT/day (Estimate)

VMT per hour = (15 VMT/day) * (1 day/24 hrs) = 0.63 VMT/hr

Hours of Operation = 8,760 hrs/yr

PM Emissions:

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

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

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

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

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

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

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

Calculation: (8760 hrs/yr) * (0.63 VMT/hr) * (12.46 lb/VMT) * (ton/2000 lb) = 34.11 TPY

PM₁₀ Emissions:

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

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

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

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

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

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

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

Calculation: (8760 hrs/yr) * (0.63 VMT/hr) * (3.43 lb/VMT) * (ton/2000 lb) = 9.40 TPY

PM_{2.5} Emissions:

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

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

Where: k = constant = 0.15 lbs/VMT (Value for PM_{2.5}, AP 42, Table 13.2.2-2, 11/06)

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

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

a = constant = 0.9 (Value for PM_{2.5}, AP 42, Table 13.2.2-2, 11/06)

b = constant = 0.45 (Value for PM_{2.5}, AP 42, Table 13.2.2-2, 11/06)

Calculation: (8760 hrs/yr) * (0.63 VMT/hr) * (0.34 lb/VMT) * (ton/2000 lb) = 0.94 TPY

Cold Aggregate Handling/Conveyors

Maximum Process Rate = 1,100 TPH (Maximum plant process rate based on the assumption that in the closed loop system where all aggregate in the system will be discharged to a pile, the maximum process rate will equal the pile discharge rate)

Maximum Hours of Operation = 8,760 hrs/yr

Number of Transfers = 24 transfer (Estimate based on facility layout diagram provided with June 17, 2008 Permit Determination Request letter from Helena Sand & Gravel)

Total PM Emissions:

Emission Factor = 0.00014 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(1,100 \text{ TPH}) \times (8760 \text{ hrs/yr}) \times (0.00014 \text{ lb/ton}) \times (\text{ton}/2000 \text{ lb}) \times (24 \text{ transfer}) = 16.19 \text{ TPY}$

Total PM₁₀ Emissions:

Emission Factor = 0.000046 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(1,100 \text{ TPH}) \times (8760 \text{ hrs/yr}) \times (0.000046 \text{ lb/ton}) \times (\text{ton}/2000 \text{ lb}) \times (24 \text{ transfer}) = 5.32 \text{ TPY}$

Total PM_{2.5} Emissions:

Emission Factor = 0.000013 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(1,100 \text{ TPH}) \times (8760 \text{ hrs/yr}) \times (0.000013 \text{ lb/ton}) \times (\text{ton}/2000 \text{ lb}) \times (24 \text{ transfer}) = 1.50 \text{ TPY}$

Diesel Storage Tank

Maximum Tank Capacity = 10000 gallons

Maximum Usage Rate = 103.3 gallons per hour (based on maximum engine consumption)

Tank Dimensions: 38 feet 2 inches long by 8 feet wide by 5 feet 8 inches tall

Equivalent Tank Diameter = $2 \times ((8') \times (5'8")) / (8' + 5'8") = 6.63 \text{ feet}$

Calculation: $(103.3 \text{ gallons/hour}) \times (2800 \text{ hours/year}) = 289240 \text{ gallons/year}$

$(289240 \text{ gallons/year}) / (10000 \text{ gallons/turnover}) = 29 \text{ turnovers/year}$

Emissions estimation based on TANKS 4.0.9d Annual Emissions Report

Components: distillate fuel oil number 2

Working Loss: 3.48 pounds per year (lb/yr) VOC emissions

Breathing Loss: 1.23 lb/yr

Total Loss: 4.72 lb/yr

$(4.72 \text{ lb/yr}) \times (\text{ton}/2000 \text{ lb}) = 2.36\text{E-}03 \text{ TPY VOC emissions}$

V. Existing Air Quality

The Department is issuing MAQP #3167-06 for a portable rock crushing and screening facility. MAQP #3167-06 will apply to the plant while operating at any location within Montana, excluding those counties that have a Department approved permitting program. Addendum #5 will apply while the facility is operating in or within 10 km of any PM₁₀ nonattainment area within Montana. *A Missoula County air quality permit will be required for locations within Missoula County, Montana.* In the view of the Department, operating the plant in accordance with the conditions and limitations contained in the permit will not generate emissions that exceed any ambient standard in areas classified as attainment or unclassified for the ambient air quality standards. Addendum #5 contains more stringent requirements concerning operation that are designed to protect the air quality of nonattainment areas. In addition, this source is portable and any air quality impacts will be minimal and temporary.

VI. Air Quality Impacts

Based on the relatively small amount of emissions resulting from the Helena Sand & Gravel operation and the limits and conditions that would be included in MAQP #3167-06 and Addendum #5, the Department believes that the allowable/permitted emissions from this source will not cause or contribute to an exceedance of any ambient air quality standard while operating in any area classified as attainment or unclassified for the ambient air quality standards.

VII. Ambient Air Impact Analysis

The current permit action is an administrative permit action with no increases in potential emission levels; therefore, the Department believes it will not cause or contribute to a violation of any ambient air quality standard.

Addendum #5
Helena Sand & Gravel
Montana Air Quality Permit #3167-06

An addendum to Montana Air Quality Permit (MAQP) #3167-06 is issued to Helena Sand & Gravel pursuant to Sections 75-2-204 and 75-2-211 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.765, as amended, for the following:

I. Permitted Equipment

The facility is permitted to operate three crushers with a combined maximum material throughput capacity not to exceed 1,300 tons per hour (TPH), two screens with a combined maximum material throughput capacity not to exceed 700 TPH, a wash plant with a maximum material throughput capacity not to exceed 400 TPH, a diesel-fired generator with a maximum rated engine design capacity not to exceed 2,220 horsepower (hp) **OR** a Tier 2 diesel-fired generator with a maximum rated engine design capacity not to exceed 1,495 hp, a diesel fuel storage tank with a maximum storage capacity not to exceed 10,000 gallons, and associated material handling equipment.

Helena Sand & Gravel operates at various locations throughout Montana, including in or within 10 kilometers (km) of the following particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) nonattainment areas: Butte, Columbia Falls, Kalispell, Libby, Thompson Falls, and Whitefish.

II. Seasonal and Site Restrictions

Addendum #5 applies to Helena Sand & Gravel while operating at any location in or within 10 km of certain PM₁₀ nonattainment areas. Additionally, seasonal and site restrictions apply to the facility as follows:

- A. During the winter season (October 1 – March 31) – the only location(s) in or within 10 km of certain PM₁₀ nonattainment areas where Helena Sand & Gravel may operate is:
- SE ¼ of the SE ¼ of Section 23, Township 29 North, Range 22 West, Flathead County, MT (Stillwater Pit);
 - SE ¼ of the NW ¼ of Section 36, Township 30 North, Range 21 West, Flathead County, MT (Goose Pit); and
 - Any other 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 Butte, Columbia Falls, Libby, Kalispell, Thompson Falls, and Whitefish PM₁₀ nonattainment areas.
- C. Helena Sand & Gravel shall comply with the limitations and conditions contained in Addendum #5 to MAQP #3167-06. Addendum #5 shall be valid until revoked or modified. The Department reserves the authority to modify Addendum #5 at any time based on local conditions of any future site. These conditions may include, but are not limited to, local terrain, meteorological conditions, proximity to residences or other businesses, etc.

III. Limitations and Conditions

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

1. Water spray bars shall be available on site at all times and operated when necessary on the crushers, screens, and all transfer points whenever the crushing/screening plant is operating to maintain compliance with the opacity limitations of Sections III.A.2 and III.A.3 (ARM 17.8.749).
2. All visible emissions from the crushing/screening plant may not exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
3. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from any other equipment, such as transfer points, any visible emissions that exhibit an opacity of 10% or greater averaged over six consecutive minutes (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 haul roads, access roads, parking lots, and general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the 10% opacity limitation (ARM 17.8.749).
6. When operating the 2,220-hp diesel-fired engine/generator, the combined crushing production from the three crushers shall not exceed 9,100 tons per day (ARM 17.8.749).
7. When operating the 2,220-hp diesel-fired engine/generator, the combined screening production from the two screens shall be limited to 4,900 tons per day (ARM 17.8.749).
8. The hours of operation of the 2,220 hp diesel-fired engine/generator shall not exceed 7 hours per day (ARM 17.8.749).
9. When operating the 1,495-hp diesel-fired engine/generator, the combined crushing production from the three crushers shall not exceed 14,950 tons/day (ARM 17.8.749)
10. When operating the 1,495-hp diesel-fired engine/generator, the combined screening production from the two screens shall be limited to 8,050 tons per day (ARM 17.8.749).
11. The hours of operation of the 1495 hp Tier 2 diesel-fired engine/generator shall not exceed 11.5 hours per day (ARM 17.8.749).
12. The 2,220-hp and the 1,495-hp Tier 2 diesel-fired engine/generators shall not be operated at the same time (ARM 17.8.749).

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

1. Water spray bars shall be available on site at all times and operated when necessary on the crushers, screens, and all transfer points whenever the crushing/screening plant is operating to maintain compliance with the opacity limitations of Sections III.B.2 and III.B.3 (ARM 17.8.749).
2. All visible emissions from the crushing/screening plant may not exhibit an opacity of 10% or greater averaged over six consecutive minutes (ARM 17.8.749).
3. Helena Sand & Gravel shall not cause or authorize to be discharged into the atmosphere from any other equipment, such as transfer points, any visible emissions that exhibit an opacity of 10% or greater averaged over six consecutive minutes (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 six consecutive minutes (ARM 17.8.749).
5. Helena Sand & Gravel shall treat all unpaved portions of the haul roads, access roads, parking lots, and general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the 10% opacity limitation (ARM 17.8.749).
6. Combined crushing production from the three crushers shall not exceed 31,200 tons per day (ARM 17.8.749).
7. Combined screening production from the two screens shall be limited to 16,800 tons per day (ARM 17.8.749).

C. Operational Reporting Requirements

1. If this crushing/screening plant is moved to another nonattainment location, an Intent to Transfer form must be sent to the Department and a Public Notice Form for Change of Location must be published in a newspaper of general circulation in the area to which the transfer is to be made, at least 15 days prior to the move. The proof of publication (affidavit) of the Public Notice Form for Change of Location must be submitted to the Department prior to the move. These forms are available from the Department (ARM 17.8.749 and ARM 17.8.765).
2. Production information for the sites covered by this addendum must be maintained for five years and submitted to the Department upon request. The information must include (ARM 17.8.749):
 - a. Tons of material crushed by each crusher at each site (including amount of recirculated/rerun material).
 - b. Tons of material screened by each screen at each site (including amount of recirculated/rerun material).

- c. Tons of bulk material loaded at each site (production).
 - d. Daily hours of operation at each site.
 - e. Gallons of diesel used by each generator at each site.
 - f. Hours of operation and sizes for each engine/generator at each site.
 - g. Fugitive dust information consisting of the total miles driven on unpaved roads for all plant vehicles.
3. Helena Sand & Gravel shall document, by day, the combined crushing production of the three crushers. Helena Sand & Gravel shall sum the combined crushing production from the three crushers during the previous day to verify compliance with the limitations in Section III.A.6 and Section III.B.6 for the winter and summer seasons, respectively. A written report of compliance verification and the emissions inventory shall be submitted to the Department annually. The report for the previous calendar year shall be submitted along with the annual emission inventory (ARM 17.8.749).
 4. Helena Sand & Gravel shall document, by day, the combined screening production of the two screens. Helena Sand & Gravel shall sum the combined screening production of the two screens during the previous day to verify compliance with the limitations in Section III.A.7 and Section III.B.7. A written report of compliance verification and the emissions inventory shall be submitted to the Department annually. The report for the previous calendar year shall be submitted along with the annual emission inventory (ARM 17.8.749).
 5. Helena Sand & Gravel shall document, by day, the hours of operation of the diesel engine/generator, and which of the diesel engine/generators were used. Helena Sand & Gravel shall sum the hours of operation of the diesel generator for the previous day to verify compliance with the winter season hours limitation in Sections III.A.8 and III.A.11. A written report of compliance verification and the emissions inventory shall be submitted to the Department annually. The report for the previous calendar year shall be submitted along with the annual emission inventory (ARM 17.8.749).

Addendum #5 Analysis
Helena Sand & Gravel
Montana Air Quality Permit #3167-06

I. Permitted Equipment

The facility is permitted to operate three crushers with a combined maximum material throughput capacity not to exceed 1,300 tons per hour (TPH), two screens with a combined maximum material throughput capacity not to exceed 700 TPH, a wash plant with a maximum material throughput capacity not to exceed 400 TPH, a diesel-fired generator with a maximum engine rated design capacity not to exceed 2,220 horsepower (hp) or a diesel-fired generator with a maximum engine rated design capacity not to exceed 1,495 hp, a diesel fuel storage tank with a maximum storage capacity not to exceed 10,000 gallons, and associated material handling equipment. At the time of Montana Air Quality Permit (MAQP) issuance, the facility consists of the following equipment:

- One jaw crusher (700 TPH maximum capacity)
- Two cone crushers (250 TPH and 350 TPH maximum capacities, 600 TPH total)
- Two screens (350 TPH maximum capacity per screen, 700 TPH total)
- One wash plant (400 TPH maximum capacity)
- One diesel-fired generator (2,220 hp maximum engine capacity) or one diesel-fired Tier 2 generator (1,495 hp maximum engine capacity)
- One diesel storage tank (10,000 gallon maximum capacity)
- Associated material handling equipment

Helena Sand & Gravel operates at various locations throughout Montana, including in or within 10 kilometers (km) of the following particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) nonattainment areas: Butte, Columbia Falls, Kalispell, Libby, Thompson Falls, and Whitefish.

II. Source Description

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

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 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 of Permit. This rule requires that the source demonstrate compliance with applicable rules and standards before a permit can be issued. Also, a permit may be issued with such conditions as are necessary to assure compliance with all applicable rules and standards. Helena Sand & Gravel demonstrated compliance with all applicable rules and standards as required for permit issuance.
- B. ARM 17.8.764 Modification of Permit. An air quality permit may be modified for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack which do not result in an increase in emissions because of the 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 one year.
 - 3. The source will not have any significant impact on any nonattainment area or any Class I area.

Helena Sand & Gravel must submit proof of compliance with the transfer and public notice requirements when Helena Sand & Gravel transfers to any of the locations covered by this addendum and will only be allowed to stay in the new location for a period of less than one year. Also, the conditions and limitations in Addendum #5 to MAQP #3167-06 will prevent Helena Sand & Gravel from having a significant impact on PM₁₀ nonattainment areas.

IV. Emission Inventory

Winter Season-Emission Inventory (using 2,220-hp Diesel Engine Generator)

Emission Source	lb/day						
	PM	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂
Cold Aggregate Storage Piles	25.45	12.04	1.82	--	--	--	--
Cold Aggregate Handling/Conveyors	25.87	8.50	2.40	--	--	--	--
Cold Aggregate Screens	10.78	3.63	0.25	--	--	--	--
Wash Plant	6.16	2.07	0.14	--	--	--	--
700 ton/hr Jaw Crusher	5.88	2.65	0.49	--	--	--	--
600 ton/hr Cone Crusher	5.04	2.27	0.42	--	--	--	--
Bulk Loading	0.24	0.12	0.00	--	--	--	--
Haul Roads / Vehicle Traffic	54.51	15.02	1.50	--	--	--	--
2,220 hp Diesel Engine Generator	34.19	34.19	34.19	481.74	103.81	39.07	31.86
10,000 gallon Diesel fuel tank	--	--	--	--	--	0.01	--
Total Emissions	168.10	80.49	41.22	481.74	103.81	39.08	31.86

NOTES

SO₂ sulfur dioxide

Hours of operation are limited to 7 hours per day to maintain a PM₁₀ emission rate of less than 82 pounds per day as well as a modeled 24-hour PM₁₀ impact of less than 5 micrograms per cubic meter (µg/m³)

Winter Season-Emission Inventory (Using 1,495-hp Diesel Engine Generator)

Emission Source	lb/day						
	PM	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂
Cold Aggregate Storage Piles	41.81	19.78	2.99	--	--	--	--
Cold Aggregate Handling/Conveyors	42.50	13.97	3.95	--	--	--	--
Cold Aggregate Screens	17.71	5.96	0.40	--	--	--	--
Wash Plant	10.12	3.40	0.23	--	--	--	--
700 ton/hr Jaw Crusher	9.66	4.35	0.81	--	--	--	--
600 ton/hr Cone Crusher	8.28	3.73	0.69	--	--	--	--
Bulk Loading	0.40	0.20	0.01	--	--	--	--
Haul Roads / Vehicle Traffic	89.56	24.68	2.47	--	--	--	--
1,495 hp Tier 2 Diesel Engine/Generator	5.66	5.66	5.66	180.52	98.86	43.22	35.24
10,000 gallon Diesel fuel tank	--	--	--	--	--	0.01	--
Total Emissions	225.70	81.72	17.21	180.52	98.86	43.24	35.24

NOTES

SO₂ sulfur dioxide

Hours of operation are limited to 11.5 hours per day to maintain a PM₁₀ emission rate of less than 82 pounds per day as well as a modeled 24-hour PM₁₀ impact of less than 5 micrograms per cubic meter (µg/m³)

Summer Season-Emission Inventory

Emission Source	lb/day						
	PM	PM ₁₀	PM _{2.5}	NO _x	CO	VOC	SO ₂
Cold Aggregate Storage Piles	87.26	41.27	6.25	--	--	--	--
Cold Aggregate Handling/Conveyors	88.70	29.15	8.24	--	--	--	--
Cold Aggregate Screens	36.96	12.43	0.84	--	--	--	--
Wash Plant	21.12	7.10	0.48	--	--	--	--
700 ton/hr Jaw Crusher	20.16	9.07	1.68	--	--	--	--
600 ton/hr Cone Crusher	17.28	7.78	1.44	--	--	--	--
Bulk Load-Out	0.83	0.42	0.01	--	--	--	--
Haul Roads / Vehicle Traffic	186.90	51.51	5.15	--	--	--	--
2,220 hp Diesel Engine Generator	117.22	117.22	117.22	1651.68	355.91	133.95	109.22
10,000 gallon Diesel fuel tank	--	--	--	--	--	0.01	--
Total Emissions	576.43	275.95	141.31	1651.68	355.91	133.96	109.22

CALCULATIONS

Cold Aggregate Storage Piles

Maximum Process Rate = 1,100 TPH (Maximum plant process rate based on the maximum production capacities of the equipment which discharges to piles which includes 700 TPH in screens and 400 TPH wash plant.)

Maximum Hours of Operation = 24 hours per day (hrs/day) (Summer Hours)

Maximum Hours of Operation = 7 hrs/day (Winter Hours using 2,220 hp engine)

Maximum Hours of Operation = 11.5 hrs/day (Winter Hours using 1,495 hp engine)

Number of Piles = 1 piles (although multiple piles are produced during normal production, the calculations are simplified by assuming a maximum potential production rate discharging into a single pile)

PM Emissions:

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

Emission Factor = $k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} = 0.00331$ pounds per ton (lb/ton)

Where: k = particle size multiplier = 0.74 (Value for PM < 30 microns per AP 42, Sec. 13.2.4.3, 11/06)

U = mean wind speed = 10 miles per hour (mph) (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)

M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)

Calculation: $(1,100 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00331 \text{ lb/ton}) * (1 \text{ piles}) = 87.26$ pounds per day (lb/day) (Summer Hours)

Calculation: $(1,100 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00331 \text{ lb/ton}) * (1 \text{ piles}) = 25.45$ lb/day (Winter Hours using 2,220 hp engine)

Calculation: $(1,100 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00331 \text{ lb/ton}) * (1 \text{ pile}) = 41.81$ lb/day (Winter hours using 1,495 hp engine)

PM₁₀ Emissions:

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

Emission Factor = $k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} = 0.00156$ lb/ton

Where: k = particle size multiplier = 0.35 (Value for PM < 10 microns per AP 42, Sec. 13.2.4.3, 11/06)

U = mean wind speed = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)

M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)

Calculation: $(1,100 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00156 \text{ lb/ton}) * (1 \text{ piles}) = 41.27$ lb/day (Summer Hours)

Calculation: $(1,100 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00156 \text{ lb/ton}) * (1 \text{ piles}) = 12.04$ lb/day (Winter Hours using 2,220 hp engine)

Calculation: $(1,100 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00156 \text{ lb/ton}) * (1 \text{ piles}) = 19.78$ lb/day (Winter Hours using 1,495 hp engine)

PM_{2.5} Emissions:

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

Emission Factor = $k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} = 0.00024$ lb/ton

Where: k = particle size multiplier = 0.053 (Value for PM < 2.5 microns per AP 42, Sec. 13.2.4.3, 11/06)

U = mean wind speed = 10 mph (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)

M = material moisture content = 3% (Estimate based on values provided in AP 42, Sec. 13.2.4.3, 11/06)

Calculation: $(1,100 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00024 \text{ lb/ton}) * (1 \text{ piles}) = 6.25$ lb/day (Summer Hours)

Calculation: $(1,100 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00024 \text{ lb/ton}) * (1 \text{ piles}) = 1.82$ lb/day (Winter Hours using 2,220 hp engine)

Calculation: $(1,100 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00024 \text{ lb/ton}) * (1 \text{ piles}) = 2.99 \text{ lb/day}$ (Winter Hours using 1,495 hp engine)

Cold Aggregate Handling/Conveyors

Maximum Process Rate = 1,100 TPH (Maximum plant process rate based on the assumption that in the closed loop system where all aggregate in the system will be discharged to a pile, the maximum process rate will equal the pile discharge rate)

Maximum Hours of Operation = 24 hrs/day (Summer Hours)

Maximum Hours of Operation = 7 hrs/day (Winter Hours using the 2,220 hp engine)

Maximum Hours of Operation – 11.5 hrs/day (Winter Hours using 1,495 hp Tier 2 engine)

Number of Transfers = 24 transfer (Estimate based on facility layout diagram provided with June 17, 2008 Permit Determination Request letter from Helena Sand & Gravel)

Total PM Emissions:

Emission Factor = 0.00014 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(1,100 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00014 \text{ lb/ton}) * (24 \text{ transfer}) = 88.70 \text{ lb/day}$ (Summer Hours)

Calculation: $(1,100 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00014 \text{ lb/ton}) * (24 \text{ transfer}) = 25.87 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)

Calculation: $(1,100 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00014 \text{ lb/ton}) * (24 \text{ transfer}) = 42.50 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Total PM₁₀ Emissions:

Emission Factor = 0.000046 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(1,100 \text{ TPH}) * (24 \text{ hrs/day}) * (0.000046 \text{ lb/ton}) * (24 \text{ transfer}) = 29.15 \text{ lb/day}$ (Summer Hours)

Calculation: $(1,100 \text{ TPH}) * (7 \text{ hrs/day}) * (0.000046 \text{ lb/ton}) * (24 \text{ transfer}) = 8.50 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)

Calculation: $(1,100 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.000046 \text{ lb/ton}) * (24 \text{ transfer}) = 13.97 \text{ lb/day}$ (Winter Hours using the 1.495 hp engine)

Total PM_{2.5} Emissions:

Emission Factor = 0.000013 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(1,100 \text{ TPH}) * (24 \text{ hrs/day}) * (0.000013 \text{ lb/ton}) * (24 \text{ transfer}) = 8.24 \text{ lb/day}$ (Summer Hours)

Calculation: $(1,100 \text{ TPH}) * (7 \text{ hrs/day}) * (0.000013 \text{ lb/ton}) * (24 \text{ transfer}) = 2.40 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)

Calculation: $(1,100 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.000013 \text{ lb/ton}) * (24 \text{ transfer}) = 3.95 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Cold Aggregate Screens

Maximum Process Rate = 350 TPH (Maximum plant process rate)

Maximum Hours of Operation = 24 hrs/day (Summer Hours)

Maximum Hours of Operation = 7 hrs/day (Winter Hours using the 2,220 hp engine)

Maximum Hours of Operation – 11.5 hrs/day (Winter Hours using the 1,495 hp Tier 2 engine)

Number of Screens = 2 screen(s) (Company Information)

Total PM Emissions:

Emission Factor = 0.0022 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(350 \text{ TPH}) * (24 \text{ hrs/day}) * (0.0022 \text{ lb/ton}) * (2 \text{ screen(s)}) = 36.96 \text{ lb/day}$ (Summer Hours)

Calculation: $(350 \text{ TPH}) * (7 \text{ hrs/day}) * (0.0022 \text{ lb/ton}) * (2 \text{ screen(s)}) = 10.78 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)

Calculation: $(350 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.0022 \text{ lb/ton}) * (2 \text{ screen(s)}) = 17.71 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Total PM₁₀ Emissions:

Emission Factor = 0.00074 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(350 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00074 \text{ lb/ton}) * (2 \text{ screen(s)}) = 12.43 \text{ lb/day}$ (Summer Hours)

Calculation: $(350 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00074 \text{ lb/ton}) * (2 \text{ screen(s)}) = 3.63 \text{ lb/day}$ (Winter Hours)

Calculation: $(350 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00074 \text{ lb/ton}) * (2 \text{ screen(s)}) = 5.96 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Total PM_{2.5} Emissions:

Emission Factor = 0.000050 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(350 \text{ TPH}) * (24 \text{ hrs/day}) * (0.000050 \text{ lb/ton}) * (2 \text{ screen(s)}) = 0.84 \text{ lb/day}$ (Summer Hours)

Calculation: $(350 \text{ TPH}) * (7 \text{ hrs/day}) * (0.000050 \text{ lb/ton}) * (2 \text{ screen(s)}) = 0.25 \text{ lb/day}$ (Winter Hours)

Calculation: $(350 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.000050 \text{ lb/ton}) * (2 \text{ screen(s)}) = 0.40 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Wash Plant

Maximum Process Rate = 400 TPH (Maximum plant process rate)

Maximum Hours of Operation = 24 hrs/day (Summer Hours)

Maximum Hours of Operation = 7 hrs/day (Winter Hours using the 2,220 hp engine)

Maximum Hours of Operation = 11.5 hrs/day (Winter Hours using the 1,495 hp Tier 2 engine)

The Wash Plant is modeled as a controlled screening operation

Total PM Emissions:

Emission Factor = 0.0022 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(400 \text{ TPH}) * (24 \text{ hrs/day}) * (0.0022 \text{ lb/ton}) = 21.12 \text{ lb/day}$ (Summer Hours)

Calculation: $(400 \text{ TPH}) * (7 \text{ hrs/day}) * (0.0022 \text{ lb/ton}) = 6.16 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)

Calculation: $(400 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.0022 \text{ lb/ton}) = 10.12 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Total PM₁₀ Emissions:

Emission Factor = 0.00074 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(400 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00074 \text{ lb/ton}) = 7.10 \text{ lb/day}$ (Summer Hours)

Calculation: $(400 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00074 \text{ lb/ton}) = 2.07 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)

Calculation: $(400 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00074 \text{ lb/ton}) = 3.40 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Total PM_{2.5} Emissions:

Emission Factor = 0.000050 lb/ton (AP 42, Table 11.19.2-2, 8/04)

Calculation: $(400 \text{ TPH}) * (24 \text{ hrs/day}) * (0.000050 \text{ lb/ton}) = 0.48 \text{ lb/day}$ (Summer Hours)

Calculation: $(400 \text{ TPH}) * (7 \text{ hrs/day}) * (0.000050 \text{ lb/ton}) = 0.14 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)

Calculation: $(400 \text{ TPH}) * (7 \text{ hrs/day}) * (0.000050 \text{ lb/ton}) = 0.23 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Jaw Crusher

Maximum Process Rate = 700 TPH (Maximum plant process rate)

Maximum Hours of Operation = 24 hrs/day (Summer Hours)

Maximum Hours of Operation = 7 hrs/day (Winter Hours using the 2,220 hp engine)

Maximum Hours of Operation = 11.5 hrs/day (Winter Hours using the 1,495 hp Tier 2 engine)

Total PM Emissions:

Emission Factor = 0.0012 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)

Calculation: $(700 \text{ TPH}) * (24 \text{ hrs/day}) * (0.0012 \text{ lb/ton}) = 20.16 \text{ lb/day}$ (Summer Hours)

Calculation: $(700 \text{ TPH}) * (7 \text{ hrs/day}) * (0.0012 \text{ lb/ton}) = 5.88 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)

Calculation: $(700 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.0012 \text{ lb/ton}) = 9.66 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Total PM₁₀ Emissions:

Emission Factor = 0.00054 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)

Calculation: $(700 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00054 \text{ lb/ton}) = 9.07 \text{ lb/day}$ (Summer Hours)
 Calculation: $(700 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00054 \text{ lb/ton}) = 2.65 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)
 Calculation: $(700 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00054 \text{ lb/ton}) = 4.35 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)
 Total PM_{2.5} Emissions:
 Emission Factor = 0.00010 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)
 Calculation: $(700 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00010 \text{ lb/ton}) = 1.68 \text{ lb/day}$ (Summer Hours)
 Calculation: $(700 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00010 \text{ lb/ton}) = 0.49 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)
 Calculation: $(700 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00010 \text{ lb/ton}) = 0.81 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Cone Crusher

Maximum Process Rate = 600 TPH (Maximum plant process rate, sum of both cone crusher maximum capacities)
 Maximum Hours of Operation = 24 hrs/day (Summer Hours)
 Maximum Hours of Operation = 7 hrs/day (Winter Hours using the 2,220 hp engine)
 Maximum Hours of Operation = 11.5 hrs/day (Winter Hours using the 1,495 hp Tier 2 engine)
 Total PM Emissions:
 Emission Factor = 0.0012 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)
 Calculation: $(600 \text{ TPH}) * (24 \text{ hrs/day}) * (0.0012 \text{ lb/ton}) = 17.28 \text{ lb/day}$ (Summer Hours)
 Calculation: $(600 \text{ TPH}) * (7 \text{ hrs/day}) * (0.0012 \text{ lb/ton}) = 5.04 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)
 Calculation: $(600 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.0012 \text{ lb/ton}) = 8.28 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)
 Total PM₁₀ Emissions:
 Emission Factor = 0.00054 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)
 Calculation: $(600 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00054 \text{ lb/ton}) = 7.78 \text{ lb/day}$ (Summer Hours)
 Calculation: $(600 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00054 \text{ lb/ton}) = 2.27 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)
 Calculation: $(600 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00054 \text{ lb/ton}) = 3.73 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)
 Total PM_{2.5} Emissions:
 Emission Factor = 0.00010 lb/ton (crushing, AP 42, Table 11.19.2-2, 8/04)
 Calculation: $(600 \text{ TPH}) * (24 \text{ hrs/day}) * (0.00010 \text{ lb/ton}) = 1.44 \text{ lb/day}$ (Summer Hours)
 Calculation: $(600 \text{ TPH}) * (7 \text{ hrs/day}) * (0.00010 \text{ lb/ton}) = 0.42 \text{ lb/day}$ (Winter Hours using the 2,220 hp engine)
 Calculation: $(600 \text{ TPH}) * (11.5 \text{ hrs/day}) * (0.00010 \text{ lb/ton}) = 0.69 \text{ lb/day}$ (Winter Hours using the 1,495 hp engine)

Haul Roads

Vehicle Miles Traveled (VMT) per Day = 15 VMT/day (Estimate)
 VMT per hour = $(15 \text{ VMT/day}) * (\text{day}/24 \text{ hrs}) = 0.63 \text{ VMT/hr}$
 Hours of Operation = 24 hrs/day (Summer Hours)
 Hours of Operation = 7 hrs/day (Winter Hours using the 2,220 hp engine)
 Hours of Operation = 11.5 hrs/day (Winter Hours using the 1,495 hp Tier 2 engine)
 PM Emissions:
 Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.

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

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

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

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

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

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

Calculation: (24 hrs/day) * (0.63 VMT/hr) * (12.46 lb/VMT) = 186.90 lb/day (Summer Hours)

Calculation: (7 hrs/day) * (0.63 VMT/hr) * (12.46 lb/VMT) = 54.51 lb/day (Winter Hours using the 2,220 hp engine)

Calculation: (11.5 hrs/day) * (0.63 VMT/hr) * (12.46 lb/VMT) = 89.56 lb/day (Winter Hours using the 1,495 hp engine)

PM₁₀ Emissions:

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

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

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

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

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

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

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

Calculation: (24 hrs/day) * (0.63 VMT/hr) * (3.43 lb/VMT) = 51.51 lb/day (Summer Hours)

Calculation: (7 hrs/day) * (0.63 VMT/hr) * (3.43 lb/VMT) = 15.02 lb/day (Winter Hours using the 2,220 hp engine)

Calculation: (11.5 hrs/day) * (0.63 VMT/hr) * (3.43 lb/VMT) = 24.68 lb/day (Winter Hours using the 1,495 hp engine)

PM_{2.5} Emissions:

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

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

Where: k = constant = 0.15 lbs/VMT (Value for PM_{2.5}, AP 42, Table 13.2.2-2, 11/06)

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

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

a = constant = 0.9 (Value for PM_{2.5}, AP 42, Table 13.2.2-2, 11/06)

b = constant = 0.45 (Value for PM_{2.5}, AP 42, Table 13.2.2-2, 11/06)

Calculation: (24 hrs/day) * (0.63 VMT/hr) * (0.34 lb/VMT) = 5.15 lb/day (Summer Hours)

Calculation: (7 hrs/day) * (0.63 VMT/hr) * (0.34 lb/VMT) = 1.50 lb/day (Winter Hours using the 2,220 hp engine)

Calculation: (11.5 hrs/day) * (0.63 VMT/hr) * (0.34 lb/VMT) = 2.47 lb/day (Winter Hours using the 1,495 hp engine)

Diesel Generator

Operational Capacity of Engine = 2,220 hp

Hours of Operation = 24.00 hrs/day (Summer Hours)

Hours of Operation = 7.00 hrs/day (Winter Hours)

PM Emissions:

Assume all PM < 1.0 4 AP 3.3, Table 3.3-1, 10/96

PM Emissions = 117.22 lbs/day (Assume PM = PM₁₀, Summer Hours)

PM Emissions = 34.19 lbs/day (Assume PM = PM₁₀, Winter Hours)

PM₁₀ Emissions:

Emission Factor = 0.0022 pounds per horsepower-hour (lbs/hp-hr) (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: (24 hrs/day) * (2,220 hp) * (0.0022 lbs/hp-hr) = 117.22 lb/day (Summer Hours)

Calculation: $(7 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.0022 \text{ lbs/hp-hr}) = 34.19 \text{ lb/day}$ (Winter Hours)

PM_{2.5} Emissions:

PM_{2.5} Emissions = 117.22 lbs/day (Assume PM_{2.5} = PM₁₀, Summer Hours)

PM_{2.5} Emissions = 34.19 lbs/day (Assume PM_{2.5} = PM₁₀, Winter Hours)

NO_x Emissions:

Emission Factor = 0.031 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(24 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.031 \text{ lbs/hp-hr}) = 1,651.68 \text{ lb/day}$ (Summer Hours)

Calculation: $(7 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.031 \text{ lbs/hp-hr}) = 481.74 \text{ lb/day}$ (Winter Hours)

CO Emissions:

Emission Factor = 0.00668 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(24 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.00668 \text{ lbs/hp-hr}) = 355.91 \text{ lb/day}$ (Summer Hours)

Calculation: $(7 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.00668 \text{ lbs/hp-hr}) = 103.81 \text{ lb/day}$ (Winter Hours)

VOC Emissions:

Emission Factor = 0.0025141 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, TOC, Exhaust & Crankcase, 10/96)

Calculation: $(24 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.0025141 \text{ lbs/hp-hr}) = 133.95 \text{ lb/day}$ (Summer Hours)

Calculation: $(7 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.0025141 \text{ lbs/hp-hr}) = 39.07 \text{ lb/day}$ (Winter Hours)

SO₂ Emissions:

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(24 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.00205 \text{ lbs/hp-hr}) = 109.22 \text{ lb/day}$ (Summer Hours)

Calculation: $(7 \text{ hrs/day}) * (2,220 \text{ hp}) * (0.00205 \text{ lbs/hp-hr}) = 31.86 \text{ lb/day}$ (Winter Hours)

Diesel Generator

Operational Capacity of Engine = 1,495 hp – Tier 2

Hours of Operation = 11.5 hrs/day (Winter Hours)

PM Emissions:

PM Emissions = 5.66 lbs/day (Assume PM = PM₁₀, Winter Hours)

PM₁₀ Emissions:

Emission Factor = 0.000329 pounds per horsepower-hour (lbs/hp-hr) (40 CFR 89 – Tier 2)

Calculation: $(11.5 \text{ hrs/day}) * (1,495 \text{ hp}) * (0.000329 \text{ lbs/hp-hr}) = 5.66 \text{ lb/day}$ (Winter Hours)

PM_{2.5} Emissions:

PM_{2.5} Emissions = 5.66 lbs/day (Assume PM_{2.5} = PM₁₀, Winter Hours)

NO_x Emissions:

Emission Factor = 0.0105 lbs/hp-hr (40 CFR 89 – Tier 2)

Calculation: $(11.5 \text{ hrs/day}) * (1,495 \text{ hp}) * (0.0105 \text{ lbs/hp-hr}) = 180.52 \text{ lb/day}$ (Winter Hours)

CO Emissions:

Emission Factor = 0.00575 lbs/hp-hr (40 CFR 89 – Tier 2)

Calculation: $(11.5 \text{ hrs/day}) * (1,495 \text{ hp}) * (0.00575 \text{ lbs/hp-hr}) = 98.86 \text{ lb/day}$ (Winter Hours)

VOC Emissions:

Emission Factor = 0.0025141 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, TOC, Exhaust & Crankcase, 10/96)

Calculation: $(11.5 \text{ hrs/day}) * (1,495 \text{ hp}) * (0.0025141 \text{ lbs/hp-hr}) = 43.22 \text{ lb/day}$ (Winter Hours)

SO₂ Emissions:

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(11.5 \text{ hrs/day}) * (1,495 \text{ hp}) * (0.00205 \text{ lbs/hp-hr}) = 35.24 \text{ lb/day}$ (Winter Hours)

Diesel Storage Tank

Maximum Tank Capacity = 10000 gallons

Maximum Usage Rate = 103.3 gallons per hour (based on maximum engine consumption)

Tank Dimensions: 38 feet 2 inches long by 8 feet wide by 5 feet 8 inches tall

Equivalent Tank Diameter = $2 * ((8') * (5'8")) / (8' + 5'8") = 6.63 \text{ feet}$

Calculation: $(103.3 \text{ gallons/hour}) * (2,800 \text{ hours/year}) = 289,240 \text{ gallons/year}$

$(289,240 \text{ gallons/year}) / (10,000 \text{ gallons/turnover}) = 29 \text{ turnovers/year}$

Emissions estimation based on TANKS 4.0.9d Annual Emissions Report

Components: distillate fuel oil number 2

Working Loss: 3.48 pounds per year (lb/yr) VOC emissions
Breathing Loss: 1.23 lb/yr
Total Loss: 4.72 lb/yr
 $(4.72 \text{ lb/yr}) / (365 \text{ days/year}) = 0.01 \text{ lb/day}$ VOC emissions (Summer and Winter Hours do not affect the emissions from the diesel storage tank because the emissions are due to evaporative loss which occurs at all times of day regardless of plant operation.

V. Existing Air Quality

On July 1, 1987, the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for PM₁₀. Due to exceedances of the national standards for PM₁₀, the cities of Kalispell (and the nearby Evergreen area), Columbia Falls, Butte, Whitefish, Libby, Missoula, and Thompson Falls were designated by the EPA as nonattainment for PM₁₀. As a result of this designation, the EPA required the Department and the City-County Health Departments to submit PM₁₀ 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 determined these sources to be the major contributors to PM₁₀ emissions.

Addendum #5 to MAQP #3167-06 is for a portable crushing/screening plant to locate at sites in or within 10 km of certain PM₁₀ nonattainment areas during the winter season (October 1 through March 31). Winter season (October 1 through March 31) operations may include only the locations listed in Section II.A of Addendum #5. Addendum #5 of MAQP #3167-06 would also allow for summertime operations (April 1 through September 30) at any location in or within 10 km of the Butte, Columbia Falls, Libby, Kalispell, Thompson Falls, and Whitefish PM₁₀ nonattainment areas.

VI. Air Quality Impacts

Helena Sand & Gravel is allowed to operate a portable crushing/screening plant to be located at various locations throughout Montana. MAQP #3167-06 and Addendum #5 will cover the Helena Sand & Gravel crushing/screening plant while operating at any location within Montana, excluding those counties that have a Department-approved permitting program and those areas considered tribal lands. In the view of the Department, the amount of controlled particulate emissions generated by this project will not cause concentrations of PM₁₀ in the ambient air that exceed the ambient air quality standards. In addition, this source is portable and any air quality impacts will be minimal.

VII. Taking or Damaging Implication Analysis

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

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	8. 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

An environmental assessment was not required for the current permit action because it is considered an administrative action.

Analysis prepared by: Loni Patterson

Date: July 21, 2015