



Montana Department of
ENVIRONMENTAL QUALITY

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April 19, 2011

Mr. Cale Fisher
Riverside Contracting, Inc.
5571 Alloy South
Missoula, MT 59808

Dear Mr. Fisher:

Montana Air Quality Permit #4630-00 is deemed final as of April 19, 2011, by the Department of Environmental Quality (Department). This permit is for a portable drum mix asphalt plant. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

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

Deanne Fischer, P.E.
Environmental Engineer
Air Resources Management Bureau
(406) 444-3403

VW:DF
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #4630-00

Riverside Contracting, Inc.
5571 Alloy South
Missoula, MT 59808

April 19, 2011



MONTANA AIR QUALITY PERMIT

Issued To: Riverside Contracting, Inc.
5571 Alloy South
Missoula, MT 59808

MAQP: #4630-00
Application Complete: 01/31/2011
Preliminary Determination Issued: 03/11/2011
Department's Decision Issued: 04/01/2011
Permit Final: 04/19/2011
AFS #:777-4630

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Riverside Contracting, Inc. (Riverside Contracting) 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. Permitted Equipment

The Riverside Contracting facility includes a portable drum mix asphalt plant and associated equipment with a 400 tons per hour (TPH) maximum production capacity, and, one 1,474 brake horsepower (bhp) diesel engine/generator. A complete list of the permitted equipment is contained in Section I.A of the Permit Analysis.

B. Plant Location

Riverside Contracting operates a portable drum mix asphalt plant. The legal description of the facility's home pit is Section 27, Township 1 North, Range 27 East, in Yellowstone County, Montana. However, MAQP #4630-00 applies while operating at any location in Montana, except those areas having a Department of Environmental Quality (Department)-approved permitting program, areas considered tribal lands, or areas in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) nonattainment areas. *A Missoula County air quality permit will be required for locations within Missoula County, Montana.* An addendum will be required for locations in or within 10 km of certain PM₁₀ nonattainment areas.

Addendum #1 will apply to the Riverside Contracting facility while operating at any location in or within 10 km of certain PM₁₀ nonattainment areas during the summer months (April 1 – September 30) and at sites approved by the Department during the winter months (October 1 – March 31).

SECTION II: Conditions and Limitations

A. Emission Limitations

1. Asphalt plant particulate matter emissions shall be limited to 0.04 grains per dry standard cubic feet (gr/dscf) (ARM 17.8.340, ARM 17.8.752, and 40 CFR 60, Subpart I).
2. Riverside Contracting, Inc. shall not cause or authorize to be discharged into the atmosphere from dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems, any visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.340, ARM 17.8.752, and 40 CFR 60, Subpart I).

3. All visible emissions from any non- New Source Performance Standard (NSPS) affected equipment shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
4. Riverside Contracting 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).
5. Riverside Contracting 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).
6. Riverside Contracting shall install, operate, and maintain a fabric-filter baghouse for particulate matter air pollution control on the lime additive silo exhaust (ARM 17.8.749 and ARM 17.8.752)
7. Riverside Contracting shall install, operate, and maintain a fabric-filter baghouse for particulate matter air pollution control on the asphalt drum mix dryer exhaust (ARM 17.8.749 and ARM 17.8.752)
8. A device to measure the pressure drop (magnehelic gauge, manometer, etc.) on the control devices (baghouses) must be installed and maintained. Pressure drop must be measured in inches of water. Temperature indicators at the control device inlets and outlets must be installed and maintained (ARM 17.8.749)
9. Riverside shall use only fuel oil as fuel for the asphalt heater (ARM 17.8.749).
10. Riverside shall use fuel oil, coal, propane, and/or wood pellets to fire the hot mix dryer (ARM 17.8.749).
11. Riverside Contracting shall not operate or have on-site more than one diesel engine/generator. The maximum rated design capacity of the engine that drives the generator shall not exceed 1,474 bhp (ARM 17.8.749).
12. The 1,474-bhp diesel engine/generator shall be compliant with EPA non-road compression-ignition engine Tier 2 (at minimum) emission standards for all pollutants for the same model year and maximum engine power (ARM 17.8.749).
13. Operation of up to 1,474 bhp diesel engine/generator shall not exceed 1,650 hours during any rolling 12-month time period (ARM 17.8.749).
14. Operation of the asphalt plant shall not exceed 1,250 hours during any rolling 12-month time period (ARM 17.8.749).
15. Total asphalt plant production shall be limited to 500,000 tons during any rolling 12-month time period (ARM 17.8.749 and ARM 17.8.1204).
16. Once a stack test is performed, the asphalt production rate shall be limited to the average production rate during the last source test demonstrating compliance (ARM 17.8.749).

17. If the permitted equipment is used in conjunction with any other equipment owned or operated by Riverside Contracting, at the same site, production shall be limited to correspond with an emission level that does not exceed 250 tons during any rolling 12-month period. Any calculations used to establish production levels shall be approved by the Department (ARM 17.8.749).
18. Riverside Contracting shall comply with all applicable standards and limitations, monitoring, reporting, recordkeeping, testing, and notification requirements contained in 40 CFR 60, Subpart I, *Standards of Performance for Hot Mix Asphalt Facilities* (ARM 17.8.340 and 40 CFR 60, Subpart I).
19. Riverside Contracting shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart III, *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 III; ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

B. Testing Requirements

1. Within 60 days after achieving maximum production, but no later than 180 days after initial start-up, an Environmental Protection Agency (EPA) Methods 1-5 source test shall be performed on the asphalt drum mix dryer exhaust stack to demonstrate compliance with Section II.A.1. An EPA Method 9 opacity test and/or other methods and procedures as specified in 40 CFR 60.675 must be performed on all NSPS-affected equipment to demonstrate compliance with the emission limitations contained in Section II.A.2 Testing shall continue on an every 4-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105, ARM 17.8.340, ARM 17.8.749, and 40 CFR 60 Subpart I).
2. Since asphalt production will be limited to the average production rate during the compliance source test, it is suggested that the test be performed at the highest practical production rate (ARM 17.8.749).
3. Temperature and pressure drop across the pollution control device must be recorded daily and kept on site according to Section II.C.4 (ARM 17.8.749).
4. Temperature and pressure drop across the pollution control device must be recorded during the compliance source test and reported as part of the test results (ARM 17.8.749).
5. Riverside Contracting may retest at any time in order to test at a higher production rate (ARM 17.8.749).
6. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
7. The Department may require further testing (ARM 17.8.105).

C. Operational Recordkeeping and Reporting Requirements

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

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

3. Riverside Contracting 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(1)(d) (ARM 17.8.745).
4. Riverside Contracting 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 Riverside Contracting 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. Riverside Contracting shall document, by month, the hours of operation of the diesel engine/generator. By the 25th day of each month, Riverside Contracting shall calculate the hours of operation of the diesel engine/generator for the previous month. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section II.A.14. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
6. Riverside Contracting shall document, by month, the asphalt production from the facility. By the 25th day of each month, Riverside Contracting shall calculate the asphalt production, from the facility for the previous month, and calculate and record the 12-month rolling sum. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section II.A.16. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

D. Notification

1. Within 30 days of commencement of construction of any NSPS-affected equipment, Riverside Contracting shall notify the Department of the date of commencement of construction of the affected equipment (ARM 17.8.340 and 40 CFR 60, Subpart A and Subpart I).
2. Within 15 days of the actual start-up date of any NSPS-affected equipment, Riverside Contracting shall submit written notification to the Department of the initial start-up date of the affected equipment (ARM 17.8.340 and 40 CFR 60, Subpart A and Subpart I).
3. Within 15 days of the actual start-up date of any non-NSPS-affected equipment, Riverside Contracting shall submit written notification to the Department of the initial start-up date of the affected equipment (ARM 17.8.749).

E. Addendum

Riverside Contracting shall comply with all conditions in Addendum 1 to MAQP #4630-00 as applicable (ARM 17.8.749).

SECTION III: General Conditions

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

- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Air Quality Operation Fees – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Riverside Contracting 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. Riverside Contracting 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
Riverside Contracting, Inc
MAQP #4630-00

I. Introduction/Process Description

Riverside Contracting, Inc. (Riverside Contracting) owns and operates a portable drum mix asphalt plant with a maximum rated design capacity of 400 tons per hour (TPH) powered by a 1,474 brake horsepower (bhp) diesel engine/generator.

A. Permitted Equipment

1. A portable drum mix asphalt plant and associated equipment with a maximum production capacity of 400 TPH utilizing a fuel oil/coal/propane/wood pellet-fired burner in the asphalt dryer.
2. One diesel-fired engine/generator with a maximum capacity of up to 1,474 bhp.

B. Source Description

For a typical operational set-up, process materials are delivered to the plant site by truck, or crushed on site. Aggregates are stockpiled by size. The cold feed bins are charged as required from respective stockpiles, usually by a front end loader. The cold aggregate is transported on the gathering conveyor to the scalping screen to remove oversized and foreign material. The aggregates are then transported by belt conveyor to the pug mill in which any additives or other aggregates can be mixed. Any required mineral additives, stored in the mineral filler silo, can be added via screw conveyor to the pug mill. The aggregate is conveyed from the pug mill to the double drum mixer where it is heated and dried in the inner drum by the heat released from the controlled combustion of fuel in the burner. The burner at the Riverside Contracting plant may be fueled by fuel oil, coal, propane, or wood pellets or a combination thereof and exhausts through the primary bag house. Liquid asphalt is pumped from delivery tankers into the asphalt cement storage tanks where it is maintained at approximately 300 degrees Fahrenheit by the hot oil heater. Asphalt cement is pumped into the outer drum mixer by a metering unit. The heated aggregate leaves the inner drum and enters the outer drum passing through the mixing zone where the asphalt cement is pumped. The hot mix asphalt is discharged onto the elevating drag conveyor which transports it into the mix storage silo(s) to await truck load out. The hot mix asphalt is normally delivered into transport vehicles from the storage silo at a temperature of 270 to 300 degrees Fahrenheit.

A portion of the paving mixture may be recovered asphalt product (RAP). RAP is stockpiled in storage bins separately on site. When it is included in the mix formula, it is metered from its bin and transported on a gathering conveyor to a scalping screen. The RAP is transported on a belt conveyor to the drum mixer RAP inlet. The RAP mixes with the hot aggregate in the outer drum prior to passing through the mixing zone where the asphalt cement is pumped.

II. Applicable Rules and Regulations

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

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

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

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

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

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

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

10. ARM 17.8.223 Ambient Air Quality Standard for Particulate Matter with an Aerodynamic Diameter of 10 Microns or Less (PM₁₀)
11. ARM 17.8.230 Fluoride in Forage

Riverside Contracting must maintain compliance with the applicable ambient air quality standards.

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

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, Riverside Contracting 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 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). Riverside Contracting is considered an NSPS affected facility under 40 CFR Part 60 and is subject to the requirements of the following subparts.
 - a. 40 CFR 60, Subpart A – General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below:
 - b. 40 CFR 60, Subpart I – Standards of Performance for Hot Mix Asphalt Facilities. In order for an asphalt plant to be subject to this subpart, the facility must meet the definition of an affected facility and, the affected equipment must have been constructed, reconstructed, or modified after August 31, 1983. Based on the information submitted by Riverside Contracting, the asphalt plant equipment to be used under MAQP #4630-00 is subject to this subpart because the facility is a hot mix asphalt facility.

- c. 40 CFR 60, Subpart III - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE). Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines, and owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005, are subject to this subpart. This rule incorporates, by reference, 40 CFR Part 89, Control of Emissions from New and In-Use Non-road Compression-Ignition Engines which applies to engines greater than 560 kW and manufactured on or after January 1, 2000. Based on the information submitted by Riverside Contracting, the engine driving the electric generator is an EPA certified Tier 2 engine was certified in 2007 and is greater than 560 kW. Since this permit is written in a de minimis friendly manner, the CI ICE equipment to be used under MAQP #4630-00 may be subject to this subpart.

- 7. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This rule incorporates, by reference, 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Categories. Riverside Contracting is considered an NESHAP-affected facility under 40 CFR Part 63 and is subject to the requirements of the following subparts.
 - a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAPs Subpart as listed below.
 - b. 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants (HAPs) for Stationary Reciprocating Internal Combustion Engines (RICE). An owner or operator of a stationary reciprocating internal combustion engine (RICE) at a major or area source of HAP emissions is subject to this rule except if the stationary RICE is being tested at a stationary RICE test cell/stand. An area source of HAP emissions is a source that is not a major source. Based on the information submitted by Riverside Contracting, the RICE equipment to be used under MAQP #4630-00 is subject to this subpart because the facility is an area source of HAP emissions.

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. Riverside Contracting 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.

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. Riverside Contracting has a PTE greater than 15 tons per year of PM, PM₁₀, PM with an aerodynamic diameter of 2.5 microns or less (PM_{2.5}), nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC); therefore, an air quality permit is required.
 3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
 4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
 5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. Riverside Contracting submitted the required permit application for the current permit action. (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. Riverside Contracting submitted an affidavit of publication of public notice for the January 27, 2011, issue of the *Billings Gazette*, a newspaper of general circulation in the town of Billings in Yellowstone County, as proof of compliance with the public notice requirements.
 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 Riverside Contracting of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
14. ARM 17.8.765 Transfer of Permit. (1) This rule states that an MAQP may be transferred from one location to another if the Department receives a complete notice of intent to transfer location, the facility will operate in the new location for less than 1 year, the facility will comply with the FCAA and the Clean Air Act of Montana, and the facility complies with other applicable rules. (2) This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

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

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

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

- G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:
1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 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 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 #4630-00 for Riverside Contracting, 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 TPY 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 I – Standards of Performance for Hot Mix Asphalt Plants applies to this facility and 40 CFR 60, Subpart IIII – Standards of Performance for CI ICE may apply to this facility)
 - e. This facility is subject to current NESHAP standards. (40 CFR 63, Subpart ZZZZ – NESHAP for Stationary RICE applies to this facility)
 - 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.

Riverside Contracting requested hourly limitations to reduce emissions below modeling thresholds. 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.

III. BACT Determination

A BACT determination is required for each new or modified source. Riverside Contracting 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. Asphalt Drum Mixer

The Department reviewed relevant PM control options, as well as previous BACT determinations. The following control options were reviewed by the Department in order to make the following BACT determinations:

- Fabric Filter Baghouse
- Electrostatic Precipitator
- Cyclone
- Wet Scrubber

All of the listed technologies are deemed technically feasible for this application. Technical feasible control options, in order the highest control efficiency to the lowest control efficiency base on PM control are as follows:

1. Fabric Filter Baghouse (99 – 99.9% efficient) (EPA Fact Sheet EPA-452/F-03-025, 07/15/03)
2. Electrostatic Precipitator (99 – 99.9% efficient) (EPA Fact Sheet EPA-452/F-03-025, 07/15/03)
3. Cyclone (up to 99% efficient) (EPA Fact Sheet EPA-452/F-03-005, 07/15/03)
4. Wet Scrubber (up to 99% efficient) (EPA Fact Sheet EPA-452/F-03-0010, 07/15/03)

Riverside Contracting has proposed to use a fabric filter baghouse for the control of PM from the exhaust of the asphalt drum mixer. Because Riverside Contracting proposes to use a control technology that is equivalent to the highest control efficiency, no further economic analysis is needed. The control option selected has control technology and a control cost comparable to other recently permitted similar sources and is capable of achieving the appropriate emissions standards. Operating and maintaining a baghouse will constitute BACT for the asphalt drum mixer. All asphalt drum mixer emissions are limited to 0.04 grains per dry standard cubic foot (gr/dscf) for particulate and 20 percent opacity in accordance with 40 CFR 60, Subpart I.

B. Mineral Filler Silo

Riverside Contracting's portable asphalt plant will utilize mineral filler as an additive to the asphalt. Mineral filler will be stored in an onsite silo and will be added to the asphalt drum mixer as needed. The PM emissions generated from filling the mineral filler silo will be routed to a dedicated jet vent baghouse. As with the asphalt drum mixer BACT analysis, Riverside Contracting has proposed to utilize a control technology that is equivalent to the highest control efficiency. The baghouse is considered to be the BACT for controlling the PM emissions associated with the mineral filler silo. In accordance with 40 CFR 60, Subpart I, systems for loading, transferring, and storing mineral filler are considered part of an affected facility and emissions are limited to 0.04 gr/dscf for PM and 20 percent opacity.

C. Diesel Generators

Any new diesel engine would likely be required to comply with the federal engine emission limitations including, for example, EPA Tier emission standards for non-road engines (40 CFR Part 1039), New Source Performance Standard emission limitations for stationary compression ignition engines (40 CFR 60, Subpart IIII), or National Emissions Standards for Hazardous Air Pollutant Sources for Reciprocating Internal Combustion Engines (40 CFR 63, Subpart ZZZZ). Therefore, the Department has determined that compliance with applicable federal standards and proper operation and maintenance of the engines constitutes BACT for these engines.

D. Fugitive Emissions

Riverside Contracting must take reasonable precautions to limit the fugitive emissions of airborne particulate matter on haul roads, access roads, parking lots, and the general plant area. Reasonable precautions include treating 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. Using water and/or chemical dust suppressant to comply with the reasonable precautions limitation will be considered BACT.

The control options selected contain control equipment and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory

ANNUAL		
Maximum Process Rate:	400	tons/hr
Maximum Hours of Operation (Asphalt Plant):	1,250	hrs/yr
Maximum Hours of Operation (Diesel Engine/generator):	1,650	hrs/yr
Maximum Output (400 TPH x 1250 hr) : 500,000 tons/yr		

ANNUAL – Worst Case (Burning coal in drum mix asphalt dryer)							
Emission Source **	PM	PM10	PM2.5	NOx	CO	VOC	SOx
Cold Aggregate Storage Piles	0.83	0.39	0.06	--	--	--	--
Cold Aggregate Handling/Conveyors (2 transfers)	0.75	0.28	--	--	--	--	--
Cold Aggregate Screen	37.50	9.00	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	--	--	--	--	0.017	--	--
400 TPH Drum Mix Asphalt Dryer (Coal fueled)	13.88	9.36	6.75	13.75	32.50	8.00	47.50
Asphalt Surge Bin (silo) Filling	0.11	0.11	0.11	--	0.14	1.35	--
Lime Silo	0.18	0.09	0.06	--	--	--	--
Plant Load-Out	0.09	0.09	0.09	--	0.16	0.46	--
Haul Roads / Vehicle Traffic	0.81	0.22	0.02	--	--	--	--
1,474 hp Diesel Engine/Generator	0.89	0.89	0.89	17.38	5.79	3.06	2.49
Total Emissions	55.04	20.44	7.97	31.13	38.61	12.87	49.99

- All PM values include filterable and condensable fractions. Filterable fractions are based on NSPS limit of 0.04 gr/dscf. Condensable fractions are based on AP-42 data.
- Hours of operation for the asphalt plant were restricted to 1250 hrs/day to keep NOx emissions below the modeling level of 40 TPY and SOx below the modeling level of 50 TPY while burning either fuel oil, coal, propane, or wood pellets in drum mix dryer. The hours of operation for the diesel engine/generator were limited to 1,650 hrs to keep SOx below the modeling level of 50 TPY.
- Emission factors for conveyors, screening, and transfers include water spray control (=50% reduction, DEQ memo, 5/3/99 and AP42, Table 11.19.2-2, note b.)
- Emission factors for piles based on the conditions assumed in the predictive equation without additional water spray control (AP42, 13.2.4.)
- When using coal as fuel for the dryer and limiting the hours of operation to 1,250 hr/yr, estimated SOx emissions = 47.5 TPY for a total of 49.99 TPY SOx for the plant.
- Assumed emissions from burning propane or wood pellet fuel to be less than or equal to emissions produced by burning coal in the dryer.

**

acfm = actual cubic feet per minute
in. Hg = inches of mercury
C = Celsius
CO = carbon monoxide
dscfm = dry standard cubic feet per minute
F = Fahrenheit
gal = gallon
HAPs = hazardous air pollutants

hp = horsepower
hr = hour
lb = pound
N/A = not applicable
ND = no data available
NOx = 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
R = Rankine

SO_x = oxides of sulfur
TPH = tons per hour
TPY = tons per year
VOC = volatile organic compounds
yr = year

Cold Aggregate Storage Piles

PM Emissions:

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

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

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 = 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)

Control Efficiency = 0% (Water or chemical spray)

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.00331 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 \text{ pile}) = 0.83 \text{ ton/yr (Annual)}$

Note: Based on the conditions assumed in the predictive equation without additional water spray control.

PM₁₀ Emissions:

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

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

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 = 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)

Control Efficiency = 0% (Water or chemical spray)

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.00156 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 \text{ pile}) = 0.39 \text{ ton/yr (Annual)}$

Note: Based on the conditions assumed in the predictive equation without additional water spray control.

Filterable PM_{2.5} Emissions:

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

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

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 = 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)

Control Efficiency = 0% (Water or chemical spray)

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.00024 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 \text{ pile}) = 0.06 \text{ ton/yr (Annual)}$

Note: Based on the conditions assumed in the predictive equation without additional water spray control.

Conveyor Transfer Point (SCC 3-05-02006)

Number of Transfers = 2 transfers (Company Information, based on schematic submitted with application)

Total PM Emissions:

Emission Factor = 0.003 lb/ton (0.0030 uncontrolled, 0.00014 controlled, AP 42, Table 11.19.2-2, 8/04)

Control Efficiency = 50% (Dept Guidance 4/8/93)

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (2 \text{ transfers}) * (\text{ton}/2000 \text{ lb}) * (0.003 \text{ lb/ton}) = 1.50 \text{ ton/yr}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (2 \text{ transfers}) * (\text{ton}/2000 \text{ lb}) * (0.003 \text{ lb/ton}) * (1 - 50/100) = 0.75 \text{ ton/yr}$

Note: Based on uncontrolled emissions factors with 50% reduction for water spray, AP42, Table 11.19.2-2, note b.

Total PM₁₀ Emissions:

Emission Factor = 0.0011 lb/ton (0.00110 uncontrolled, 0.000046 controlled, AP 42, Table 11.19.2-2, 8/04)

Control Efficiency = 50%

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (3 \text{ lbs/day}) * (\text{ton}/2000 \text{ lb}) * (0.003 \text{ lb/ton}) = 0.55 \text{ ton/yr}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (2 \text{ transfers}) * (\text{ton}/2000 \text{ lb}) * (0.0011 \text{ lb/ton}) * (1 - 50/100) = 0.28 \text{ ton/yr}$

Note: Based on uncontrolled emissions factors with 50% reduction for water spray, AP42, Table 11.19.2-2, note b.

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

Number of Screens = 1 screen (Company Information, Excludes RAP screen)

Total PM Emissions:

Emission Factor = 0.3 lb/ton (0.30 uncontrolled, 0.0036 controlled, AP 42, Table 11.19.2-2, 8/04)

Control Efficiency = 50% (Dept Guidance 4/8/93)

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/year}) * (1 \text{ screen}) * (\text{ton}/2000 \text{ lb}) * (0.3 \text{ lb/ton}) = 75.00 \text{ ton/yr}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/year}) * (1 \text{ screen}) * (\text{ton}/2000 \text{ lb}) * (0.3 \text{ lb/ton}) * (1 - 50/100) = 37.5 \text{ ton/yr}$

Note: Based on uncontrolled emissions factors with 50% reduction for water spray, AP42, Table 11.19.2-2, note b.

Total PM₁₀ Emissions:

Emission Factor = 0.072 lb/ton

Control Efficiency = 50% (Dept Guidance 4/8/93)

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/year}) * (1 \text{ screen}) * (\text{ton}/2000 \text{ lb}) * (0.072 \text{ lb/ton}) = 18.00 \text{ ton/yr}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/year}) * (1 \text{ screen}) * (\text{ton}/2000 \text{ lb}) * (0.072 \text{ lb/ton}) * (1 - 50/100) = 9.0 \text{ ton/yr}$

Note: Based on uncontrolled emissions factors with 50% reduction for water spray, AP42, Table 11.19.2-2, note b.

Hot Oil Heater

Production Rate = 22.50 gal/hr (max. rated process rate. Company information)

Maximum Hours of Operation = 1,250 hrs/yr

CO Emissions:

Emission Factor = 0.0012 lb/gal (AP-42, Section 11.1, Table 11.1-13, No. 2 Fuel Oil, 3/04)

Control Efficiency = 0%

Calculation: $(1250 \text{ hrs/yr}) * (22.50 \text{ gal/hr}) * (0.0012 \text{ lb/gal}) * (\text{ton}/2000 \text{ lb}) = 0.02 \text{ ton/yr (Annual)}$

CO₂ Emissions:

Emission Factor = 28 lb/gal (AP-42, Section 11.1, Table 11.1-13, No. 2 Fuel Oil, 3/04)

Control Efficiency = 0%

Calculation: $(1250 \text{ hrs/yr}) * (22.50 \text{ gal/hr}) * (28 \text{ lb/gal}) * (\text{ton}/2000 \text{ lb}) = 393.75 \text{ ton/yr (Annual)}$

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

Operating Parameters:

Plant Elevation:	3200	ft.	avg elev of 7 (cities) counties listed in application
Actual Pressure:	26.72	in. Hg	Estimate
Standard Pressure:	29.92	in. Hg	
Actual Flowrate (V2):	76,638	acfm	(Company Information)
Standard Temp:	20	C	68 F = 528 R
Assumed Stack Temp.	146	C	295 F = 755 R
			(avg of range submitted by applicant: 215-375° F)
Standard Volumetric Flowrate Correction:	V1 = V2 (P2/P1) (T1/T2)		
	V1=76638 acfm * (26.72 in. Hg / 29.92 in. Hg) * (528 R / 755 R)		
Corrected Flowrate (V1):	47,869	scfm	
Stack Gas Moisture Content (M):	12	%	(estimate)
	=V1*(1 - M/100) = 47,869 scfm		
Dry Standard Volumetric Flowrate:	* (1 - 12/100)		
Dry Standard Volumetric Flowrate:	42,125	dscfm	

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

Maximum Process Rate = 400 ton/hr (Application information)

Maximum Hours of Operation = 1,250 hrs/yr (Annual)

Dry Standard Volumetric Flowrate: 42,125 dscfm

Filterable PM Emissions:

Based on Emission Limit

Emission Factor = 0.04 gr/dscf (permit limit)

Calculation: $(0.04 \text{ gr/dscf}) * (42,125 \text{ dscfm}) * (1 \text{ lb} / 7000 \text{ gr}) * (60 \text{ min/hr}) = 14.44 \text{ lb/hr}$

Calculation: $(14.44 \text{ lb/hr}) * (1250 \text{ hrs/yr}) * (0.0005 \text{ ton/lb}) = 9.03 \text{ ton/yr}$

Filterable PM₁₀ Emissions:

Based on Emission Limit

Emission Factor = 0.02 gr/dscf (permit limit, assuming 50% of TSP is PM₁₀, Department policy)

Calculation: $(0.02 \text{ gr/dscf}) * (42,125 \text{ dscfm}) * (1 \text{ lb} / 7000 \text{ gr}) * (60 \text{ min/hr}) = 7.22 \text{ lb/hr}$

Calculation: $(7.22 \text{ lb/hr}) * (1250 \text{ hrs/yr}) * (0.0005 \text{ ton/lb}) = 4.51 \text{ ton/yr}$

Filterable PM_{2.5} Emissions:

Based on Emission Limit

Emission Factor = 0.0084 gr/dscf (permit limit, assuming 21% of TSP is PM_{2.5}, AP 42, Table 11.1-4, 3/04)

Calculation: $(0.0084 \text{ gr/dscf}) * (42,125 \text{ dscfm}) * (1 \text{ lb} / 7000 \text{ gr}) * (60 \text{ min/hr}) = 3.03 \text{ lb/hr}$

Calculation: $(3.03 \text{ lb/hr}) * (1250 \text{ hrs/yr}) * (0.0005 \text{ ton/lb}) = 1.90 \text{ ton/yr}$

Condensable PM_{2.5} Emissions:

Based on AP-42

Emission Factor = 0.0194 lb/ton (fabric filter, AP 42, Table 11.1-3, 3/04, inorganic+organic)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.0194 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 4.85 \text{ ton/yr (Annual)}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.0194 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) = 4.85 \text{ ton/yr (Annual)}$

CO Emissions:

Emission Factor = 0.13 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.13 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 32.50 \text{ ton/yr (Annual)}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.13 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) = 32.50 \text{ ton/yr (Annual)}$

NO_x Emissions:

Emission Factor = 0.055 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.055 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 13.75 \text{ ton/yr (Annual)}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.055 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) = 13.75 \text{ ton/yr (Annual)}$

SO₂ Emissions:

Emission Factor = 0.011 lb/ton (0.011 lb/ton #2 fuel oil, 0.19 lb/ton coal, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.011 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 2.75 \text{ ton/yr}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.011 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) = 2.75 \text{ ton/yr}$

TOC Emissions:

Emission Factor = 0.044 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.044 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 11.00 \text{ ton/yr}$

Calculation: $(400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.044 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) = 11.00 \text{ ton/yr}$

CH₄ Emissions:

Emission Factor = 0.012 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.012 lb/ton) * (ton/2000 lb) = 3.00 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.012 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 3.00 ton/yr

CO_{2e} = 3.00 * 21 = 63.00 ton/yr

VOC Emissions:

Emission Factor = 0.032 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.032 lb/ton) * (ton/2000 lb) = 8.00 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.032 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 8.00 ton/yr

Total HAPs Emissions:

Emission Factor = 0.0087 lb/ton (#2 fuel oil-fired dryer with fabric filter, AP 42, Table 11.1-10, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.0087 lb/ton) * (ton/2000 lb) = 2.18 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.0087 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 2.18 ton/yr

CO₂ Emissions:

Emission Factor = 33 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (33 lb/ton) * (ton/2000 lb) = 8,250.00 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (33 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 8,250.00 ton/yr

Dryer, fabric filter (SCC 3-05-002-05, -55 to -63) (Burning Coal as fuel)

Maximum Process Rate = 400 ton/hr (Application information)

Maximum Hours of Operation = 1,250 hrs/yr (Annual)

Dry Standard Volumetric Flowrate: 42,125 dscfm

Filterable PM Emissions:

Based on Emission Limit

Emission Factor = 0.04 gr/dscf (permit limit)

Calculation: (0.04 gr/dscf) * (42,125 dscfm) * (1 lb / 7000 gr) * (60 min/hr) = 14.44 lb/hr

Calculation: (14.44 lb/hr) * (1250 hrs/yr) * (0.0005 ton/lb) = 9.03 ton/yr

Filterable PM₁₀ Emissions:

Based on Emission Limit

Emission Factor = 0.02 gr/dscf (permit limit, assuming 50% of TSP is PM₁₀, Department policy)

Calculation: (0.02 gr/dscf) * (42,125 dscfm) * (1 lb / 7000 gr) * (60 min/hr) = 7.22 lb/hr

Calculation: (7.22 lb/hr) * (1250 hrs/yr) * (0.0005 ton/lb) = 4.51 ton/yr

Filterable PM_{2.5} Emissions:

Based on Emission Limit

Emission Factor = 0.0084 gr/dscf (permit limit, assuming 21% of TSP is PM_{2.5}, AP 42, Table 11.1-4, 3/04)

Calculation: (0.0084 gr/dscf) * (42,125 dscfm) * (1 lb / 7000 gr) * (60 min/hr) = 3.03 lb/hr

Calculation: (3.03 lb/hr) * (1250 hrs/yr) * (0.0005 ton/lb) = 1.90 ton/yr

Condensable PM_{2.5} Emissions:

Based on AP-42

Emission Factor = 0.0194 lb/ton (fabric filter, AP 42, Table 11.1-3, 3/04, inorganic+organic)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.0194 lb/ton) * (ton/2000 lb) = 4.85 ton/yr (Annual)

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.0194 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 4.85 ton/yr (Annual)

CO Emissions:

Emission Factor = 0.13 lb/ton (AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.13 lb/ton) * (ton/2000 lb) = 32.50 ton/yr (Annual)

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.13 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 32.50 ton/yr (Annual)

NOx Emissions:

Emission Factor = 0.055 lb/ton (AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.055 lb/ton) * (ton/2000 lb) = 13.75 ton/yr (Annual)

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.055 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 13.75 ton/yr (Annual)

SO₂ Emissions:

Emission Factor = 0.19 lb/ton (0.19 lb/ton coal, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.19 lb/ton) * (ton/2000 lb) = 47.50 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.19 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 47.50 ton/yr

TOC Emissions:

Emission Factor = 0.044 lb/ton (AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.044 lb/ton) * (ton/2000 lb) = 11.00 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.044 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 11.00 ton/yr

CH₄ Emissions:

Emission Factor = 0.012 lb/ton (AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.012 lb/ton) * (ton/2000 lb) = 3.00 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.012 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 3.00 ton/yr

CO₂e = 3.00 * 21 = 63.00 ton/yr**VOC Emissions:**

Emission Factor = 0.032 lb/ton (AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.032 lb/ton) * (ton/2000 lb) = 8.00 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.032 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 8.00 ton/yr

Total HAPs Emissions:

Emission Factor = 0.0087 lb/ton (dryer with fabric filter, AP 42, Table 11.1-10, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.0087 lb/ton) * (ton/2000 lb) = 2.18 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.0087 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 2.18 ton/yr

CO₂ Emissions:

Emission Factor = 33 lb/ton (AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (33 lb/ton) * (ton/2000 lb) = 8,250.00 ton/yr

Calculation: (400 ton/hr) * (1250 hrs/yr) * (33 lb/ton) * (ton/2000 lb) * (1 - 0/100) = 8,250.00 ton/yr

Silo Filling (SCC 3-05-002-13)**Total PM Emissions: (Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors; AP 42, Table 11.1-14. Therefore, this calculation assumes there are no filterable particulate emissions)**

Emission Factor = $0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00045$ lb/ton

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

T = HMA mix temperature = 295 F (avg of range submitted by applicant: 215-375⁰ F)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hr/year) * (0.00045 lb/ton) * (ton/2000 lb) = 0.11 TPY

Organic PM Emissions : (if organic particulate needs to be calculated)

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

Emission Factor = $0.00105(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00012$ lb/ton

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

T = HMA mix temperature = 295 F (avg of range submitted by applicant: 215-375⁰ F)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hr/year) * (0.00012 lb/ton) * (ton/2000 lb) = 0.03 TPY

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

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

Emission Factor = $0.0504(-V)e^{((0.0251)(T + 460) - 20.43)} * (94\%) = 0.00539$ lb/ton

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

T = HMA mix temperature = 295 F (avg of range submitted by applicant: 215-375⁰ F)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hr/year) * (0.00539 lb/ton) * (ton/2000 lb) = 1.35 TPY

CO Emissions:

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

Emission Factor = $0.00488(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00056$ lb/ton

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

T = HMA mix temperature = 295 F (avg of range submitted by applicant: 215-375⁰ F)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hr/year) * (0.00056 lb/ton) * (ton/2000 lb) = 0.14 TPY

CH4 Emissions:(CH4 = TOC *0.26%, AP-42, Table 11.1-16, 3/04)

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

Emission Factor = $0.0172(-V)e^{((0.0251)(T + 460) - 20.43)} * 0.26\% = 0.00001$ lb/ton

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hr/year) * (0.00001 lb/ton) * (ton/2000 lb) = 0.00 ton/yr

CO₂e = 0.0013 * 21 = 0.0267 ton/yr

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

Total PM Emissions: (Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors; AP 42, Table 11.1-14. Therefore, this calculation assumes there are no filterable particulate emissions)

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

Emission Factor = $0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00034$ lb/ton

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

Calculation: (400 ton/hr) * (1250 hrs/yr) * (0.00034 lb/ton) * (ton/2000 lb) = 0.09 ton/yr

Organic PM_{2.5} Emissions:

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

$$\text{Emission Factor} = 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00016 \text{ lb/ton}$$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

$$\text{Calculation: } (400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.00016 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.04 \text{ ton/yr}$$

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

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

$$\text{Emission Factor} = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)} * 94\% = 0.00184 \text{ lb/ton}$$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

$$\text{Calculation: } (400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.00184 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.46 \text{ ton/yr}$$

CH₄ Emissions:(CH₄ = TOC * 6.5%, AP-42, Table 11.1-16, 3/04)

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

$$\text{Emission Factor} = 0.0172(-V)e^{((0.0251)(T + 460) - 20.43)} * 6.5\% = 0.00013 \text{ lb/ton}$$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

$$\text{Calculation: } (400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.00013 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.03 \text{ ton/yr}$$

$$\text{CO}_2\text{e} = 0.03 * 21 = 0.67 \text{ ton/yr}$$

CO Emissions:

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

$$\text{Emission Factor} = 0.00558(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00064 \text{ lb/ton}$$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

$$\text{Calculation: } (400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.00064 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.16 \text{ ton/yr}$$

$$\text{Calculation: } (400 \text{ ton/hr}) * (1250 \text{ hrs/yr}) * (0.00064 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) = 0.16 \text{ ton/yr}$$

Haul Roads

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

$$\text{VMT per hour} = (5 \text{ VMT/day}) * (\text{day}/24 \text{ hrs}) = 0.21 \text{ VMT/hr}$$

Hours of Operation = 1,250 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.

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

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)

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

$$\text{Calculation: } (1250 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (12.46 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) = 1.62 \text{ tons/yr (Uncontrolled Emissions)}$$

$$\text{Calculation: } (1250 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (12.46 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) * (1 - 50/100) = 0.81 \text{ tons/yr (Apply 50\% control efficiency)}$$

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)

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

Calculation: (1250 hrs/yr) * (0.21 VMT/hr) * (3.43 lb/VMT) * (ton/2000 lb) = 0.45 tons/yr (Uncontrolled Emissions)

Calculation: (1250 hrs/yr) * (0.21 VMT/hr) * (3.43 lb/VMT) * (ton/2000 lb) * (1-50/100) = 0.22 tons/yr (Apply 50% control efficiency)

PM_{2.5} Emissions:

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

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

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)

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

Calculation: (1250 hrs/yr) * (0.21 VMT/hr) * (0.34 lb/VMT) * (ton/2000 lb) = 0.04 tons/yr (Uncontrolled Emissions)

Calculation: (1250 hrs/yr) * (0.21 VMT/hr) * (0.34 lb/VMT) * (ton/2000 lb) * (1-50/100) = 0.02 tons/yr (Apply 50% control efficiency)

Diesel Engine/Generator

Operational Capacity of Engine = 1,474 hp

Hours of Operation = 1,650 hours

Total PM/PM₁₀/PM_{2.5} Emissions:

Emission Factor = 1.08 lbs/hr (EPA Tier 2- FAMILY)

Calculation: (1,650 hours) * (1.08335154564 lbs/hr) * (ton/2000 lb) = 0.89 ton/yr

NO_x Emissions:

Emission Factor = 21.07 lbs/hr (EPA Tier 2- FAMILY)

Calculation: (1,650 hours) * (21.07 lbs/hr) * (ton/2000 lb) = 17.38 ton/yr

CO Emissions:

Emission Factor = 7.02 lbs/hr (EPA Tier 2)

Calculation: (1,650 hours) * (7.021722981 lbs/hr) * (ton/2000 lb) = 5.79 ton/yr

VOC Emissions:

Emission Factor = 0.0025 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, TOC, Exhaust & Crankcase, 10/96)

Calculation: (1,650 hours) * (1,474 hp) * (0.0025141 lbs/hp-hr) * (ton/2000 lb) = 3.06 ton/yr

SO_x Emissions:

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

Calculation: (1,650 hours) * (1,474 hp) * (0.00205 lbs/hp-hr) * (ton/2000 lb) = 2.49 ton/yr

CO₂ Emissions:

Emission Factor = 1.15 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: (1,650 hours) * (1,474 hp) * (1.15 lbs/hp-hr) * (ton/2000 lb) = 1,398.46 ton/yr

Lime Silo**Operating Parameters:**

Plant Elevation:	4200	ft. avg elev of 5 (cities) counties listed in application
Actual Pressure:	25.72	in. Hg Estimate
Standard Pressure:	29.92	in. Hg
Actual Flowrate (V2):	1,000	acfm (similar sized facility)
Standard Temp:	20 C	68 F 528 R
Assumed Stack Temp:	68 F	68 F 528 R

assume ambient temp

Standard Volumetric Flowrate Correction: $V1 = V2 (P2/P1) (T1/T2)$

$$V1 = 1000 * (25.7241958041958 / 29.92) * (528 R / 528 R)$$

Corrected Flowrate (V1): 860 scfm

Stack Gas Moisture Content (M): 0 % (estimate)

Dry Standard Volumetric Flowrate: $= V1 * (1 - M/100) = 860 \text{ scfm} * (1 - 0/100)$

Dry Standard Volumetric Flowrate: 860 dscfm

Lime Silo

Flow Capacity = 860 cfm (similar sized facility)

860 cfm

Maximum Hours of Operation = 16 hrs/day (Summer Hours)

16 hrs/day

Total PM Emissions:

Emission Factor = 0.04 gr/dscf (Permit limit per NSPS)

0.04 gr/dscf

Control Efficiency = 0%

0 %

Calculation: (860 cfm) * (1250 hrs/year) * (0.04 gr/dscf) * (lb/7000 gr) * (60 min/hr)*1/2000 =

0.18 Ton/year**Total PM₁₀ Emissions:**

Emission Factor = 0.02 gr/dscf Assume PM10 = 50% of PM, Department Policy

0.02 gr/dscf

Control Efficiency = 0%

0 %

Calculation: (860 cfm) * (1250 hrs/year) * (0.02 gr/dscf) * (lb/7000 gr) * (60 min/hr)*1/2000 =

0.09 Ton/year**Total PM_{2.5} Emissions:**

Emission Factor = 0.012 gr/dscf Assume PM2.5 = 30% of PM, AP-42, Appendix B-2, Category 4

0.012 gr/dscf

Control Efficiency = 0%

0 %

Calculation: (860 cfm) * (1250 hrs/year) * (0.012 gr/dscf) * (lb/7000 gr) * (60 min/hr)*1/2000 =

0.06 Ton/year**V. Air Quality Impacts**

MAQP #4630-00 covers operation of this portable drum mix asphalt plant while operating in areas within Montana that are classified as being in attainment with federal ambient air quality standards and areas not yet classified, excluding counties that have a Department-approved permitting program and areas that are tribal lands. This permit contains conditions and limitations that would protect air quality for the site and surrounding area, and that would limit

the facility's emissions below the major source threshold. Based on the information provided, the amount of controlled emissions generated by this facility will not exceed any ambient air quality standard.

VII. Ambient Air Impact Analysis

The Department determined that the impact from this permitting action will be minor. The Department believes that the facility 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

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

Addendum 1
Facility
Montana Air Quality Permit (MAQP) #4630-00

An addendum to MAQP #4630-00 is hereby granted to Riverside Contracting, Inc. (Riverside Contracting) 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:

Riverside Contracting owns and operates a portable drum mix asphalt plant and associated equipment with a maximum production capacity of 400 tons per hour (TPH) and one diesel-fired engine/generator with a maximum capacity of up to 1,474 brake horsepower (bhp). Particulate emissions from the drum mix asphalt plant are controlled by a pulse jet baghouse.

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

Addendum 1 applies to the Riverside Contracting 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 Riverside Contracting may operate is:
 - 1. Any site that may be approved, in writing, by the Department of Environmental Quality (Department).
- B. During the summer season (April 1-September 30) – Riverside Contracting 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. Riverside Contracting shall comply with the limitations and conditions contained in Addendum 1 to MAQP #4630-00 while operating in or within 10 km of any of the previously identified PM₁₀ nonattainment areas. Addendum 1 shall be valid until revoked or modified. The Department reserves the authority to modify Addendum 1 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 and Summer Season Conditions
 - 1. Asphalt plant particulate matter emissions shall be limited to 0.04 grains per dry standard cubic feet (gr/dscf) (ARM 17.8.340, ARM 17.8.752, and 40 Code of Federal Regulations (CFR) 60, Subpart I).
 - 2. Riverside Contracting shall not cause or authorize to be discharged into the atmosphere from the asphalt plant stack, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

3. Riverside Contracting shall not cause or authorize to be discharged into the atmosphere from any equipment, such as screens or transfer points, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
4. Riverside Contracting shall not cause or authorize to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property any visible fugitive emissions that exhibit an opacity of 10% or greater (ARM 17.8.749).
5. Riverside Contracting 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).
6. Riverside Contracting shall not operate or have on-site more than one diesel engine/generator. The maximum combined capacity of the engine that drives the generator shall not exceed 1,474 bhp (ARM 17.8.749).
7. The 1,474-bhp diesel engine/generator shall be compliant with EPA non-road compression-ignition engine Tier 2 (at minimum) emission standards for all pollutants for the same model year and maximum engine power (ARM 17.8.749).
8. During the Summer Season operation of the asphalt plant while utilizing No.2 Fuel Oil, coal, propane, or wood pellets as the fuel source for the drum mix dryer, and including the diesel engine/generator shall not exceed 16 hours per day and asphalt production shall not exceed 6,400 tons per day (ARM 17.8.749).
9. During the Winter Season operation of the asphalt plant while utilizing No.2 Fuel Oil, coal, propane, or wood pellets as the fuel source for the drum mix dryer, and including the diesel engine/generator shall not exceed 2.5 hours per day and asphalt production shall not exceed 1,000 tons per day (ARM 17.8.749).

B. Operational Reporting Requirements

1. If this portable asphalt plant is moved to another nonattainment location, an Intent to Transfer form must be sent to the Department and a Public Notice Form for Change of Location must be published in a newspaper of general circulation in the area to which the transfer is to be made, at least 15 days prior to the move. The proof of publication (affidavit) of the Public Notice Form for Change of Location must be submitted to the Department prior to the move. These forms are available from the Department (ARM 17.8.749 and ARM 17.8.765).
2. 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. Tons of asphalt produced at each site,
 - b. Daily hours of operation at each site,
 - c. Hours of operation and sizes for the generator at each site, and

- d. Fugitive dust information consisting of the total miles driven on unpaved roads for all plant vehicles.
3. Riverside Contracting shall document, by day, the total asphalt production. Riverside Contracting shall sum the total asphalt production for the previous day to verify compliance with the limitations in Section III.A.8 for summer operation and Section III.A.9 for winter operation. A written report of compliance and the emissions inventory shall be submitted to the Department annually. The report for the previous calendar year shall be submitted and may be submitted along with the annual emissions inventory (ARM 17.8.749).
4. Riverside Contracting shall document, by day, the total hours of operation. Riverside Contracting shall sum the total hours of operation for the previous day to verify compliance with the limitation in III.A.8 for summer operation and Section III.A.9 for winter operation. A written report of compliance and the emissions inventory shall be submitted to the Department annually. The report for the previous calendar year shall be submitted and may be submitted along with the annual emissions inventory (ARM 17.8.749).

Addendum 1 Analysis
Riverside Contracting, Inc.
Montana Air Quality Permit (MAQP) #4630-00

I. Permitted Equipment

Riverside Contracting, Inc. (Riverside Contracting) owns and operates a portable drum mix asphalt plant and associated equipment with a maximum production capacity of 400 tons per hour (TPH) and one diesel-fired engine/generator with a maximum capacity of up to 1,474 brake horsepower (bhp).

II. Source Description

Riverside Contracting uses this portable asphalt plant to produce asphalt for use in various construction operations. For a typical operational set-up, process materials are delivered to the plant site by truck, or crushed on site. Aggregates are stockpiled by size. The cold feed bins are charged as required from respective stockpiles, usually by a front end loader. The cold aggregate is transported on the gathering conveyor to the scalping screen to remove oversized and foreign material. The aggregates are then transported by belt conveyor to the pug mill in which any additives or other aggregates can be mixed. Any required mineral additives, stored in the mineral filler silo, can be added via screw conveyor to the pug mill. The aggregate is conveyed from the pug mill to the double drum mixer where it is heated and dried in the inner drum by the heat released from the controlled combustion of fuel in the burner. The burner at the Riverside Contracting plant may be fueled by fuel oil, coal, propane, or wood pellets or a combination thereof and exhausts through the primary bag house. Liquid asphalt is pumped from delivery tankers into the asphalt cement storage tanks where it is maintained at approximately 300 degrees Fahrenheit by the hot oil heater. Asphalt cement is pumped into the outer drum mixer by a metering unit. The heated aggregate leaves the inner drum and enters the outer drum passing through the mixing zone where the asphalt cement is pumped. The hot mix asphalt is discharged onto the elevating drag conveyor which transports it into the mix storage silo(s) to await truck load out. The hot mix asphalt is normally delivered into transport vehicles from the storage silo at a temperature of 270 to 300 degrees Fahrenheit.

A portion of the paving mixture may be recovered asphalt product (RAP). RAP is stockpiled in storage bins separately on site. When it is included in the mix formula, it is metered from its bin and transported on a gathering conveyor to a scalping screen. The RAP is transported on a belt conveyor to the drum mixer RAP inlet. The RAP mixes with the hot aggregate in the outer drum prior to passing through the mixing zone where the asphalt cement is pumped.

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 air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. A source may not increase its emissions beyond those found in its permit unless the source applies for and receives another permit.
- C. ARM 17.8.765 Transfer of Permit. An air quality permit may be transferred from one location to another if:
1. Written notice of intent to transfer location and proof of public notice are sent to the Department;
 2. The source will operate in the new location for a period of less than 1 year; and
 3. The source will not have any significant impact on any nonattainment area or any Class I area.

IV. Emission Inventory – Summer and Winter Seasons

SUMMER (Hours of Operation Restricted to 16 hrs/day)	lbs/day						
	PM	PM10	PM2.5	NOx	CO	VOC	SOx
Emission Source							
Cold Aggregate Storage Piles	21.15	10.00	1.52	--	--	--	--
Cold Aggregate Handling/Conveyors (2 transfers)	19.20	7.04	--	--	--	--	--
Cold Aggregate Screen	960.00	230.40	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	--	--		--	0.4320	--	--
400 TPH Drum Mix Asphalt Dryer	355.25	239.70	67.93	352.00	832.00	204.80	70.40
Asphalt Surge Bin (silo) Filling	2.89	2.89	2.89	--	3.56	34.53	--
Lime Silo	4.72	2.36	1.42				
Plant Load-Out	2.19	2.19	2.19	--	4.07	11.78	--
Haul Roads / Vehicle Traffic	20.77	5.72	0.57	--	--	--	--
1,474 hp`	17.33	17.33	17.33	337.12	112.35	59.29	48.35
Total Emissions	1403.49	517.64	93.84	689.12	952.40	310.40	118.75

1. Hours of operation restricted to 16 hrs/day to keep PM10 emissions below 547 lbs/day day (PM10 emission assumed to be the same while burning fuel oil, coal, propane, or wood pellets).
2. Emission factors for screening, and transfers include water spray control (=50% reduction, DEQ memo, 5/3/99 and AP42, Table 11.19.2-2, note b.)
3. Emission factors for piles based on the conditions assumed in the predictive equation without additional water spray control (AP42, 13.2.4.4)

WINTER (Hours of Operation Restricted to 2.5 hrs/day)		lbs/day					
Emission Source	PM	PM10	PM2.5	NOx	CO	VOC	SOx
Cold Aggregate Storage Piles	3.31	1.56	0.24	--	--	--	--
Cold Aggregate Handling/Conveyors (2 transfers)	3.00	1.10	0.00	--	--	--	--
Cold Aggregate Screen	150.00	36.00	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	--	--	--	--	0.06750	--	--
400 TPH Drum Mix Asphalt Dryer	55.51	37.45	26.98	55.00	130.00	32.00	11.00
Asphalt Surge Bin (silo) Filling	0.45	0.45	0.45	--	0.56	5.39	--
Lime Silo	0.74	0.37	0.22	--	--	--	--
Plant Load-Out	0.34	0.34	0.34	--	0.64	1.84	--
Haul Roads / Vehicle Traffic	3.24	0.89	0.09	--	--	--	--
1,474 hp`	2.71	2.71	2.71	52.68	17.55	9.26	7.55
Total Emissions	219.30	80.88	31.03	107.68	148.81	48.50	18.55

- Hours of operation restricted to 2.5 hrs/day to keep PM10 emissions below 82 lbs/day (PM10 emission assumed to be the same while burning fuel oil, coal, propane, or wood pellets).
- Emission factors for screening, and transfers include water spray control (=50% reduction, DEQ memo, 5/3/99 and AP42, Table 11.19.2-2, note b.)
- Emission factors for piles based on the conditions assumed in the predictive equation without additional water spray control (AP42, 13.2.4.4)

**

acfm = actual cubic feet per minute
in. Hg = inches of mercury
C = Celsius
CO = carbon monoxide
dscfm = dry standard cubic feet per minute
F = Fahrenheit
gal = gallon
HAPs = hazardous air pollutants
hp = horsepower
hr = hour
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
R = Rankine
SO_x = oxides of sulfur
TPH = tons per hour
TPY = tons per year
VOC = volatile organic compounds
yr = year

Cold Aggregate Storage Piles

Maximum Process Rate = 400 ton/hr (Maximum plant process rate)

Number of Piles = 1 pile

Maximum Hours of Operation = 16 hrs/day (summer hours)

Maximum Hours of Operation = 2.5 hrs/day (winter hours)

PM Emissions:

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

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

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

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

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

Control Efficiency = 0% (Water or chemical spray)

Calculation: (400 ton/hr) * (16 hrs/day) * (0.00331 lb/ton) * (1 pile) = 21.15 lb/day (Summer hours)

Calculation: (400 ton/hr) * (16 hrs/day) * (0.00331 lb/ton) * (1 pile) * (1 - 0/100) = 21.15 lb/day (Summer hours)

Calculation: (400 ton/hr) * (2.5 hrs/day) * (0.00331 lb/ton) * (1 pile) = 3.31 lb/day (Winter hours)

Calculation: (400 ton/hr) * (2.5 hrs/day) * (0.00331 lb/ton) * (1 pile) * (1 - 0/100) = 3.31 lb/day (Winter hours)

Note: Based on the conditions assumed in the predictive equation without additional water spray control.

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)

Control Efficiency = 0% (Water or chemical spray)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00156 \text{ lb/ton}) * (1 \text{ pile}) = 10.00 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00156 \text{ lb/ton}) * (1 \text{ pile}) * (1 - 0/100) = 10.00 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00156 \text{ lb/ton}) * (1 \text{ pile}) = 1.56 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00156 \text{ lb/ton}) * (1 \text{ pile}) * (1 - 0/100) = 1.56 \text{ lb/day}$ (Winter hours)

Note: Based on the conditions assumed in the predictive equation without additional water spray control.

Filterable PM_{2.5} Emissions:

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

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

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 = 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)

Control Efficiency = 0% (Water or chemical spray)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00024 \text{ lb/ton}) * (1 \text{ pile}) = 1.52 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00024 \text{ lb/ton}) * (1 \text{ pile}) * (1 - 0/100) = 1.52 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00024 \text{ lb/ton}) * (1 \text{ pile}) = 0.24 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00024 \text{ lb/ton}) * (1 \text{ pile}) * (1 - 0/100) = 0.24 \text{ lb/day}$ (Winter hours)

Note: Based on the conditions assumed in the predictive equation without additional water spray control.

Conveyor Transfer Point (SCC 3-05-02006)

Maximum Process Rate = 400 ton/hr (Maximum plant process rate)

Maximum Hours of Operation = 16 hrs/day (summer hours)

Maximum Hours of Operation = 2.5 hrs/day (winter hours)

Number of Transfers = 2 transfers (Company Information, based on schematic submitted with application)

Total PM Emissions:

Emission Factor = 0.003 lb/ton (0.0030 uncontrolled, 0.00014 controlled, AP 42, Table 11.19.2-2, 8/04)

Control Efficiency = 50% (Dept Guidance 4/8/93)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (2 \text{ transfers}) * (0.003 \text{ lb/ton}) = 38.40 \text{ lbs/day}$

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (2 \text{ transfers}) * (0.003 \text{ lb/ton}) * (1 - 50/100) = 19.20 \text{ lbs/day}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (2 \text{ transfers}) * (0.003 \text{ lb/ton}) = 6.00 \text{ lbs/day}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (2 \text{ transfers}) * (0.003 \text{ lb/ton}) * (1 - 50/100) = 3.00 \text{ lbs/day}$

Note: Based on uncontrolled emissions factors with 50% reduction for water spray, AP42, Table 11.19.2-2, note b.

Total PM₁₀ Emissions:

Emission Factor = 0.0011 lb/ton (0.00110 uncontrolled, 0.000046 controlled, AP 42, Table 11.19.2-2, 8/04)

Control Efficiency = 50%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (2 \text{ transfers}) * (0.0011 \text{ lb/ton}) = 14.08 \text{ lbs/day}$

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (2 \text{ transfers}) * (0.0011 \text{ lb/ton}) * (1 - 50/100) = 7.04 \text{ lbs/day}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (2 \text{ transfers}) * (0.0011 \text{ lb/ton}) = 2.20 \text{ lbs/day}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (2 \text{ transfers}) * (0.0011 \text{ lb/ton}) * (1 - 50/100) = 1.10 \text{ lbs/day}$

Note: Based on uncontrolled emissions factors with 50% reduction for water spray, AP42, Table 11.19.2-2, note b.

Hot Oil Heater

Production Rate = 22.50 gal/hr (max. rated process rate. Company information)
 Maximum Hours of Operation = 16 hrs/day (summer hours)
 Maximum Hours of Operation = 2.5 hrs/day (winter hours)

CO Emissions:

Emission Factor = 0.0012 lb/gal (AP-42, Section 11.1, Table 11.1-13, No. 2 Fuel Oil, 3/04)
 Control Efficiency = 0%
 Calculation: (16 hrs/day) * (22.5 gal/hr) * (0.0012 lb/gal) = 0.43 lbs/day (Summer hours)
 Calculation: (16 hrs/day) * (22.5 gal/hr) * (0.0012 lb/gal) * (1 - 0/100) = 0.43 lbs/day (Summer hours)
 Calculation: (2.5 hrs/day) * (22.5 gal/hr) * (0.0012 lb/gal) = 0.07 lbs/day (Winter hours)
 Calculation: (2.5 hrs/day) * (22.5 gal/hr) * (0.0012 lb/gal) * (1 - 0/100) = 0.07 lbs/day (Winter hours)

CO₂ Emissions:

Emission Factor = 28 lb/gal (AP-42, Section 11.1, Table 11.1-13, No. 2 Fuel Oil, 3/04)
 Control Efficiency = 0%
 Calculation: (16 hrs/day) * (22.5 gal/hr) * (28 lb/gal) = 10,080.00 lbs/day (Summer hours)
 Calculation: (16 hrs/day) * (22.5 gal/hr) * (28 lb/gal) * (1 - 0/100) = 10,080.00 lbs/day (Summer hours)
 Calculation: (2.5 hrs/day) * (22.5 gal/hr) * (28 lb/gal) = 1,575.00 lbs/day (Winter hours)
 Calculation: (2.5 hrs/day) * (22.5 gal/hr) * (28 lb/gal) * (1 - 0/100) = 1,575.00 lbs/day (Winter hours)

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

Operating Parameters:

Plant Elevation:	3200	ft.	avg elev of 7 (cities) counties listed in application	
Actual Pressure:	26.72	in. Hg	Estimate	
Standard Pressure:	29.92	in. Hg		
Actual Flowrate (V2):	76,638	acfm	(Company Information)	
Standard Temp:	20	C	68	F = 528 R
Assumed Stack Temp.	146	C	295	F = 755 R
(avg of range submitted by applicant: 215-375° F)				
Standard Volumetric Flowrate Correction:	V1 = V2 (P2/P1) (T1/T2)			
	V1=76638 acfm * (26.72 in. Hg / 29.92 in. Hg) * (528 R / 755 R)			
Corrected Flowrate (V1):	47,869	scfm		
Stack Gas Moisture Content (M):	12	%	(estimate)	
	=V1*(1 - M/100) = 47,869 scfm			
Dry Standard Volumetric Flowrate:	* (1 - 12/100)			
Dry Standard Volumetric Flowrate:	42,125	dscfm		

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

Maximum Process Rate = 400 ton/hr (Application information)
 Maximum Hours of Operation = 16 hrs/day (summer hours)
 Maximum Hours of Operation = 2.5 hrs/day (winter hours)
 Dry Standard Volumetric Flowrate: 42,125 dscfm

Filterable PM Emissions:

Based on Emission Limit
 Emission Factor = 0.04 gr/dscf (permit limit)
 Calculation: (0.04 gr/dscf) * (42,125 dscfm) * (1 lb / 7000 gr) * (60 min/hr) = 14.44 lb/hr
 Calculation: (14.44 lb/hr) * (16 hrs/day) = 231.09 lbs/day (Summer hours)
 Calculation: (14.44 lb/hr) * (2.5 hrs/day) = 36.11 lbs/day (Winter hours)

Filterable PM₁₀ Emissions:

Based on Emission Limit

Emission Factor = 0.02 gr/dscf (permit limit, assuming 50% of TSP is PM10, Department policy)

Calculation: $(0.02 \text{ gr/dscf}) * (42,125 \text{ dscfm}) * (1 \text{ lb} / 7000 \text{ gr}) * (60 \text{ min/hr}) = 7.22 \text{ lb/hr}$

Calculation: $(7.22 \text{ lb/hr}) * (16 \text{ hrs/day}) = 115.54 \text{ lbs/day}$ (Summer hours)

Calculation: $(7.22 \text{ lb/hr}) * (2.5 \text{ hrs/day}) = 18.05 \text{ lbs/day}$ (Winter hours)

Filterable PM_{2.5} Emissions:

Based on Emission Limit

Emission Factor = 0.0084 gr/dscf (permit limit, assuming 21% of TSP is PM2.5, AP 42, Table 11.1-4, 3/04)

Calculation: $(0.0084 \text{ gr/dscf}) * (42,125 \text{ dscfm}) * (1 \text{ lb} / 7000 \text{ gr}) * (60 \text{ min/hr}) = 3.03 \text{ lb/hr}$

Calculation: $(3.03 \text{ lb/hr}) * (16 \text{ hrs/day}) = 48.53 \text{ lbs/day}$ (Summer hours)

Calculation: $(3.03 \text{ lb/hr}) * (2.5 \text{ hrs/day}) = 7.58 \text{ lbs/day}$ (Winter hours)

Condensable PM_{2.5} Emissions:

Based on AP-42

Emission Factor = 0.0194 lb/ton (fabric filter, AP 42, Table 11.1-3, 3/04, inorganic+organic)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.0194 \text{ lb/ton}) = 124.16 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.0194 \text{ lb/ton}) * (1 - 0/100) = 124.16 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.0194 \text{ lb/ton}) = 19.40 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.0194 \text{ lb/ton}) * (1 - 0/100) = 19.40 \text{ lb/day}$ (Winter hours)

CO Emissions:

Emission Factor = 0.13 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.13 \text{ lb/ton}) = 832.00 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.13 \text{ ton/yr}) * (1 - 0/100) = 832.00 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.13 \text{ lb/ton}) = 130.00 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.13 \text{ lb/ton}) * (1 - 0/100) = 130.00 \text{ lb/day}$ (Winter hours)

NO_x Emissions:

Emission Factor = 0.055 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.055 \text{ lb/ton}) = 352.00 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.055 \text{ ton/yr}) * (1 - 0/100) = 352.00 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.055 \text{ lb/ton}) = 55.00 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.055 \text{ lb/ton}) * (1 - 0/100) = 55.00 \text{ lb/day}$ (Winter hours)

SO₂ Emissions:

Emission Factor = 0.011 lb/ton (0.011 lb/ton #2 fuel oil, 0.19 lb/ton coal, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.011 \text{ lb/ton}) = 70.40 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.011 \text{ ton/yr}) * (1 - 0/100) = 70.40 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.011 \text{ lb/ton}) = 11.00 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.011 \text{ lb/ton}) * (1 - 0/100) = 11.00 \text{ lb/day}$ (Winter hours)

TOC Emissions:

Emission Factor = 0.044 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.044 \text{ lb/ton}) = 281.60 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.044 \text{ ton/yr}) * (1 - 0/100) = 281.60 \text{ lb/day}$ (Summer hours)
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.044 \text{ lb/ton}) = 44.00 \text{ lb/day}$ (Winter hours)
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.044 \text{ lb/ton}) * (1 - 0/100) = 44.00 \text{ lb/day}$ (Winter hours)

CH₄ Emissions:

Emission Factor = 0.012 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.012 \text{ lb/ton}) = 76.80 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.012 \text{ lb/ton}) * (1 - 0/100) = 76.80 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.012 \text{ lb/ton}) = 12.00 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.012 \text{ lb/ton}) * (1 - 0/100) = 12.00 \text{ lb/day}$ (Winter hours)

CO₂e = 3.00 * 21 = 63.00 ton/yr

VOC Emissions:

Emission Factor = 0.032 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-8, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.032 \text{ lb/ton}) = 204.80 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.032 \text{ lb/ton}) * (1 - 0/100) = 204.80 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.032 \text{ lb/ton}) = 32.00 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.032 \text{ lb/ton}) * (1 - 0/100) = 32.00 \text{ lb/day}$ (Winter hours)

Total HAPs Emissions:

Emission Factor = 0.0087 lb/ton (#2 fuel oil-fired dryer with fabric filter, AP 42, Table 11.1-10, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.0087 \text{ lb/ton}) = 55.68 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.0087 \text{ lb/ton}) * (1 - 0/100) = 55.68 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.0087 \text{ lb/ton}) = 8.70 \text{ lb/hr}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.0087 \text{ lb/ton}) * (1 - 0/100) = 8.70 \text{ lb/day}$ (Winter hours)

CO₂ Emissions:

Emission Factor = 33 lb/ton (#2 fuel oil-fired dryer, AP 42, Table 11.1-7, 3/04)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (33 \text{ lb/ton}) = 211,200.00 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (33 \text{ lb/ton}) * (1 - 0/100) = 211,200.00 \text{ lb/day}$ (Summer hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (33 \text{ lb/ton}) = 33,000.00 \text{ lb/day}$ (Winter hours)

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (33 \text{ lb/ton}) * (1 - 0/100) = 33,000.00 \text{ lb/day}$ (Winter hours)

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

Maximum Process Rate = 400 ton/hr (Maximum plant process rate)

Maximum Hours of Operation = 16 hrs/day (summer hours)

Maximum Hours of Operation = 2.5 hrs/day (winter hours)

Total PM Emissions: (Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors; AP 42, Table 11.1-14. Therefore, this calculation assumes there are no filterable particulate emissions)

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

Emission Factor = $0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00045 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (avg of range submitted by applicant: 215-375° F)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00045 \text{ lb/ton}) = 2.89 \text{ lb/day}$ (Summer Hours)

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00045 \text{ lb/ton}) * (1 - 0/100) = 2.89 \text{ lb/day (Summer Hours)}$
 Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00045 \text{ lb/ton}) * (1 - 0/100) = 0.45 \text{ lb/day (Winter Hours)}$
 Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00045 \text{ lb/ton}) * (1 - 0/100) = 0.45 \text{ lb/day (Winter Hours)}$

Organic PM Emissions : (if organic particulate needs to be calculated)

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

Emission Factor = $0.00105(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00012 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (avg of range submitted by applicant: 215-375⁰ F)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00012 \text{ lb/ton}) = 0.77 \text{ lb/day (Summer Hours)}$

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00012 \text{ lb/ton}) * (1 - 0/100) = 0.77 \text{ lb/day (Summer Hours)}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00012 \text{ lb/ton}) * (1 - 0/100) = 0.12 \text{ lb/day (Winter Hours)}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00012 \text{ lb/ton}) * (1 - 0/100) = 0.12 \text{ lb/day (Winter Hours)}$

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

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

Emission Factor = $0.0504(-V)e^{((0.0251)(T + 460) - 20.43)} * (94\%) = 0.00539 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (avg of range submitted by applicant: 215-375⁰ F)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00539 \text{ lb/ton}) = 34.53 \text{ lb/day (Summer Hours)}$

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00539 \text{ lb/ton}) * (1 - 0/100) = 34.53 \text{ lb/day (Summer Hours)}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00539 \text{ lb/ton}) * (1 - 0/100) = 5.39 \text{ lb/day (Winter Hours)}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00539 \text{ lb/ton}) * (1 - 0/100) = 5.39 \text{ lb/day (Winter Hours)}$

CO Emissions:

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

Emission Factor = $0.00488(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00056 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (avg of range submitted by applicant: 215-375⁰ F)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00056 \text{ lb/ton}) = 3.56 \text{ lb/day (Summer Hours)}$

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00056 \text{ lb/ton}) * (1 - 0/100) = 3.56 \text{ lb/day (Summer Hours)}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00056 \text{ lb/ton}) * (1 - 0/100) = 0.56 \text{ lb/day (Winter Hours)}$

Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00056 \text{ lb/ton}) * (1 - 0/100) = 0.56 \text{ lb/day (Winter Hours)}$

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

Maximum Process Rate = 400 ton/hr (Maximum plant process rate)

Maximum Hours of Operation = 16 hrs/day (summer hours)

Maximum Hours of Operation = 2.5 hrs/day (winter hours)

Total PM Emissions: (Total PM is assumed to be predominantly PM-2.5 since emissions consist of condensed vapors; AP 42, Table 11.1-14. Therefore, this calculation assumes there are no filterable particulate emissions)

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

Emission Factor = $0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00034 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00034 \text{ lb/ton}) * = 2.19 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00034 \text{ lb/ton}) * (1 - 0/100) = 2.19 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00034 \text{ lb/ton}) * = 0.34 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00034 \text{ lb/ton}) * (1 - 0/100) = 0.34 \text{ lb/day}$

Organic PM_{2.5} Emissions:

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

Emission Factor = $0.00141(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00016 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00016 \text{ lb/ton}) * = 1.03 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00016 \text{ lb/ton}) * (1 - 0/100) = 1.03 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00016 \text{ lb/ton}) * = 0.16 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00016 \text{ lb/ton}) * (1 - 0/100) = 0.16 \text{ lb/day}$

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

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

Emission Factor = $0.0172(-V)e^{((0.0251)(T + 460) - 20.43)} * 94\% = 0.00184 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00184 \text{ lb/ton}) * = 11.78 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00184 \text{ lb/ton}) * (1 - 0/100) = 11.78 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00184 \text{ lb/ton}) * = 1.84 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00184 \text{ lb/ton}) * (1 - 0/100) = 1.84 \text{ lb/day}$

CH₄ Emissions:(CH₄ = TOC * 6.5%, AP-42, Table 11.1-16, 3/04)

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

Emission Factor = $0.0172(-V)e^{((0.0251)(T + 460) - 20.43)} * 6.5\% = 0.00013 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00013 \text{ lb/ton}) * = 0.81 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00013 \text{ lb/ton}) * (1 - 0/100) = 0.81 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00013 \text{ lb/ton}) * = 0.13 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00013 \text{ lb/ton}) * (1 - 0/100) = 0.13 \text{ lb/day}$
CO₂e = 0.03 * 21 = 0.67 ton/yr

CO Emissions:

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

Emission Factor = $0.00558(-V)e^{((0.0251)(T + 460) - 20.43)} = 0.00064 \text{ lb/ton}$

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

T = HMA mix temperature = 295 F (Max. from application, process flow narrative)

Control Efficiency = 0%

Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00064 \text{ lb/ton}) * = 4.07 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (16 \text{ hrs/day}) * (0.00064 \text{ lb/ton}) * (1 - 0/100) = 4.07 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00064 \text{ lb/ton}) * = 0.64 \text{ lb/day}$
Calculation: $(400 \text{ ton/hr}) * (2.5 \text{ hrs/day}) * (0.00064 \text{ lb/ton}) * (1 - 0/100) = 0.64 \text{ lb/day}$

Haul Roads

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

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

Maximum Hours of Operation = 16 hrs/day (summer hours)

Maximum Hours of Operation = 2.5 hrs/day (winter hours)

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)

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

Calculation: $(0.21 \text{ VMT/hr}) * (16 \text{ hrs/day}) * (12.46 \text{ lb/VMT}) * = 41.53 \text{ lb/day}$ (summer)

Calculation: $(0.21 \text{ VMT/hr}) * (16 \text{ hrs/day}) * (12.46 \text{ lb/VMT}) * (1 - 50/100) = 20.77 \text{ lb/day}$ (summer)

Calculation: $(0.21 \text{ VMT/hr}) * (2.5 \text{ hrs/day}) * (12.46 \text{ lb/VMT}) * = 6.49 \text{ lb/day}$ (winter)

Calculation: $(0.21 \text{ VMT/hr}) * (2.5 \text{ hrs/day}) * (12.46 \text{ lb/VMT}) * (1 - 50/100) = 3.24 \text{ lb/day}$ (winter)

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)

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

Calculation: $(0.21 \text{ VMT/hr}) * (16 \text{ hrs/day}) * (3.43 \text{ lb/VMT}) * = 11.45 \text{ lb/day}$ (summer)

Calculation: $(0.21 \text{ VMT/hr}) * (16 \text{ hrs/day}) * (3.43 \text{ lb/VMT}) * (1 - 50/100) = 5.72 \text{ lb/day}$ (summer)

Calculation: $(0.21 \text{ VMT/hr}) * (2.5 \text{ hrs/day}) * (3.43 \text{ lb/VMT}) * = 1.79 \text{ lb/day}$ (winter)

Calculation: $(0.21 \text{ VMT/hr}) * (2.5 \text{ hrs/day}) * (3.43 \text{ lb/VMT}) * (1 - 50/100) = 0.89 \text{ lb/day}$ (winter)

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 PM2.5, AP 42, Table 13.2.2-2, 11/06)

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

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

a = constant = 0.9 (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)

b = constant = 0.45 (Value for PM2.5, AP 42, Table 13.2.2-2, 11/06)

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

Calculation: $(0.21 \text{ VMT/hr}) * (16 \text{ hrs/day}) * (0.34 \text{ lb/VMT}) * = 1.14 \text{ lb/day}$ (summer)

Calculation: $(0.21 \text{ VMT/hr}) * (16 \text{ hrs/day}) * (0.34 \text{ lb/VMT}) * (1 - 50/100) = 0.57 \text{ lb/day}$ (summer)

Calculation: $(0.21 \text{ VMT/hr}) * (2.5 \text{ hrs/day}) * (0.34 \text{ lb/VMT}) * = 0.18 \text{ lb/day}$ (winter)

Calculation: $(0.21 \text{ VMT/hr}) * (2.5 \text{ hrs/day}) * (0.34 \text{ lb/VMT}) * (1 - 50/100) = 0.09 \text{ lb/day}$ (winter)

Diesel Engine/Generator

Operational Capacity of Engine = 1,474 hp	910 eKW	(from applicant)
Maximum Hours of Operation = 16 hrs/day (summer hours)	1,474 hp	(from applicant)
Maximum Hours of Operation = 2.5 hrs/day (winter hours)	16 hrs/day	(summer hours)
	2.5 hrs/day	(winter hours)

Total PM/PM₁₀/PM_{2.5} Emissions: (EPA Tier 2- Family Emission Level > 560 KW)=

Emission Factor = 1.08 lbs/hr	1.08E+00	0.54 g/kw-hr = 1.08 lbs/hr	(EPA Tier 2- FAMILY)
Calculation: (16 hrs/day) * (1.08 lbs/hr) =	17.33	lbs/day	(Summer)
Calculation: (2.5 hrs/day) * (1.08 lbs/hr) =	2.71	lbs/day	(Winter)

NOx Emissions: (EPA Tier 2- Family Emission Level > 560 KW)=

Emission Factor = 21.07 lbs/hr (EPA Tier 2- FAMILY)	21.07	10.5 g/kw-hr = 21.07 lbs/hr	(EPA Tier 2- FAMILY)
Calculation: (16 hrs/day) * (21.07 lbs/hr) =	337.12	lbs/day	(Summer)
Calculation: (2.5 hrs/day) * (21.07 lbs/hr) =	52.68	lbs/day	(Winter)

CO Emissions: (EPA Tier 2- Family Emission Level > 560 KW)=

Emission Factor = 7.021722981 lbs/hr (EPA Tier 2)	7.02E+00	3.5 g/kw-hr = 7.02 lbs/hr	(EPA Tier 2)
Calculation: (16 hrs/day) * (7.021722981 lbs/hr) =	112.35	lbs/day	(Summer)
Calculation: (2.5 hrs/day) * (7.021722981 lbs/hr) =	17.55	lbs/day	(Winter)

VOC Emissions:

Emission Factor = 0.0025141 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, TOC, Exhaust & Crankcase, 10/96)	2.51E-03	lbs/hp-hr	(AP-42, Sec. 3.3, Table 3.3-1, TOC, Exhaust & Crankcase, 10/96)
Calculation: (16 hrs/day) * (1,474 hp) * (0.0025141 lbs/hp-hr) =	59.29	lbs/yr	(Summer)
Calculation: (2.5 hrs/day) * (1,474 hp) * (0.0025141 lbs/hp-hr) =	9.26	lbs/day	(Winter)

SOx Emissions:

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.05E-03	lbs/hp-hr	(AP-42, Sec. 3.3, Table 3.3-1, 10/96)
Calculation: (16 hrs/day) * (1,474 hp) * (0.00205 lbs/hp-hr) =	48.35	lbs/yr	(Summer)
Calculation: (2.5 hrs/day) * (1,474 hp) * (0.00205 lbs/hp-hr) =	7.55	lbs/day	(Winter)

CO₂ Emissions:

Emission Factor = 1.15 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	1.15	lbs/hp-hr	(AP-42, Sec. 3.3, Table 3.3-1, 10/96)
Calculation: (16 hrs/day) * (1,474 hp) * (1.15 lbs/hp-hr) =	27,121.60	lbs/yr	(Summer)
Calculation: (2.5 hrs/day) * (1,474 hp) * (1.15 lbs/hp-hr) =	4,237.75	lbs/day	(Winter)

Lime Silo

Operating Parameters:

Plant Elevation:	<input type="text" value="4200"/>	ft. avg elev of 5 (cities) counties listed in application
Actual Pressure:	<input type="text" value="25.72"/>	in. Hg Estimate
Standard Pressure:	29.92	in. Hg
Actual Flowrate (V2):	<input type="text" value="1,000"/>	acfm (similar sized facility)
Standard Temp:	20 C	68 F 528 R
Assumed Stack Temp:	68 F	<input type="text" value="68"/> F 528 R

assume ambient temp

Standard Volumetric Flowrate Correction: $V1 = V2 (P2/P1) (T1/T2)$
 $V1=1000 * (25.72/29.92) * (528 / 528 R)$

Corrected Flowrate (V1):	860	scfm
Stack Gas Moisture Content (M):	0	% (estimate)
Dry Standard Volumetric Flowrate:	$=V1*(1 - M/100) = 860 \text{ scfm} * (1 - 0/100)$	
Dry Standard Volumetric Flowrate:	860	dscfm

Lime Silo

Flow Capacity = 860 cfm (similar sized facility)	860	cfm
Maximum Hours of Operation = 16 hrs/day (Summer Hours)	16	hrs/day
Maximum Hours of Operation = 2.5 hrs/day (Winter Hours)	2.5	hrs/day

Total PM Emissions:

Emission Factor = 0.04 gr/dscf (Permit limit per NSPS)	0.04	gr/dscf
Control Efficiency = 0%	0	%
Calculation: (860 cfm) * (16 hrs/day) * (0.04 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	4.72	lb/day (summer)
Calculation: (860 cfm) * (2.5 hrs/day) * (0.04 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	0.74	lb/day (winter)

Total PM₁₀ Emissions:

Emission Factor = 0.02 gr/dscf Assume PM10 = 50% of PM, Department Policy	0.02	gr/dscf
Control Efficiency = 0%	0	%
Calculation: (860 cfm) * (16 hrs/day) * (0.02 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	2.36	lb/day (summer)
Calculation: (860 cfm) * (2.5 hrs/day) * (0.02 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	0.37	lb/day (winter)

Total PM_{2.5} Emissions:

Emission Factor = 0.012 gr/dscf Assume PM2.5 = 30% of PM, AP-42, Appendix B-2, Category 4	0.012	gr/dscf
Control Efficiency = 0%	0	%
Calculation: (860 cfm) * (16 hrs/day) * (0.012 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	1.42	lb/day (summer)
Calculation: (860 cfm) * (2.5 hrs/day) * (0.012 gr/dscf) * (lb/7000 gr) * (60 min/hr) =	0.22	lb/day (winter)

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 #4630-00 and Addendum 1 are for a portable asphalt 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 #4630-00 and Addendum 1 will cover the operations of this portable asphalt plant while operating at any location within Montana, excluding those counties that have a Department approved permitting program and those areas that are tribal lands.

Addendum 1 will cover the operations of this portable asphalt plant while operating in or within 10 km of PM₁₀ nonattainment area during the winter months (October 1 through March 31). Additionally, the facility will also be allowed to operate in or within 10 km of certain PM₁₀ nonattainment areas during the summer months (April 1 through September 30).

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted the following private property taking and damaging assessment (see Section VII of the Permit Analysis for MAQP #4630-00) and determined there are no taking or damaging implications.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
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FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Riverside Contracting, Inc.

Montana Air Quality Permit number: 4630-00

Preliminary Determination Issued: March 11, 2011

Department Decision Issued: April 1, 2011

Permit Final: April 19, 2011

1. *Legal Description of Site:* Riverside Contracting would operate a portable drum mix asphalt plant, which would initially be located in *Section 27, Township 1 North, Range 27 East, in Yellowstone County, Montana*. However, MAQP #4630-00 would apply while operating at any location in Montana, except those areas having a Department-approved permitting program, areas considered tribal lands, or areas in or within 10 km of certain PM₁₀ nonattainment areas.

Addendum #1 would apply to the Riverside Contracting facility while operating at any location in or within 10 km of a certain PM₁₀ nonattainment area during the summer months (April 1 – September 30) and at sites approved by the Department during the winter months (October 1 – March 31).

2. *Description of Project:* Riverside Contracting would operate a portable drum mix asphalt plant and associated equipment with a 400 TPH maximum production capacity and one diesel-fired engine/generator with a maximum capacity of up to 1,474 bhp at various locations throughout Montana.
3. *Objectives of Project:* The objective of this project would be to produce revenue for Riverside Contracting through the sale and use of asphalt. The issuance of the permit would allow Riverside Contracting to operate the permitted equipment at various locations throughout Montana, including the initial site location.
4. *Alternatives Considered:* In addition to the proposed action, the Department also considered the “no-action” alternative. The “no-action” alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the “no-action” alternative to be appropriate because Riverside Contracting has demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the “no-action” alternative was eliminated from further consideration.
5. *A Listing of Mitigation, Stipulations, and Other Controls:* A list of enforceable conditions, including a BACT analysis, would be included in MAQP #4630-00.
6. *Regulatory Effects on Private Property:* The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites			X			Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS: The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

There is a possibility that terrestrials would use the same area as the project. Impacts on terrestrials and aquatic life could result from storm water runoff and pollutant deposition, but such impacts would be minor because the asphalt plant would be considered a minor source of emissions, would have intermittent and seasonal operations and the area in question is an existing gravel pit permitted through the Industrial and Energy Minerals Bureau (IEMB). Furthermore, the air emissions would have only minor effects on terrestrial and aquatic life because facility emissions would have good pollutant dispersion in the area of operations (see Section 7.F). Therefore, only minor and temporary effects to terrestrial and aquatic life and habitat would be expected from the proposed project.

B. Water Quality, Quantity and Distribution

Water would be required for dust suppression on the surrounding roadways and the area of operation. Typical application of water spray for dust suppression typically results in the water being evaporated to the atmosphere shortly after its application. Water's dust suppressing capacity is very temporary because of evaporation. Heavy applications of water can create soft mud or penetrate a road to the sub-base which can cause major road failure; therefore, heavy applications are typically not utilized. Consequently, several light applications are preferable to one heavy application. Pollutant deposition and water use would cause minor impacts to water resources because the facility is relatively small with seasonal and intermittent operations. The benefits of using water to control emissions outweigh the potential minor impacts to the surroundings.

C. Geology and Soil Quality, Stability and Moisture

The proposed project would have minor impacts on geology, soil quality, stability, and moisture of soils. Minor impacts from deposition of air pollutants on soils would result (as described in Section 7.F of this EA) and minor amounts of water would be used for pollution control and only as necessary in controlling particulate emissions. Thus, minimal water runoff would occur. Since a small amount of pollution would be generated and corresponding emissions would be widely dispersed before settling upon vegetation and surrounding soils (as described in Section 7.D of this EA), impacts would be minor. Therefore, any effects upon geology and soil quality, stability, and moisture from air pollutant emissions from equipment and operation would be minor.

D. Vegetation Cover, Quantity, and Quality

The facility would be considered a minor source of emissions by industrial standards and would typically operate in areas previously designated and used for this type of operation. The overall footprint of the facility would be small, so the affect to quantity and quality of vegetative cover in the area would be minimal. There are no known plant species of concern within the project area. In addition, water use at the facility, soil disturbance from water application, and the associated runoff would also be minimal. Overall, impacts to vegetation from the project would be minor.

E. Aesthetics

MAQP #4630-00 would include conditions to control emissions, including visible emissions, from the operation. The portable asphalt plant would be considered a minor industrial source.

For the proposed project, the facility would be initially located in an existing gravel pit that is on private land. The surrounding land is forest and grassland. Approximately 1.5 acres of new disturbance would be associated with this proposed action. The operation of the proposed equipment would be visible and audible. There are some residences in the area and an interstate located to the east. However, any disturbance to the aesthetic value of the area would be minor because of its location within an existing pre-disturbed industrial site.

F. Air Quality

Potential air quality impacts from the proposed project were determined to be minor because the facility would be relatively small and comparable in nature to other similar sources permitted by the Department. MAQP #4630-00 would include conditions limiting the facility's opacity and particulate matter emissions. The permit would also limit total emissions from the portable asphalt plant and any additional equipment operated at the site to 250 tons per year or less of any individual pollutant, excluding fugitive emissions.

Further, the Department determined that the portable asphalt plant would be a minor source of emissions as defined under the Title V Operating Permit Program because the source's PTE was below the major source threshold level of 100 TPY for any regulated pollutant due to federally enforceable permit conditions which limit the total annual hours of operation. Pollutant deposition from the proposed project would be minimal because the emissions would be well controlled, widely dispersed (from factors such as wind speed and wind direction), and would have minimal deposition on the surrounding area. Therefore, air quality impacts from the project in this area would be minor. The applicant has indicated that the source would operate on an intermittent and seasonal basis; therefore, actual emissions may be lower than accounted for in the PTE calculations.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In an effort to assess any potential impacts to any unique endangered, fragile, or limited environmental resources in the proposed initial area of operation (Section 27, Township 1 North, Range 27 East in Yellowstone County, Montana), the Department contacted the Montana Natural Heritage Program (MNHP). Search results concluded there are two known vertebrate animal species of concern in the area. The area, in this case, was defined by the section, township, and range of the proposed site, with an additional 1-mile buffer. The species of concern are the Greater Short-Horned Lizard and the Common Sagebrush Lizard.

The proposed facility location is on an existing industrial site that is already disturbed from previous gravel pit activities; therefore, there are no anticipated impacts to any unique endangered, fragile, or limited environmental resources.

H. Demands on Environmental Resource of Water, Air and Energy

The portable asphalt plant would provide its own energy for operation from the portable diesel engine/generators. Water would be required for control of fugitive particulate matter emissions in the plant area and surrounding roads. Impacts to air resources would be minimal because the source would be considered a minor industrial source of emissions, with intermittent and seasonal operations. Because air pollutants generated by the plant would be widely dispersed (see Section 8.F of this EA), energy requirements would be provided by portable generators, and water use would be minimal, any impacts to water, air, and energy resources would be minor.

I. Historical and Archaeological Sites

The Department contacted the Montana Historical Society - State Historical Preservation Office (SHPO) in an effort to identify any historical and archaeological sites that may be present in the proposed area of operation. Search results concluded that there have been no previously recorded historical or archaeological resources of concern within the area proposed for initial operation. According to correspondence from the SHPO, there would be a low likelihood of adverse disturbance to any known archaeological or historic site given previous industrial disturbance to the area. Therefore, minor impacts upon historical or archaeological sites would be expected as a result of operating the asphalt plant at the proposed location. However, if cultural materials are discovered during this project the Montana Historical Society should be contacted.

J. Cumulative and Secondary Impacts

Operation of the portable asphalt plant would cause minor cumulative and secondary impacts to the physical and biological aspects of the human environment because it would be located at an existing gravel pit and would be limited in the amount of air emissions generated. Emissions and noise generated from the equipment would, at most, result in only minor impacts to the area of operation because it would be seasonal and temporary in nature. Additionally, this facility, in combination with other emissions from equipment operations would not be permitted to exceed 250 tons per year of non-fugitive emissions of an individual pollutant. Overall, cumulative and secondary impacts to the physical and biological aspects of the human environment would be minor.

8. *The following table summarizes the potential economic and social effects of the proposed project on the human environment. The “no-action” alternative was discussed previously.*

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores				X		Yes
B	Cultural Uniqueness and Diversity				X		Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities			X			Yes
G	Quantity and Distribution of Employment			X			Yes
H	Distribution of Population			X			Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals			X			Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores

The portable asphalt plant would cause no disruption to the social structures and mores of the area because the source would be considered a minor industrial source of emissions and would have temporary and intermittent operations. The proposed initial location is within an existing industrial site.

B. Cultural Uniqueness and Diversity

The cultural uniqueness and diversity of this area would not be impacted by the operation of the portable asphalt plant because the facility would be a portable source, with seasonal and intermittent operations. The predominant use of this area would not change as a result of the proposed operation. Therefore, the cultural uniqueness and diversity of the area would not be impacted.

C. Local and State Tax Base and Tax Revenue

Only minor impacts to the local and state tax base and revenue could be expected from the employees and facility production. The portable asphalt plant may require additional employees during paving season. Because the facility would be portable and temporary, it is unlikely that people would move to the area as a result of this project. Impacts to local tax base and revenue would be minor and short-term because the source would be portable and the money generated for taxes would be widespread.

D. Agricultural or Industrial Production

The proposed project would have a minor impact on local industrial production since the facility would increase local asphalt production and air emissions slightly. The facility would be located in an existing gravel pit on private land. Because minimal deposition of air pollutants would occur on the surrounding land (as described above in Section 7.F), only minor effects on the surrounding vegetation or agricultural production would occur. In addition, the facility operations would be small and temporary in nature and would be permitted with operational conditions and limitations that would minimize impacts upon surrounding vegetation, as described in Section 7.D above. The surrounding area is forest and grassland. Pollutant deposition from the project would be minimal because the emissions would be expected to be well controlled, widely dispersed (from factors such as wind speed and wind direction), and would have minimal deposition on the surrounding area.

E. Human Health

Conditions would be incorporated into MAQP #4630-00 to ensure that the asphalt plant would operate in compliance with all applicable air quality rules and standards. These rules and standards are designed to be protective of human health. As described in Section 7.F of this EA, the air emissions from this project would be minimized by the use of a fabric filter pollution control device for the drum dryer and a jet vent baghouse for the mineral filler storage emissions, water spray for fugitive emissions, and other process limits that would be required by MAQP #4630-00. Furthermore, the applicant has stated that they plan to operate on an intermittent and seasonal basis and therefore only minor impacts would be expected on human health from the proposed facility.

F. Access to and Quality of Recreational and Wilderness Activities

Access to recreational opportunities would not be limited or modified by this facility. The equipment would be located within a preexisting industrial site that has been established for similar use. All recreational opportunities, if available in the area, would still be accessible. Noise from the facility would be minimal to surroundings because of the facility size, expected hours of operation, and rural location. The applicant has stated that the facility would operate on a seasonal and intermittent basis. The pit is on private land and the Department has determined that the project would be a minor industrial source of emissions. Therefore, any changes in the quality of recreational and wilderness activities created by operating the equipment at this site are expected to be minor.

G. Quantity and Distribution of Employment

The portable asphalt plant would be relatively small. Riverside Contracting has stated that they have four employees and during asphalt paving operations they intend to employ four employees. Because the operation would be seasonal, no individuals would be expected to permanently relocate as a result of operating the portable asphalt plant. Therefore, there would be minor affects on the quantity and distribution of employment in this area.

H. Distribution of Population

The proposed project would be considered a portable industrial facility and would require few employees to operate. No individuals would be expected to permanently relocate to this area. Therefore, the operation would not impact the normal population distribution in the initial area of operation or any future operating site.

I. Demands for Government Services

The operation of the portable asphalt plant would cause minimal demand for government services. This project would result in an increase in traffic on existing roadways. Government services would be required for acquiring the appropriate permits for the proposed project and to verify compliance with the permits that would be issued. However, any increase or demand for government services would be minor given the temporary and portable nature of the project.

J. Industrial and Commercial Activity

The proposed project would represent only a minor increase in the industrial activity in the proposed area of operation because the facility would be a small industrial source, portable and temporary in nature. Some additional industrial or commercial activity would be expected as a result of the proposed operation; however, these impacts to the industrial and commercial activity would be minor.

K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans and goals in the proposed initial project location. Riverside Contracting would be allowed by MAQP #4630-00 to operate the portable asphalt plant and associated equipment in areas designated by EPA as attainment or unclassified for ambient air quality. MAQP #4630-00 contains conditions and limits for protecting air quality and to keep facility emissions in compliance with any applicable ambient air quality standards. Because the facility would have intermittent and seasonal operations any impacts from the facility would be minor and short-lived.

L. Cumulative and Secondary Impacts

Overall, the proposed project would cause minor cumulative and secondary impacts to the social and economic aspects of the human environment in the immediate area of operation because the source would be portable and the footprint of the facility would remain relatively small. Furthermore, no other industrial operations are expected to result from this permitting action. Any increase in traffic would have minor effects on local traffic in the immediate area.

This facility may be operated in conjunction with other equipment owned and operated by Riverside Contracting, but any cumulative impacts or secondary impacts are expected to be minor and short-term. In conclusion, the source is relatively small, the facility emissions would be minimal, and the project would have only minor cumulative and secondary impacts.

Recommendation: No Environmental Impact Statement (EIS) is required.

The current permitting action is for the construction and operation of portable drum mix asphalt plant.

MAQP #4630-00 includes conditions and limitations to ensure the facility will operate in compliance with all applicable rules and regulations. In addition, there are no significant impacts associated with this proposal.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

Individuals or groups contributing to this EA: Department of Environmental Quality – Air Resources Management Bureau, Montana Historical Society – State Historic Preservation Office, Natural Resource Information System – Montana Natural Heritage Program

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Date: February 18, 2011