



Brian Schweitzer, Governor

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February 24, 2012

Jerry Bowser
Helena Sand and Gravel, Inc.
P.O. Box 5960
Helena, MT 59604-5960

Dear Mr. Bowser:

Montana Air Quality Permit #4555-01 is deemed final as of February 24, 2012, by the Department of Environmental Quality (Department). This permit is for a portable crushing and screening operation and associated equipment. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

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

Doug Kuenzli
Environmental Science Specialist
Air Resources Management Bureau
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VW:DCK
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #4555-01

Helena Sand and Gravel, Inc.
P.O. Box 5960
Helena, MT 59604-5960

February 24, 2012



MONTANA AIR QUALITY PERMIT

Issued To: Helena Sand and Gravel, Inc.
P.O. Box 5960
Helena, MT 59604-5960

MAQP: #4555-01
Administrative Amendment (AA) Application
Received: 01/11/2012
Department's Decision on AA Issued: 02/08/2012
Permit Final: 02/24/2012
AFS #: 777-4555

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

HS&G operates a portable crushing and screening operation located in Section 19, Township 10 North, Range 2 West in Lewis and Clark County, Montana. However, MAQP #4555-01 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 #2 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 January 11, 2012, the Department of Environmental Quality (Department) received a request to amend MAQP #4555-01, to incorporate limits which maintain potential emissions below 80 tons per year (TPY). This request was made as part of a project created by the Department to address those sources with existing federally enforceable permit limits established to keep potential emissions below major source permitting thresholds. The project encouraged these sources to further reduce emissions to avoid additional monitoring and increased inspections required under the Compliance Monitoring Strategy (CMS) in connection with the U. S. Environmental Protection Agency (EPA). This permitting action amends MAQP #4555-01 to incorporate limits and conditions to maintain potential emissions below 80 TPY. In addition, the permit action updates the rule references, permit format, and the emissions inventory.

SECTION II: Conditions and Limitations

A. Emission Limitations

1. All visible emissions from any non-Standards of Performance for New Stationary Source NSPS affected equipment shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
2. All visible emissions from any NSPS-affected crusher shall not exhibit an opacity in excess of the following averaged over 6 consecutive minutes (ARM 17.8.340 and 40 Code of Federal Regulation (CFR) 60, Subpart 000):
 - For crushers that commence construction, modification, or reconstruction on or after April 22, 2008: 12% opacity

- For crushers that commence construction, modification, or reconstruction after August 31, 1983, but before April 22, 2008: 15% opacity
- 3. All visible emissions from any NSPS-affected equipment, other than a crusher (such as screens and conveyors), shall not exhibit an opacity in excess of the following averaged over 6 consecutive minutes (ARM 17.8.340 and 40 CFR 60, Subpart OOO):
 - For equipment that commences construction, modification, or reconstruction on or after April 22, 2008: 7% opacity
 - For equipment that commences construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008: 10% opacity
- 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).
- 5. HS&G shall not cause or authorize the use of any street, road or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
- 6. HS&G shall treat all unpaved portions of the haul roads, access roads, parking lots, or the general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.5 (ARM 17.8.749).
- 7. HS&G shall not operate more than three (3) crushers. The maximum combined capacity of the crushers shall not exceed 1,015 tons per hour (TPH) (ARM 17.8.749).
- 8. HS&G shall not operate more than five (5) screens. The maximum combined capacity of the screens shall not exceed 2,125 TPH (ARM 17.8.749).
- 9. HS&G shall not operate, or have on-site, more than two (2) diesel-fired generator engines. The maximum rated combined horsepower (hp) of the generator engines shall not exceed 2,121 hp (ARM 17.8.1204).
- 10. Operation of the diesel generator engines shall not exceed 2,420 hours of operation each during any rolling 12-month time period (ARM 17.8.1204).
- 11. If the permitted equipment is used in conjunction with any other equipment owned or operated by HS&G, 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).
- 12. HS&G 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).
- 13. HS&G shall comply with any 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. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. 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. HS&G 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. HS&G 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. HS&G 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 HS&G 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. HS&G shall document, by month, the hours of operation of each of the diesel generator engines. By the 25th day of each month, HS&G shall calculate the total combined hours of operation for the diesel generator engines for the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.10. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

6. HS&G 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: General Conditions

- A. Inspection – HS&G shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (Continuous Emissions Monitoring System (CEMS), Continuous Emissions Rate Monitoring System (CERMS)) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if HS&G fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving HS&G of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided for in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Air Quality Operation Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by HS&G 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. HS&G 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 land.

Montana Air Quality Permit (MAQP) Analysis
Helena Sand and Gravel, Inc
MAQP #4555-01

I. Introduction/Process Description

Helena Sand & Gravel, Inc. (HS&G) owns and operates a portable non-metallic mineral processing operation with a maximum rated design capacity of 1,015 tons per hour (TPH) crushing production and 2,125 TPH of screening production. MAQP #4555-01 applies while operating at any location in Montana, except those areas with a Department of Environmental Quality (Department) – approved permitting program and those areas considered tribal lands. Addendum #2 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. Permitted Equipment

The following list of permitted equipment is provided for reference and is based on information provided within the initial and subsequent applications. MAQP #4555-01 is written de minimis friendly, whereby operational flexibility is provided so that alternate equipment may be utilized as long as maximum capacities are not exceeded. See Section II of the MAQP for specific equipment limitations and/or conditions. Equipment permitted under this action consists of the following:

- 1997 Cedarapids Jaw Crusher - 400 TPH maximum rated capacity
- 2006 Nordberg Cone Crusher - 350 TPH maximum rated capacity
- 2000 Nordberg Cone Crusher - 265 TPH maximum rated capacity
- Three (3) 1997 El-Jay Deck Screens - 425 TPH maximum rated capacity (each)
- Two (2) 1992 El-Jay Deck Screens - 425 TPH maximum rated capacity (each)
- 1999 Caterpillar 3512 Generator Set (1,250 kilowatt (kW)) with a 1,971 horsepower (hp) Diesel Engine
- 2005 Whisperwatt 125-DCA Generator Set (100 kW) with a 150 hp Diesel Engine
- 500 Gallon Diesel Storage Tank
- 10,000 Gallon Diesel Storage Tank
- Associated Material Handling Equipment; Feeders, Conveyors (Up to 37 conveyors in total - some of these are integrated conveyors which are part of the crusher/screen), Stackers, etc.

B. Source Description

HS&G proposes to operate this equipment to crush and sort sand and gravel-like materials. HS&G would use this crushing/screening plant to crush, screen, and sort sand and gravel-like materials for use in various construction operations. For a typical operational setup, unprocessed materials are loaded into the crushing/screening plant via a hopper and transferred by conveyor to the crushers. From the crusher, materials are sent to the screen, where they are separated and conveyed to stockpiles.

C. Permit History

On August 12, 2010, the Department issued HS&G **MAQP #4555-00** for the operation of a portable crushing and screen operation. Proposed equipment consisted of three (3) crushers with a combined maximum rated design capacity of 1,015 TPH, five (5) screens with a combined maximum rated design capacity of 2,125 TPH, two (2) diesel-fired generator sets with a combined maximum rated engine design capacity of 2,121 hp. Associated handling and process equipment includes; feeders, conveyors, stackers, and two (2) diesel storage tanks of 10,000 gallon and 500 gallon capacities.

D. Current Permit Action

On January 11, 2012, the Department of Environmental Quality (Department) received a request to amend MAQP #4555-01, to incorporate limits which maintain potential emissions below 80 tons per year (TPY). This request was made as part of a project created by the Department to address those sources with existing federally enforceable permit limits established to keep potential emissions below major source permitting thresholds. The project encouraged these sources to further reduce emissions to avoid additional monitoring and increased inspections required under the Compliance Monitoring Strategy (CMS) in connection with the U. S. Environmental Protection Agency (EPA). This permitting action amends MAQP #4555-01 to incorporate limits and conditions to maintain potential emissions below 80 TPY. In addition, the permit action updates the rule references, permit format, and the emissions inventory. **MAQP #4555-01** replaces MAQP #4555-00 and **Addendum #2** replaces Addendum #1.

E. Additional Information

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

II. Applicable Rules and Regulations

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

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

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

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

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

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

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide (SO₂)
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide (NO_x)
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide (CO)
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone (O₃)
6. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter (PM)
7. ARM 17.8.221 Ambient Air Quality Standard for Visibility
8. ARM 17.8.223 Ambient Air Quality Standards for (PM₁₀)

HS&G must maintain compliance with the applicable ambient air quality standards.

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

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions are taken to control emissions of airborne particulate matter. (2) Under this rule, HS&G shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.

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

7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 Code of Federal Regulation (CFR) Part 60, Standards of Performance for New Stationary Sources (NSPS). HS&G 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 HS&G, the portable crushing equipment to be used under Permit #4555-01 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 Compression Engines (CI ICE). Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines, or are manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006, and owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005, are subject to this part. As this permit is written in a de minimis friendly manner, future engines may be subject to this part if a CI ICE were modified, constructed, or reconstructed after July 11, 2005, and if the CI ICE remains in the same location for more than 12 months.

8. ARM 17.8.342 Emissions Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as listed below:
 - a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a National Emission Standard for Hazardous Air Pollutants (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). RICE equipment are affected sources if they are new or reconstructed on or after June 12, 2006. Any diesel RICE engine operated by HS&G that is new or reconstructed on or after June 12, 2006, 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 HS&G is an area source, the provisions of this subpart potentially apply to the facility's RICE if the RICE remains in the same location for more than 12 months.

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

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. HS&G submitted the appropriate permit application fee for the current permit action.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department; the air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

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

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

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an MAQP or permit modification to construct, modify, or use any asphalt plant, crusher, or screen that has the potential to emit (PTE) greater than 15 tpy of any pollutant. HS&G has a PTE greater than 15 tpy of PM, PM₁₀, and oxides of nitrogen (NO_x); therefore, an MAQP is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements.
(1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. A permit application was not required for the current permit action because the permit change is considered an administrative permit change. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. An affidavit of publication of public notice was not required for the current permit action because the permit change is considered an administrative permit change.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.
8. ARM 17.8.755 Inspection of Permit. This rule requires that MAQPs shall be made available for inspection by the Department at the location of the source.
9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving HS&G of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An MAQP shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An MAQP may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An MAQP may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. (1) This rule states that an MAQP may be transferred from one location to another if the Department receives a complete notice of intent to transfer location, the facility will operate in the new location for less than 1 year, the facility will comply with the FCAA and the Clean Air Act of Montana, and the facility complies with other applicable rules. (2) This rule states that an MAQP may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

- F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:
1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
 2. ARM 17.8.818 Review of Major Stationary Sources and Major Modification--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

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

- G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:
1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 tpy of any pollutant;
 - b. PTE > 10 tpy of a any single hazardous air pollutant (HAP), PTE > 25 tpy of any combination of HAPs, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tpy of 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 #4555-01 for HS&G, the following conclusions were made:
 - a. HS&G has requested federally-enforceable permit operating limits be established to maintain the facility's PTE below 100 tpy and 80 tpy.
 - b. The facility's PTE is less than 10 tpy for any single HAP and less than 25 tpy of combined HAPs.
 - c. This source is not located in a serious PM₁₀ nonattainment area.
 - d. This facility is subject to current NSPS (40 CFR 60, Subpart OOO and potentially 40 CFR 60, Subpart IIII).
 - e. This facility is potentially subject to area source provisions of a current NESHAP standard (40 CFR 63, Subpart ZZZZ).
 - f. This source is not a Title IV affected source or a solid waste combustion unit.
 - g. This source is not an EPA designated Title V source.

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

- h. ARM 17.8.1204(3). The Department may exempt a source from the requirement to obtain an air quality operating permit by establishing federally enforceable limitations which limit that source's PTE.
 - i. In applying for an exemption under this section the owner or operator of the facility shall certify to the Department that the source's PTE does not require the source to obtain an air quality operating permit.
 - ii. Any source that obtains a federally enforceable limit on PTE shall annually certify that its actual emissions are less than those that would require the source to obtain an air quality operating permit.
- 3. ARM 17.8.1207 Certification of Truth, Accuracy, and Completeness. The compliance certification submittal by ARM 17.8.1204(3) shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under this subchapter shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

III. BACT Determination

A BACT determination is required for each new or modified source. HS&G shall install on the new or modified source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized.

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

IV. Emission Inventory

Emission Source	Emissions Tons/Year [PTE] ^{(a)(b)}							
	PM	PM ₁₀	PM _{2.5}	PM _{cond}	CO	NO _x	SO ₂	VOC
Aggregate Crushers [1,015 TPH]	5.33	2.40	0.44	--	--	--	--	--
Aggregate Cold Deck Screens [2,125 TPH]	20.48	6.89	0.47	--	--	--	--	--
Material Handling	37.38	14.36	3.18	--	--	--	--	--
Diesel-Fired Generator Set [2,121 hp]	5.65	5.65	1.00	0.14	17.14	79.56	5.26	6.45
Diesel Fuel Storage Tanks [10,000/500 Gal]	--	--	--	--	--	--	--	NG
Unpaved Roadways (Haul Roads)	16.47	4.54	0.45	--	--	--	--	--
TOTAL EMISSIONS ►	85.31	33.84	5.54	0.14	17.14	79.56	5.26	6.45

(a) Emission Inventory reflects enforceable limits on hours of operation of the diesel-fired generator engine to keep allowable NO_x emissions below the Title V threshold [100 tpy] and the SM Source threshold [80 tpy].

(b) PM emissions presented in the table represent the sum of the filterable and condensable particulate matter (CPM) fractions. All CPM is considered to be PM_{2.5}.

CO, carbon monoxide
Gal, gallon
hp, horsepower
lb. pound

PM_{2.5}, particulate matter with an aerodynamic diameter of 2.5 microns or less [Sum of condensable and filterable]
psia, pounds per square inch actual
psig, pounds per square inch as read by gauge (not including atmospheric

MMBtu, million British Thermal Units	pressure)
NO _x , oxides of nitrogen	R, degrees Rankine
NG, negligible emissions [< 0.01 tpy]	RVP, Reid Vapor Pressure
PTE, Potential To Emit	SO ₂ , oxides of sulfur
PM, particulate matter	TPH, tons per hour
PM _{COND} , condensable particulate matter	TPY, tons per year
PM ₁₀ , particulate matter with an aerodynamic diameter of 10 microns or less	VOC, volatile organic compounds

Non-Metallic Mineral Processing Operation

Crushers (3)	1,015 tons/hour (Maximum)	8,891,400 tons/year (Maximum)
Deck Screen (5)	2,125 tons/hour (Maximum)	18,615,000 tons/year (Maximum)

Allowable Hours of Operation: 8760 hours/year

Power Source: (2) Diesel-Fired Generators up to 2,121 hp [non-certified]

Material Processing:

Aggregate Crushers [SCC 3-05-020-01]

Process Rate: 1015 tons/hour
 Operating Hours: 8760 hours/year

Particulate Emissions (controlled):

PM Emissions:

Emission Factor	0.0012 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.0012 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$		1.22 lbs/hr
	$(1.218 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		5.33 TPY

PM₁₀ Emissions:

Emission Factor	0.00054 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.00054 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$		0.55 lbs/hr
	$(0.5481 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		2.40 TPY

PM_{2.5} Emissions:

Emission Factor	0.0001 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.0001 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$		0.10 lbs/hr
	$(0.1015 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		0.44 TPY

Aggregate Cold Deck Screens [SCC 3-05-020-02]

Process Rate: 2125 tons/hour
 Operating Hours: 8760 hours/year

Particulate Emissions (controlled):

PM Emissions:

Emission Factor	0.0022 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.0022 \text{ lbs/ton}) * (2125 \text{ tons/hr}) =$		4.68 lbs/hr
	$(4.675 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		20.48 TPY

PM₁₀ Emissions:

Emission Factor	0.00074 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.00074 \text{ lbs/ton}) * (2125 \text{ tons/hr}) =$		1.57 lbs/hr
	$(1.5725 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		6.89 TPY

PM_{2.5} Emissions:

Emission Factor	0.00005 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.00005 \text{ lbs/ton}) * (2125 \text{ tons/hr}) =$		0.11 lbs/hr
	$(0.10625 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		0.47 TPY

Material Handling:

Fragmented Stone Load-In ► Ground Storage [SCC 3-05-020-31]

Process Rate: 1015 tons/hour [Crusher Capacity]
 Operating Hours: 8760 hours/year

Particulate Emissions (uncontrolled):

PM Emissions:

Emission Factor	0.000031 lbs/ton [PM = PM ₁₀ /0.51 ► AP-42 Appendix B.2 - Table B.2.2, Category 3, 1/95]	
Calculations	$(0.000031 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$	0.03 lbs/hr
	$(0.031465 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$	0.14 TPY

PM₁₀ Emissions:

Emission Factor	0.000016 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.000016 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$		0.02 lbs/hr
	$(0.01624 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		0.07 TPY

PM_{2.5} Emissions:

Emission Factor	0.000005 lbs/ton [PM = PM ₁₀ *0.15 ► AP-42 Appendix B.2 - Table B.2.2, Category 3, 1/95]	
Calculations	$(0.000005 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$	0.00 lbs/hr
	$(0.00471975 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$	0.02 TPY

Conveyor Transfer Points [SCC 3-05-020-06]

Process Rate: 1015 tons/hour [Maximum Crushing Capacity]
 Operating Hours: 8760 hours/year
 Total Transfers: 37 Transfers [Based on Process Flow Diagram]

Particulate Emissions (controlled):

PM Emissions:

Emission Factor	0.00014 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.00014 \text{ lbs/ton}) * (1015 \text{ tons/hr}) * (37 \text{ Transfers}) =$		5.26 lbs/hr
	$(5.26 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		23.03 TPY

PM₁₀ Emissions:

Emission Factor	0.000046 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.000046 \text{ lbs/ton}) * (1015 \text{ tons/hr}) * (37 \text{ Transfers}) =$		1.73 lbs/hr
	$(1.73 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		7.57 TPY

PM_{2.5} Emissions:

Emission Factor	0.000013 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]	
Calculations	$(0.000013 \text{ lbs/ton}) * (1015 \text{ tons/hr}) * (37 \text{ Transfers}) =$		0.49 lbs/hr
	$(0.49 \text{ lbs/hr}) * (8760 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		2.14 TPY

Storage Pile Load-In & Load-Out [SCC 30502505 / 30502502]

Process Rate: 1015 tons/hour [Maximum Crushing Capacity]
 Operating Hours: 8760 hours/year

Pile Transfers: 1 [Initial Pile Formation]

Particulate Emissions (uncontrolled):

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

where: EF, Emission Factor = lbs Emitted / ton Processed

k, Dimensionless Particle Size Multiplier PM = 0.74 [AP-42 13.2.4, 11/06]

k, Dimensionless Particle Size Multiplier PM₁₀ = 0.35 [AP-42 13.2.4, 11/06]

k, Dimensionless Particle Size Multiplier PM_{2.5} = 0.053 [AP-42 13.2.4, 11/06]

U, Mean Wind Speed (mph) = 9.3 [ASOS/AWOS AVE-MT 10 yr Ave.]

M, Material Moisture Content (%) = 2.88 [AP-42 11.19.2-2, notation b, 8/04]

PM Emissions:

Emission Factor $EF = 0.74 * (0.0032) * [(9.33/5)^{1.3} / (2.88/ 2)^{1.4}] =$ 0.0032 lbs/ton
Calculations $(0.0032 \text{ lbs/ton}) * (1015 \text{ tons/hr}) * (1 \text{ pile transfers}) =$ 3.25 lbs/hr
 $(3.25 \text{ lbs/hr}) * (8760 \text{ hours/yr}) * (0.0005 \text{ tons/lb}) =$ 14.22 TPY

PM₁₀ Emissions:

Emission Factor $EF = 0.35 * (0.0032) * [(9.33/5)^{1.3} / (2.88/ 2)^{1.4}] =$ 0.0015 lbs/ton
Calculations $(0.0015 \text{ lbs/ton}) * (1015 \text{ tons/hr}) * (1 \text{ piles}) =$ 1.54 lbs/hr
 $(1.54 \text{ lbs/hr}) * (8760 \text{ hours/yr}) * (0.0005 \text{ tons/lb}) =$ 6.72 TPY

PM_{2.5} Emissions:

Emission Factor $EF = 0.053 * (0.0032) * [(9.33/5)^{1.3} / (2.88/ 2)^{1.4}] =$ 0.00023 lbs/ton
Calculations $(0.00023 \text{ lbs/ton}) * (1015 \text{ tons/hr}) * (1 \text{ piles}) =$ 0.23 lbs/hr
 $(0.23 \text{ lbs/hr}) * (8760 \text{ hours/yr}) * (0.0005 \text{ tons/lb}) =$ 1.02 TPY

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

Engine Rating: 2121 Hp [Maximum Combined Engine Output]

Fuel Input: 14.85 MMBtu/hr
108.3 gallons/hour [Estimated]

Operating Hours: 2420 hours/year

Particulate Emissions (uncontrolled):

PM Emissions:

Emission Factor 0.0022 lb/hp-hr [AP-42 3.3-1, 10/96]
Calculations $(0.0022 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$ 4.67 lbs/hr
 $(4.67 \text{ lbs/hr}) * (2420 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$ 5.65 TPY

PM₁₀ Emissions:

Emission Factor 0.0022 lb/hp-hr [AP-42 3.3-1, 10/96]
Calculations $(0.0022 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$ 4.67 lbs/hr
 $(4.67 \text{ lbs/hr}) * (2420 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$ 5.65 TPY

PM_{2.5} Emissions (filterable):

Emission Factor 0.0479 lb/MMBtu [AP-42 3.4-2, 10/96]
Calculations $(0.0479 \text{ lb/MMBtu}) * (14.85 \text{ MMBtu/hr}) =$ 0.71 lbs/hr
 $(0.71 \text{ lbs/hr}) * (2420 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$ 0.86 TPY

PM_{2.5} Emissions (condensable):

Emission Factor 0.0077 lb/MMBtu [AP-42 3.4-2, 10/96]
Calculations $(0.0077 \text{ lb/MMBtu}) * (14.85 \text{ MMBtu/hr}) =$ 0.11 lbs/hr

$$(0.11 \text{ lbs/hr}) * (2420 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) = 0.14 \text{ TPY}$$

CO Emissions (uncontrolled):

Emission Factor	0.00668 lb/hp-hr	[AP-42 3.3-1, 10/96]	
Calculations	$(0.00668 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$		14.17 lbs/hr
	$(14.17 \text{ lbs/hr}) * (2420 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		17.14 TPY

NO_x Emissions (uncontrolled):

Emission Factor	0.031 lb/hp-hr	[AP-42 3.3-1, 10/96]	
Calculations	$(0.031 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$		65.75 lbs/hr
	$(65.75 \text{ lbs/hr}) * (2420 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		79.56 TPY

SO₂ Emissions (uncontrolled):

Emission Factor	0.00205 lb/hp-hr	[AP-42 3.3-1, 10/96]	
Calculations	$(0.0021 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$		4.35 lbs/hr
	$(4.35 \text{ lbs/hr}) * (2420 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		5.26 TPY

VOC Emissions (uncontrolled):

Emission Factor	0.002514 lb/hp-hr	[AP-42 3.3-1, 10/96]	
Calculations	$(0.0025 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$		5.33 lbs/hr
	$(5.33 \text{ lbs/hr}) * (2420 \text{ hrs/yr}) * (0.0005 \text{ tons/lb}) =$		6.45 TPY

Fuel Storage Tanks [SCC 39090003 / 39090004]

Based on U.S. EPA TANKS 4.0.9d Emissions Estimate Software ¹

Tank Physical Characteristics

10,000 Gallon Horizontal Tank [Diesel]

Tank Dimensions ²

Shell Length (ft):	38.17
Diameter (ft):	6.73
Volume (gallons):	10,000
Turnovers:	26.50
Net Throughput(gal/yr):	265,000
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

500 Gallon Horizontal Tank [Diesel]

Tank Dimensions ²

Shell Length (ft):	38.17
Diameter (ft):	6.73
Volume (gallons):	10,000.00
Turnovers:	26.50
Net Throughput(gal/yr):	265,000
Is Tank Heated (y/n):	N

Paint Characteristics

Shell Color/Shade:	Gray/Light
Shell Condition:	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig):	0.03

Notes:

¹ Meteorological Data used in Emissions Calculations: Helena, Montana (Avg. Atmospheric Pressure = 12.77 psia)

² Actual Tank dimensions L, 38'2" x W, 8' x H, 5'8" - Equivalent tank diameter ($r_1 * r_2 * \pi = \pi * r^2$) → $r_2 = \text{Area}_{\text{equivalent}}$
 $2.833 * 4 * \pi = \pi * r^2 = 3.365$; $\text{Area}_{\text{equivalent}} = (3.365)^2 = 6.73$

Liquid Properties

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fraction	Vapor Mass Fraction	Mol. Weight t	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Distillate fuel oil no. 2	All	48.56	40.59	56.53	45.29	0.0043	0.0032	0.0058	130.00			188.0	Option 1: VP40 = .0031 VP50 = .0045

Tanks 4.0.9d Loss Totals:

Component(s)	Tank ID	Annual Tank Losses			
		Units	Working Loss	Breathing Loss	Total Tank Emissions
Distillate fuel oil no. 2 [VOC]	10,000 Gal Tank	[lbs] ►	3.78	2.36	6.14
		[TPY] ►	0.00189	0.00118	0.00307
	500 Gal Tank	[lbs] ►	0.68	0.28	0.96
		[TPY] ►	0.00034	0.00014	0.00048

Unpaved Roadways (Haul Roads)

Vehicle Miles Travelled: 15 Miles/Day [Estimate]
 Vehicle Weight: 50 Tons [Mean Vehicle Weight]
 Control Method: Water Application
 Control Efficiency (C_e): 50%

Particulate Emissions (controlled):

Emission Factor $EF = k(s/12)^a * (W/3)^b$ [AP-42 13.2.2.2, 11/06]
 where: EF, Emission Factor = lbs Emitted Per Vehicle Mile Traveled (VMT)
 k, Empirical Constant PM = 4.9 [AP-42 Table 13.2.2-2, 11/06]
 k, Empirical Constant PM₁₀ = 1.5 [AP-42 Table 13.2.2-2, 11/06]
 k, Empirical Constant PM_{2.5} = 0.15 [AP-42 Table 13.2.2-2, 11/06]
 s, Surface Material Silt Content (%) = 7.1 [AP-42 Table 13.2.2-1, 11/06]
 W, Mean Vehicle Weight (tons) = 50 [Applicant Provided Data]
 a, Empirical Constant PM = 0.7 [AP-42 Table 13.2.2-2, 11/06]
 a, Empirical Constant PM₁₀/PM_{2.5} = 0.9 [AP-42 Table 13.2.2-2, 11/06]
 b, Empirical Constant PM - PM_{2.5} = 0.45 [AP-42 Table 13.2.2-2, 11/06]

PM Emissions:

Emission Factor $EF = 4.9 * (7.1/12)^{0.7} * (50/3)^{0.45} = 12.04$ lbs/VMT
 Calculations $(12.04 \text{ lbs/VMT}) * (15 \text{ miles/day}) * (1 - 0.5 C_e) = 90.27$ lbs/day
 $(90.27 \text{ lbs/day}) * (365 \text{ days/yr}) * (0.0005 \text{ tons/lb}) = 16.47$ TPY

PM₁₀ Emissions:

Emission Factor $EF = 1.5 * (7.1/12)^{0.9} * (50/3)^{0.45} = 3.32$ lbs/VMT
 Calculations $(3.32 \text{ lbs/VMT}) * (5 \text{ miles/day}) * (1 - 0.5 C_e) = 24.88$ lbs/day
 $(24.88 \text{ lbs/day}) * (365 \text{ days/yr}) * (0.0005 \text{ tons/lb}) = 4.54$ TPY

PM_{2.5} Emissions:

Emission Factor $EF = 0.15 * (7.1/12)^{0.9} * (50/3)^{0.45} = 0.33$ lbs/VMT
 Calculations $(0.33 \text{ lbs/VMT}) * (5 \text{ miles/day}) * (1 - 0.5 C_e) = 2.49$ lbs/day
 $(2.49 \text{ lbs/day}) * (365 \text{ days/yr}) * (0.0005 \text{ tons/lb}) = 0.45$ TPY

V. Existing Air Quality

The original location of this portable operation is a location which is classified as attainment/unclassifiable for all criteria pollutants for which this operation emits. Operation in certain PM₁₀ nonattainment areas is permitted under the operating conditions of Addendum #2 to this permit.

VI. Air Quality Impacts

The Department determined that there will be no impacts from this permitting action because the current action is considered an administrative action. Therefore, the Department believes this action will cause or contribute to a violation of any ambient air quality standard.

VII. Ambient Air Impact Analysis

The Department determined, based on the relatively small amount of emissions resulting from the HS&G operation and the limits and conditions that would be included in MAQP #4555-01 and Addendum #2, the Department believes it will not cause or contribute to a violation of any ambient air quality standard.

VIII. Taking or Damaging Implication Analysis

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

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

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

IX. Environmental Assessment

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

Permit Analysis Prepared by: D. Kuenzli

Date: January 27, 2012

Addendum #2
Helena Sand and Gravel, Inc.
Montana Air Quality Permit (MAQP) #4555-01

An addendum to Montana Air Quality Permit #4555-01 is hereby granted to Helena Sand and Gravel, Inc. (HS&G) pursuant to Section 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.765, as amended, for the following:

I. Permitted Equipment

HS&G owns and operates a portable non-metallic mineral processing facility consisting of three (3) crushers with a combined maximum material throughput capacity not to exceed 1,015 tons per hour (TPH), five (5) screens with a combined maximum material throughput capacity not to exceed 2,125 TPH, two (2) diesel-fired generator with a combined maximum rated engine design capacity not to exceed 2,121 horsepower (hp), two (2) diesel fuel storage tanks with a maximum storage capacity of 10,000 and 500 gallons, conveyors/stackers, and associated material handling and processing equipment.

II. Seasonal and Site Restrictions

Addendum #2 applies to the HS&G facility while operating at any location in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (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 in or within 10 km of a PM₁₀ nonattainment area where HS&G may operate is:

1. Section 36, Township 30 North, Range 21 West and Section 23, Township 29 North, Range 22 West, in Flathead County.
2. 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) – HS&G may operate at any location in or within 10 km of the Butte, Columbia Falls, Kalispell, Libby, Thompson Falls, and Whitefish PM₁₀ nonattainment areas.

C. HS&G shall comply with the limitations and conditions contained in Addendum #2 to MAQP #4555-01 while operating in or within 10 km of any of the previously identified PM₁₀ nonattainment areas. Addendum #2 shall be valid until revoked or modified. The Department reserves the authority to modify Addendum #2 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 – **Summer Season (April 1 – September 30)**

1. Water spray bars must be available and operated, as necessary, on the crushers, screens, and all transfer points whenever the crushing/screening plant is in operation to maintain compliance with the opacity limits found in Sections III.A.2, III.A.3, and III.A.4 (ARM 17.8.749).

2. HS&G shall not cause or authorize to be discharged into the atmosphere from any equipment, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749). For NSPS-affected equipment constructed after April 22, 2008, for which an opacity limitation of 7% applies (such as screens and conveyors), that 7% limit shall apply to the affected equipment (ARM 17.8.340 and 40 CFR 60, Subpart OOO).
3. HS&G shall not cause or authorize to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property any visible fugitive emissions that exhibit an opacity of 10% or greater (ARM 17.8.749).
4. HS&G shall treat all unpaved portions of the access roads, parking lots, and general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the 10% opacity limitation (ARM 17.8.749).
5. HS&G shall not operate, or have on-site, more than three crushers at any one time. Total crusher production shall not exceed 24,360 tons per day (ARM 17.8.749).
6. HS&G shall not operate, or have on-site, more than five screens at any one time. Total screen production shall not exceed 51,000 tons per day (ARM 17.8.749).
7. HS&G shall not operate or have on-site more than two diesel-fired generator sets. The maximum combined capacity of the engines that drive the generators shall not exceed 2,121 hp (ARM 17.8.749).

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

1. Water spray bars must be available and operated, as necessary, on the crushers, screens, and all transfer points whenever the crushing/screening plant is in operation to maintain compliance with the opacity limits found in Sections III.B.2, III.B.3, and III.B.4 (ARM 17.8.749).
2. HS&G shall not cause or authorize to be discharged into the atmosphere from any equipment, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749). For NSPS-affected equipment constructed after April 22, 2008, for which an opacity limitation of 7% applies (such as screens and conveyors), that 7% limit shall apply to the affected equipment (ARM 17.8.340 and 40 CFR 60, Subpart OOO).
3. HS&G shall not cause or authorize to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property any visible fugitive emissions that exhibit an opacity of 10% or greater (ARM 17.8.749).
4. HS&G shall treat all unpaved portions of the access roads, parking lots, and general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the 10% opacity limitation (ARM 17.8.749).
5. HS&G shall not operate, or have onsite, more than three crushers at any one time. Total crusher production shall not exceed 7,613 tons per day (ARM 17.8.749).
6. HS&G shall not operate, or have onsite, more than five screens at any one time. Total screen production shall not exceed 15,938 tons per day (ARM 17.8.749).

7. HS&G shall not operate or have on-site more than two diesel-fired generator sets. The maximum combined capacity of the engines that drive the generators shall not exceed 2,121 hp (ARM 17.8.749).
8. Operation of each of the diesel engine driving the generator(s) shall not exceed 7.5 hours 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 5 years and submitted to the Department upon request. The information must include (ARM 17.8.749):
 - a. Daily tons of material crushed for each of the three (3) crushers at each site (including amount of recirculated/rerun material). HSG shall document the daily combined crushing production from the crushers. HS&G shall sum the total crushing production from previous day to verify compliance with the limitations in Section III.A.5 and Section III.B.5.
 - b. Daily tons of material screened for each of the five (5) screens at each site (including amount of recirculated/rerun material). HSG shall document the daily combined screen production from the screens. HS&G shall sum the total screening production from previous day to verify compliance with the limitations in Section III.A.6 and Section III.B.6.
 - c. Daily tons of bulk material loaded at each site (production)
 - d. Daily hours of operation at each site
 - e. Daily hours of operation and the hp for each engine at each site to verify compliance with the limitations in Section III.A.7, Section III.B.7, and Section III.B.8.
 - f. Fugitive dust information consisting of the daily total miles driven on unpaved roads within the operating site for all plant vehicles.

Addendum #2 Analysis
Helena Sand and Gravel, Inc.
Montana Air Quality Permit (MAQP) #4555-01

I. Permitted Equipment

Helena Sand and Gravel, Inc. (HS&G) owns and operates a portable non-metallic mineral processing facility consisting of the below listed equipment. The list of permitted equipment is provided for reference and is based on information provided within the initial and subsequent applications. MAQP #4555-01 is written de minimis friendly, whereby operational flexibility is provided so that alternate equipment may be utilized as long as maximum capacities are not exceeded. See Section II of the MAQP and Addendum #2 for specific equipment limitations and/or conditions. Equipment permitted under this action consists of the following:

- 1997 Cedarapids Jaw Crusher - 400 tons per hour (TPH) maximum rated capacity
- 2006 Nordberg Cone Crusher - 350 TPH maximum rated capacity
- 2000 Nordberg Cone Crusher - 265 TPH maximum rated capacity
- Three (3) 1997 El-Jay Deck Screens - 425 TPH maximum rated capacity (each)
- Two (2) 1992 El-Jay Deck Screens - 425 TPH maximum rated capacity (each)
- 1999 Caterpillar 3512 Generator Set (1,250 kilowatt (kW)) with a 1,971 horsepower (hp) Diesel Engine
- 2005 Whisperwatt 125-DCA Generator Set (100 kW) with a 150 hp Diesel Engine
- 500 Gallon Diesel Storage Tank
- 10,000 Gallon Diesel Storage Tank
- Associated Material Handling Equipment; Feeders, Conveyors (Up to 37 conveyors in total - some of these are integrated conveyors which are part of the crusher/screen), Stackers, etc.

II. Source Description

HS&G uses this crushing/screening plant to crush, screen, and sort sand and gravel like materials for use in various construction operations. For a typical operational setup, unprocessed materials are loaded into the crushing/screening plant via a hopper and transferred by conveyor to the crushers. From the crusher, materials are sent to the screen, where they are separated and conveyed to stockpiles.

III. Applicable Rules and Regulations

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

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

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

- B. ARM 17.8.764 Administrative Amendment to Permit. An MAQP may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. 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 MAQP may be transferred from one location to another if:
1. Written notice of intent to transfer location and proof of public notice are sent to the Department;
 2. The source will operate in the new location for a period of less than 1 year; and
 3. The source will not have any significant impact on any nonattainment area or any Class I area.

IV. Emission Inventory

WINTER SEASON [October 1 - March 31] (a)

Emission Source	Emissions Lbs/Day [PTE]							
	PM	PM ₁₀	PM _{2.5}	PM _{cond}	CO	NO _x	SO ₂	VOC
Aggregate Crushers [1,015 TPH]	9.74	4.38	0.81	--	--	--	--	--
Aggregate Cold Deck Screens [2,125 TPH]	37.40	12.58	0.85	--	--	--	--	--
Material Handling	53.98	19.85	4.72	--	--	--	--	--
Diesel Generator Engine [2,121 hp]	37.33	37.33	6.60	0.91	113.35	526.01	34.78	42.66
Diesel Fuel Storage Tanks [10,000/500 Gal]	--	--	--	--	--	--	--	NG
Unpaved Roadways (Haul Roads)	28.21	7.78	0.78	--	--	--	--	--
TOTAL EMISSIONS ►	161.38	78.52	13.25	0.91	113.35	526.01	34.78	42.66

SUMMER SEASON [April 1 - September 31]

Emission Source	Emissions Lbs/Day [PTE]							
	PM	PM ₁₀	PM _{2.5}	PM _{cond}	CO	NO _x	SO ₂	VOC
Aggregate Crushers [1,015 TPH]	29.23	13.15	2.44	--	--	--	--	--
Aggregate Cold Deck Screens [2,125 TPH]	112.20	37.74	2.55	--	--	--	--	--
Material Handling	172.73	63.51	15.11	--	--	--	--	--
Diesel Generator Engine [2,121 hp]	111.99	111.99	19.81	2.74	340.04	1578.02	104.35	127.98
Diesel Fuel Storage Tanks [10,000/500 Gal]	--	--	--	--	--	--	--	NG
Unpaved Roadways (Haul Roads)	90.27	24.88	2.49	--	--	--	--	--
TOTAL EMISSIONS ►	516.42	251.27	42.40	2.74	340.04	1578.02	104.35	127.98

(a) Daily hours of operation are restricted during the Winter Season to maintain PM₁₀ emissions below 82 pounds per day.

(b) PM emissions presented in the table represent the sum of the filterable and condensable particulate matter (CPM) fractions. All CPM is considered to be PM_{2.5}.

CO, carbon monoxide

Gal, gallon

hp, horsepower

lb, pound

MMBtu, million British Thermal Units

NO_x, oxides of nitrogen

NG, negligible emissions [< 0.01 tpy]

PTE, Potential To Emit

PM, particulate matter

PM_{COND}, condensable 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 [Sum of condensable and filterable]

SO₂, oxides of sulfur

TPH, tons per hour

TPY, tons per year

VOC, volatile organic compounds

Portable Non-Metallic Mineral Processing Operation

Production Rate:	Winter Season	Summer Season
Crushers (3) 1,015 tons/hour (Maximum)	7,613 tons/day (Allowable)	24,360 tons/day (Maximum)
Deck Screen (5) 2,125 tons/hour (Maximum)	15,938 tons/day (Allowable)	51,000 tons/day (Maximum)

Allowable Hours of Operation: 7.5 hours/day (Winter Season)
24 hours/day (Summer Season)

Power Plant: (2) Diesel-Fired Generators up to 2,121 hp [non-certified]

Material Processing:

Aggregate Crushers [SCC 3-05-020-01]

Process Rate: 1015 tons/hour
Operating Hours: 7.5 hours/day (Winter Season)
24 hours/day (Summer Season)

Particulate Emissions (controlled):

PM Emissions:

Emission Factor	0.0012 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.0012 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$	1.22 lbs/hr
	$(1.218 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	9.14 lbs/day (Winter Season)
	$(1.218 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	29.23 lbs/day (Summer Season)

PM₁₀ Emissions:

Emission Factor	0.00054 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.00054 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$	0.55 lbs/hr
	$(0.5481 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	4.11 lbs/day (Winter Season)
	$(0.5481 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	13.15 lbs/day (Summer Season)

PM_{2.5} Emissions:

Emission Factor	0.0001 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.0001 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$	0.10 lbs/hr
	$(0.1015 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	0.76 lbs/day (Winter Season)
	$(0.1015 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	2.44 lbs/day (Summer Season)

Aggregate Cold Deck Screens [SCC 3-05-020-02]

Process Rate: 2125 tons/hour
Operating Hours: 7.5 hours/day (Winter Season)
24 hours/day (Summer Season)

Particulate Emissions (controlled):

PM Emissions:

Emission Factor	0.0022 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.0022 \text{ lbs/ton}) * (2125 \text{ tons/hr}) =$	4.68 lbs/hr
	$(4.68 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	35.06 lbs/day (Winter Season)
	$(4.68 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	112.2 lbs/day (Summer Season)

PM₁₀ Emissions:

Emission Factor	0.00074 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.00074 \text{ lbs/ton}) * (2125 \text{ tons/hr}) =$	1.57 lbs/hr
	$(1.57 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	11.79 lbs/day (Winter Season)

$$(1.57 \text{ lbs/hr}) * (24 \text{ hrs/day}) = 37.74 \text{ lbs/day (Summer Season)}$$

PM_{2.5} Emissions:

Emission Factor	0.00005 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.00005 \text{ lbs/ton}) * (2125 \text{ tons/hr}) =$	0.11 lbs/hr
	$(0.106 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	0.80 lbs/day (Winter Season)
	$(0.11 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	2.55 lbs/day (Summer Season)

Material Handling:

Fragmented Stone Load-In ► Ground Storage [SCC 3-05-020-31]

Process Rate: 1015 tons/hour [Combined Crushing Capacity]

Operating Hours: 7.5 hours/day (Winter Season)

24 hours/day (Summer Season)

Particulate Emissions (uncontrolled):

PM Emissions:

Emission Factor	0.000031 lbs/ton [PM = PM ₁₀ /0.51 ► AP-42 Appendix B.2 - Table B.2.2, Category 3, 1/95]
Calculations	$(0.000031 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$ 0.03 lbs/hr
	$(0.03 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$ 0.24 lbs/day (Winter Season)
	$(0.03 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$ 0.76 lbs/day (Summer Season)

PM₁₀ Emissions:

Emission Factor	0.000016 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.000016 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$	0.02 lbs/hr
	$(0.02 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	0.12 lbs/day (Winter Season)
	$(0.02 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	0.39 lbs/day (Summer Season)

PM_{2.5} Emissions:

Emission Factor	0.000005 lbs/ton [PM = PM ₁₀ *0.15 ► AP-42 Appendix B.2 - Table B.2.2, Category 3, 1/95]
Calculations	$(0.00000465 \text{ lbs/ton}) * (1015 \text{ tons/hr}) =$ 0.00 lbs/hr
	$(0.00 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$ 0.04 lbs/day (Winter Season)
	$(0.00 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$ 0.11 lbs/day (Summer Season)

Conveyor Transfer Points [SCC 3-05-020-06]

Process Rate: 1015 tons/hour [Maximum Facility Capacity]

Total Transfers: 37 Transfers [Based on Process Flow Diagram]

Operating Hours: 7.5 hours/day (Winter Season)

24 hours/day (Summer Season)

Particulate Emissions (controlled):

PM Emissions:

Emission Factor	0.00014 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.00014 \text{ lbs/ton}) * (1015 \text{ tons/hr}) * (37 \text{ Transfers}) =$	5.26 lbs/hr
	$(5.26 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	39.43 lbs/day (Winter Season)
	$(5.26 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	126.18 lbs/day (Summer Season)

PM₁₀ Emissions:

Emission Factor	0.000046 lbs/ton processed	[AP-42 Table 11.19.2-2, 8/04]
Calculations	$(0.000046 \text{ lbs/ton}) * (1015 \text{ tons/hr}) * (37 \text{ Transfers}) =$	1.73 lbs/hr
	$(1.73 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	12.96 lbs/day (Winter Season)

$$(1.73 \text{ lbs/hr}) * (24 \text{ hrs/day}) = 41.46 \text{ lbs/day (Summer Season)}$$

PM_{2.5} Emissions:

Emission Factor 0.000013 lbs/ton processed [AP-42 Table 11.19.2-2, 8/04]
 Calculations (0.000013 lbs/ton) * (1015 tons/hr) * (37 Transfers) = 0.488 lbs/hr
 (0.488 lbs/hr) * (7.5 hrs/day) = 3.66 lbs/day (Winter Season)
 (0.49 lbs/hr) * (24 hrs/day) = 11.72 lbs/day (Summer Season)

Storage Pile Load-In & Load-Out

Process Rate: 1015 tons/hour [Maximum Facility Capacity]
 Pile Transfers: 1 [Initial Pile Formation]
 Operating Hours: 7.5 hours/day (Winter Season)
 24 hours/day (Summer Season)

Particulate Emissions (uncontrolled):

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

where: EF, Emission Factor = lbs Emitted / ton Processed
 k, Dimensionless Particle Size Multiplier PM = 0.74 [AP-42 13.2.4, 11/06]
 k, Dimensionless Particle Size Multiplier PM₁₀ = 0.35 [AP-42 13.2.4, 11/06]
 k, Dimensionless Particle Size Multiplier PM_{2.5} = 0.053 [AP-42 13.2.4, 11/06]
 U, Mean Wind Speed (mph) = 6.2 [ASOS/AWOS AVE-Butte, MT]*
 M, Material Moisture Content (%) = 2.88 [AP-42 13.2.4.3, 11/06]
 * Highest 10 year average wind speed of the listed PM₁₀ nonattainment areas

PM Emissions:

Emission Factor $EF = 0.74 * (0.0032) * [(6.2/5)^{1.3} / (2.88/2)^{1.4}] = 0.0019 \text{ lbs/ton}$
 Calculations (0.0019 lbs/ton) * (1015 tons/hr) * (1 pile transfers) = 1.91 lbs/hr
 (1.91 lbs/hr) * (7.5 hours/day) = 14.31 lbs/day (Winter Season)
 (1.91 lbs/hr) * (24 hours/day) = 45.79 lbs/day (Summer Season)

PM₁₀ Emissions:

Emission Factor $EF = 0.35 * (0.0032) * [(6.2/5)^{1.3} / (2.88/2)^{1.4}] = 0.0009 \text{ lbs/ton}$
 Calculations (0.0009 lbs/ton) * (1015 tons/hr) * (1 piles) = 0.90 lbs/hr
 (0.90 lbs/hr) * (7.5 hours/day) = 6.77 lbs/day (Winter Season)
 (0.90 lbs/hr) * (24 hours/day) = 21.66 lbs/day (Summer Season)

PM_{2.5} Emissions:

Emission Factor $EF = 0.053 * (0.0032) * [(6.2/5)^{1.3} / (2.88/2)^{1.4}] = 0.00013 \text{ lbs/ton}$
 Calculations (0.0001 lbs/ton) * (1015 tons/hr) * (1 piles) = 0.14 lbs/hr
 (0.14 lbs/hr) * (7.5 hours/day) = 1.02 lbs/day (Winter Season)
 (0.14 lbs/hr) * (24 hours/day) = 3.28 lbs/day (Summer Season)

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

Engine Rating: 2121 hp [Maximum Combined Engine Output]
 Fuel Input: 14.85 MMBtu/hr
 108.3 gallons/hour [Estimated]
 Operating Hours: 7.5 hours/day (Winter Season)
 24 hours/day (Summer Season)

Particulate Emissions (uncontrolled)::

PM Emissions:

Emission Factor	0.0022 lb/hp-hr	[AP-42 3.3-1, 10/96]
Calculations	$(0.0022 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$	4.67 lbs/hr
	$(4.67 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	35.00 lbs/day (Winter Season)
	$(4.67 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	111.99 lbs/day (Summer Season)

PM₁₀ Emissions:

Emission Factor	0.0022 lb/hp-hr	[AP-42 3.3-1, 10/96]
Calculations	$(0.0022 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$	4.67 lbs/hr
	$(4.67 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	35.00 lbs/day (Winter Season)
	$(4.67 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	111.99 lbs/day (Summer Season)

PM_{2.5} Emissions (filterable):

Emission Factor	0.0479 lb/MMBtu	[AP-42 3.4-2, 10/96]
Calculations	$(0.0479 \text{ lb/MMBtu}) * (14.85 \text{ MMBtu/hr}) =$	0.71 lbs/hr
	$(0.71 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	5.33 lbs/day (Winter Season)
	$(0.71 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	17.07 lbs/day (Summer Season)

PM_{2.5} Emissions (condensable):

Emission Factor	0.0077 lb/MMBtu	[AP-42 3.4-2, 10/96]
Calculations	$(0.0077 \text{ lb/MMBtu}) * (14.85 \text{ MMBtu/hr}) =$	0.114 lbs/hr
	$(0.114 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	0.86 lbs/day (Winter Season)
	$(0.11 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	2.74 lbs/day (Summer Season)

CO Emissions (uncontrolled):

Emission Factor	0.00668 lb/hp-hr	[AP-42 3.3-1, 10/96]
Calculations	$(0.00668 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$	14.17 lbs/hr
	$(14.17 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	106.26 lbs/day (Winter Season)
	$(14.17 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	340.04 lbs/day (Summer Season)

NOx Emissions (uncontrolled):

Emission Factor	0.031 lb/hp-hr	[AP-42 3.3-1, 10/96]
Calculations	$(0.031 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$	65.75 lbs/hr
	$(65.75 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	493.13 lbs/day (Winter Season)
	$(65.75 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	1578.02 lbs/day (Summer Season)

SO₂ Emissions (uncontrolled):

Emission Factor	0.00205 lb/hp-hr	[AP-42 3.3-1, 10/96]
Calculations	$(0.0021 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$	4.35 lbs/hr
	$(4.35 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	32.61 lbs/day (Winter Season)
	$(4.35 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	104.35 lbs/day (Summer Season)

VOC Emissions (uncontrolled):

Emission Factor	0.002514 lb/hp-hr	[AP-42 3.3-1, 10/96]
Calculations	$(0.0025 \text{ lb/hp-hr}) * (2121 \text{ hp}) =$	5.33 lbs/hr
	$(5.33 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) =$	39.99 lbs/day (Winter Season)
	$(5.33 \text{ lbs/hr}) * (24 \text{ hrs/day}) =$	127.98 lbs/day (Summer Season)

Diesel Fuel Storage Tanks - Tank Emissions Negligible (See MAQP #4555-01 Emission Inventory)

Unpaved Roadways (Haul Roads)

Vehicle Miles Travelled: 15 miles/day [Estimate]
0.625 miles/hr
Operating Hours: 7.5 hours/day (Winter Season)
24 hours/day (Summer Season)
Vehicle Weight: 50 Tons [Mean Vehicle Weight]
Control Method: Water Application
Control Efficiency (Ce): 50%

Particulate Emissions (controlled):

Emission Factor $EF = k(s/12)^a * (W/3)^b$ [AP-42 13.2.2.2, 11/06]
where: EF, Emission Factor = lbs Emitted Per Vehicle Mile Traveled (VMT)
k, Empirical Constant PM = 4.9 [AP-42 Table 13.2.2-2, 11/06]
k, Empirical Constant PM₁₀ = 1.5 [AP-42 Table 13.2.2-2, 11/06]
k, Empirical Constant PM_{2.5} = 0.15 [AP-42 Table 13.2.2-2, 11/06]
s, Surface Material Silt Content (%) = 7.1 [AP-42 Table 13.2.2-1, 11/06]
W, Mean Vehicle Weight (tons) = 50 [Applicant Provided Data]
a, Empirical Constant PM = 0.7 [AP-42 Table 13.2.2-2, 11/06]
a, Empirical Constant PM₁₀/PM_{2.5} = 0.9 [AP-42 Table 13.2.2-2, 11/06]
b, Empirical Constant PM - PM_{2.5} = 0.45 [AP-42 Table 13.2.2-2, 11/06]

PM Emissions:

Emission Factor $EF = 4.9 * (7.1/12)^{0.7} * (50/3)^{0.45} = 12.04$ lbs/VMT
Calculations $(12.46 \text{ lbs/VMT}) * (0.625 \text{ miles/hr}) * (1 - 0.50 \text{ Ce}) = 3.76$ lbs/hr (controlled)
 $(3.76 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) = 28.21$ lbs/day (Winter Season)
 $(3.76 \text{ lbs/hr}) * (24 \text{ hrs/day}) = 90.27$ lbs/day (Summer Season)

PM₁₀ Emissions:

Emission Factor $EF = 1.5 * (7.1/12)^{0.9} * (50/3)^{0.45} = 3.32$ lbs/VMT
Calculations $(3.43 \text{ lbs/VMT}) * (0.625 \text{ miles/hr}) * (1 - 0.50 \text{ Ce}) = 1.04$ lbs/hr (controlled)
 $(1.04 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) = 7.78$ lbs/day (Winter Season)
 $(1.04 \text{ lbs/hr}) * (24 \text{ hrs/day}) = 24.88$ lbs/day (Summer Season)

PM_{2.5} Emissions:

Emission Factor $EF = 0.15 * (7.1/12)^{0.9} * (50/3)^{0.45} = 0.33$ lbs/VMT
Calculations $(0.34 \text{ lbs/VMT}) * (0.625 \text{ miles/hr}) * (1 - 0.50 \text{ Ce}) = 0.10$ lbs/hr (controlled)
 $(0.10 \text{ lbs/hr}) * (7.5 \text{ hrs/day}) = 0.78$ lbs/day (Winter Season)
 $(0.10 \text{ lbs/hr}) * (24 \text{ hrs/day}) = 2.49$ lbs/day (Summer Season)

V. Existing Air Quality

On July 1, 1987, the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 microns or less (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 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 identified these sources to be the major contributors to PM₁₀ emissions.

MAQP #4555-01 and Addendum #2 are for a portable crushing/screening plant that will locate at sites in or within 10 kilometers (km) of certain PM₁₀ nonattainment areas. The more stringent operating conditions contained in the addendum will minimize any potential impact on the nonattainment areas and will protect the national ambient air quality standards. Also, this facility is a portable source that would be expected to operate on an intermittent and temporary basis and any effects on air quality would be expected to be minor and short-lived.

VI. Air Quality Impacts

MAQP #4555-01 and Addendum #2 will cover the operations of this portable crushing/screening plant while operating at any location within Montana, excluding those counties that have a Department approved permitting program and those areas that are tribal lands.

Addendum #2 will cover the operations of this portable crushing/screening plant, while operating in or within 10 km of the Kalispell and Whitefish PM₁₀ nonattainment areas (specific site during the winter season (October 1 - March 31). Additionally, the facility will also be allowed to operate in or within 10 km of certain PM₁₀ nonattainment areas during the summer season (April 1 - September 30).

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment:

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

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

VIII. Environmental Assessment

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

Addendum Analysis Prepared by: D. Kuenzli

Date: January 27, 2012