



Montana Department of  
**E**NVIRONMENTAL **Q**UALITY

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July 6, 2012

Mr. Keith Engebretson  
LHC Inc.  
P.O. Box 7338  
Kalispell, MT 59904

Dear Mr. Engebretson:

Montana Air Quality Permit #4741-00 is deemed final as of July 6, 2012 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,

Charles Homer  
Manager, Air Permitting, Compliance and Registration  
Air Resources Management Bureau  
(406) 444-5279

Deanne Fischer, P.E.  
Environmental Engineer  
Air Resources Management Bureau  
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CH:DF  
Enclosure

Montana Department of Environmental Quality  
Permitting and Compliance Division

Montana Air Quality Permit #4741-00

LHC Inc.  
P.O. Box 7338  
Kalispell, MT 59904

July 6, 2012



## MONTANA AIR QUALITY PERMIT

Issued To: LHC, Inc.  
P.O. Box 7338  
Kalispell, MT 59904

MAQP: #4741-00  
Application Complete: 04/30/2012  
Preliminary Determination Issued: 05/18/2012  
Department's Decision Issued: 06/19/2012  
Permit Final: 07/06/2012  
AFS #:777-4171

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to LHC, Inc. (LHC) 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 LHC facility includes a portable drum-mix asphalt plant and associated equipment with a 480 tons per hour (TPH) maximum production capacity, a 1,465 brake-horsepower (bhp) engine/generator and a 534 bhp engine/generator. A complete list of the permitted equipment is contained in Section I.A of the Permit Analysis.

#### B. Plant Location

LHC operates a portable drum mix asphalt plant, which will initially be located at Section 25 and 26, T29N, R22W, Flathead County, Montana. However, MAQP 4741-00 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 (PM<sub>10</sub>) nonattainment areas. *A Missoula County air quality permit will be required for locations within Missoula County, Montana.* An addendum will be required for locations in or within 10 km of certain PM<sub>10</sub> nonattainment areas.

Addendum #1 applies to the LHC facility while operating at any location in or within 10 km of certain PM<sub>10</sub> 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) from the asphalt drum mix dryer exhaust (ARM 17.8.340, ARM 17.8.752, and 40 Code of Federal Regulations (CFR) 60, Subpart I).
2. All visible emissions from any non-NSPS affected equipment shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).
3. LHC 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).

4. Water and spray bars shall be available on site at all times and operated as necessary to maintain compliance with the opacity limitations in Sections II.A.2 and II.A.3 (ARM 17.8.749).
5. LHC shall not cause or authorize the use of any street, road or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
6. LHC shall treat all unpaved portions of the haul roads, access roads, parking lots, or the general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.5 (ARM 17.8.749 and ARM 17.8.752).
7. LHC shall install, operate, and maintain a fabric-filter baghouse for particulate matter air pollution control from the asphalt drum mix dryer exhaust. A device to measure the pressure drop (magnehelic gauge, manometer, etc.) on the control devices (baghouse) 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 and ARM 17.8.752).
8. LHC shall use only propane as fuel for the asphalt heater, and diesel as fuel for the hot mix dryer (ARM 17.8.749).
9. Hours of operation of the asphalt plant (including the generator engines) shall be limited to 2,000 hours per rolling 12-month time period (ARM 17.8.749 and ARM 17.8.1204).
10. Total asphalt plant production shall be limited to 960,000 tons per year during any rolling 12-month time period (ARM 17.8.749 and ARM 17.8.1204).
11. Once a stack test is performed, the asphalt production rate shall be limited to the average production rate during the last source test demonstrating compliance (ARM 17.8.749).
12. LHC shall not operate or have on-site more than 2 diesel engines/generators. The total maximum combined capacity of the engines that drive the generators shall not exceed 1,999 bhp (ARM 17.8.749).
13. If the permitted equipment is used in conjunction with any other equipment owned or operated by LHC, at the same site, production shall be limited to correspond with an emission level that does not exceed 250 tons during any rolling 12-month period. Any calculations used to establish production levels shall be approved by the Department (ARM 17.8.749).
14. LHC 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).
15. LHC shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* and 40 CFR 63, Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, for any applicable diesel engine (ARM 17.8.340; 40 CFR 60, Subpart IIII; ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

B. Testing Requirements

1. Within 60 days after achieving maximum production, but no later than 180 days after initial start-up, an Environmental Protection Agency (EPA) Methods 1-5 source test shall be performed on the asphalt drum mix drier exhaust stack to demonstrate compliance with Section II.A.1. An EPA Method 9 opacity test shall be performed in conjunction with all particulate tests to demonstrate compliance with the conditions specified in Section II.A.2. 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 D).
2. Since asphalt production will be limited to the average production rate during the last compliance source test, it is suggested that the test be performed at the highest practical production rate (ARM 17.8.749).
3. LHC may retest at any time in order to test at a higher production rate (ARM 17.8.749).
4. Temperature and pressure drop across the pollution control device must be recorded daily and kept on site according to Section II.C.7 (ARM 17.8.749).
5. Temperature and pressure drop across the pollution control device must be recorded during the compliance source test and reported as part of the test results (ARM 17.8.749).
6. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
7. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. If this portable asphalt plant is moved to another location, an Intent to Transfer form must be sent to the Department and a Public Notice Form for Change of Location must be published in a newspaper of general circulation in the area to which the transfer is to be made, at least 15 days prior to the move. The proof of publication (affidavit) of the Public Notice Form for Change of Location must be submitted to the Department prior to the move. These forms are available from the Department (ARM 17.8.749 and ARM 17.8.765).
2. LHC 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. LHC shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745, that would include *the addition of a new emissions unit*, change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to startup or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).
4. LHC 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 LHC 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. LHC shall document, by month, the hours of operation of the facility including the diesel engines/generators. By the 25<sup>th</sup> day of each month, LHC shall total the hours of operation of the facility for the previous month. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section II.A.9 and II.A.12. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
6. LHC shall document, by month, the asphalt production from the facility. By the 25<sup>th</sup> day of each month, LHC shall calculate the asphalt production from the facility for the previous month. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section II.A.10. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).
7. LHC shall annually certify that its emissions are less than those that would require the source to obtain an air quality operating permit as required by ARM 17.8.1204(3)(b). The annual certification shall comply with the certification requirements of ARM 17.8.1207. The annual certification shall be submitted along with the annual emissions inventory information (ARM 17.8.749 and ARM 17.8.1204).

D. Notification

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

### SECTION III: Addendum

LHC shall comply with all conditions in Addendum #1 to MAQP #4741-00, as applicable (ARM 17.8.749).

### SECTION IV: General Conditions

- A. Inspection – LHC shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (continuous emissions monitoring system (CEMS) or continuous emissions rate monitoring system (CERMS)) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if LHC fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving LHC 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), Montana Code Annotated (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 LHC 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. LHC 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  
LHC, Inc.  
MAQP #4741-00

I. Introduction/Process Description

LHC, Inc. (LHC) owns and operates a portable drum mix asphalt plant with a maximum rated design capacity of 480 tons per hour (TPH).

A. Permitted Equipment

1. A portable drum mix asphalt plant and associated equipment with a maximum production capacity of 480 TPH utilizing a propane fuel burner in the asphalt dryer and a diesel fueled hot asphalt oil heater.
2. Two, diesel-fired engines/generators with a total combined maximum capacity of up to 1,999 brake horsepower. (bhp).

B. Source Description

LHC's home pit is located in Sections 25 and 26, Township 29N, Range 22W, Flathead County, Montana.

For a typical operational set-up, aggregate is loaded into the cold feed bins. The aggregate is conveyed into the single drum dryer/mixer to dry the aggregate and mix with the asphalt cement (AC) hot oil that is supplied by the ADM direct fire AC tank. The combined aggregate and oil mixture spills into the 75 foot drag chain and is deposited into the 65 ton surge bin. All the exhaust removed from the drum dryer/mixer is processed in the baghouse to remove any fines. The baghouse is pulsed with air to remove the fines which are then returned back into the drum dryer/mixer for recycling.

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 locations of complete copies of all applicable rules and regulations where appropriate.

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

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

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

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

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

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM<sub>10</sub>
11. ARM 17.8.230 Fluoride in Forage

LHC 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, LHC shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.

4. ARM 17.8.310 Particulate Matter, Industrial Processes. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.
6. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). LHC 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 LHC, the asphalt plant equipment to be used under MAQP #4741-00 is subject to this subpart.
  - c. 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE). Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are manufactured after April 1, 2006, and are not fire pump engines, and owners and operators of stationary CI ICE that modify or reconstruct their stationary CI ICE after July 11, 2005, are subject to this subpart. Based on the information submitted by LHC, the CI ICE equipment to be used under MAQP #4741-00 is not subject to this subpart because of the manufacturing date and size. Since this MAQP is written in a de minimis-friendly manner, this subpart may apply to other facility CI ICE in the future.
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. LHC is considered a NESHAP-affected facility under 40 CFR Part 63 and is subject to the requirements of the following subparts.
  - a. 40 CFR 63, Subpart A – General Provisions apply to all equipment or facilities subject to a NESHAPs Subpart as listed below.
  - b. 40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants (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 LHC, the RICE equipment to be used under MAQP #4741-00 may potentially be subject to this subpart because the facility is an area source of HAP emissions. However since the RICE is intended to be portable,

LHC does not have to comply with the applicable emission limitations and operating limitations of 40 CFR 63, Subpart ZZZZ. This subpart would become applicable if a RICE remains in a location for more than 12 months.

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

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. LHC 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. LHC has a PTE greater than 15 tons per year of particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>), oxides of nitrogen (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOC); therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements.  
(1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. LHC 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. LHC submitted an affidavit of publication of public notice in the following newspapers as proof of compliance with the public notice requirements:

- The March 31, 2012 issue of the *Daily Inter Lake*, a newspaper of general circulation in the Town of Kalispell, in Flathead County,
  - The April 20, 2012 issue of the *Billings Gazette*, a newspaper of general circulation in the Town of Billings, in Yellowstone County,
  - The April 24, 2012 issue of the *Great Falls Tribune*, a newspaper of general circulation in Cascade County, and,
  - The April 19, 2012 issue of the *Missoulian*, a newspaper of general circulation in the town of Missoula, in Missoula County.
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 LHC of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
  10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
  11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
  12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
  13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis

change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

14. ARM 17.8.765 Transfer of Permit. (1) This rule states that an MAQP may be transferred from one location to another if the Department receives a complete notice of intent to transfer location, the facility will operate in the new location for less than 1 year, the facility will comply with the FCAA and the Clean Air Act of Montana, and the facility complies with other applicable rules. (2) This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

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

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

This facility is not a major stationary source because it is not a listed source and the facility's PTE is less than 250 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 PM<sub>10</sub> in a serious PM<sub>10</sub> nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #4741-00 for LHC, the following conclusions were made:
  - a. The facility's PTE is less than 100 tons/year for any pollutant.
  - b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year of all HAPs.
  - c. This source is not located in a serious PM<sub>10</sub> nonattainment area.

- d. This facility is subject to current NSPS (40 CFR 60, Subpart I and 40 CFR 60, Subpart III may potentially apply to this facility).
- e. This facility is potentially subject to a current NESHAP (40 CFR 63, Subpart ZZZZ).
- f. This source is not a Title IV affected source.
- g. This source is not a solid waste combustion unit.
- h. This source is not an EPA designated Title V source.

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

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

### III. BACT Determination

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

#### A. Asphalt Drum Mixer

The Department reviewed relevant particulate matter (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 based 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)

LHC has proposed to use a fabric filter baghouse for the control of PM from the exhaust of the asphalt drum mixer. Because LHC proposes to use a control technology that is equivalent to the highest control efficiency, no further analysis is needed. The control option selected has control technology 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. Diesel Generators

Due to the limited amount of emissions produced by the diesel engines and the lack of readily available, cost effective add-on controls; add-on controls would be cost prohibitive. Therefore, the Department has determined that proper operation and maintenance with no add-on controls would constitute BACT for the diesel engine/generator.

#### C. Fugitive Emissions

LHC 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 Emission Source	tons/yr						
	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>
Cold Aggregate Storage Piles	1.55	0.73	0.11	--	--	--	--
Cold Aggregate Handling/Conveyors	0.13	0.04		--	--	--	--
Cold Aggregate Screen	1.73	1.06	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	1.73	--		--	0.006	--	--
480 TPH Drum Mix Asphalt Dryer (propane)	13.64	10.61	10.22	12.48	62.40	15.36	1.63
Asphalt Surge Bin (silo) Filling	0.28	0.28	0.28	--	0.57	5.50	--
Plant Load-Out	0.11	0.11	0.11	--	0.10	0.29	--
Haul Roads / Vehicle Traffic	1.45	0.41	0.04	--	--	--	--
1,465 hp Diesel Engine Generator	3.22	3.22	3.22	45.42	9.79	3.68	3.00
534 bhp Diesel Engine Generator	1.17	1.17	1.17	16.55	3.57	1.34	1.09
<b>Total Emissions</b>	<b>25.02</b>	<b>17.65</b>	<b>15.16</b>	<b>74.45</b>	<b>76.42</b>	<b>26.17</b>	<b>5.73</b>

Footnotes:

- Inventory reflects enforceable limits on hours of operation to keep allowable emissions below the Title V threshold AND 80 tpy.
- All PM values include filterable and condensable fractions. Filterable fractions are based on NSPS limit of 0.04 gr/dscf.
- Emission factors for piles based on the conditions assumed in the predictive equation without add'l water spray control ( AP42, 13.2.4.4)

**\*\* CO = carbon monoxide**

- HAPs = hazardous air pollutants
- hp = horsepower
- lb = pound
- N/A = not applicable
- ND = no data available
- NO<sub>x</sub> = oxides of nitrogen
- PM = particulate matter
- PM<sub>10</sub> = particulate matter with an aerodynamic diameter of 10 microns or less
- PM<sub>2.5</sub> = particulate matter with an aerodynamic diameter of 2.5 microns or less
- SO<sub>x</sub> = oxides of sulfur
- TPH = tons per hour
- TPY = tons per year
- VOC = volatile organic compounds
- yr = year

#### **Cold Aggregate Storage Piles**

Maximum Process Rate = 480 ton/hr (Maximum plant process rate)	480	ton/hr
Maximum Hours of Operation = 2,000 hrs/yr	2,000	hrs/yr
Number of Piles = 1 pile	1	pile

#### **PM Emissions:**

**Predictive equation for emission factor for storage piles per AP 42, Sec. 13.2.4.3, 11/06. (conservative application to bins)**

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

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

$U =$  mean wind speed (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)= 8.15 mph

$M =$  material moisture content (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)= 2.525 %

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

Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.00322 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 \text{ pile}) =$  1.55 ton/yr

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

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

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

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

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

$U =$  mean wind speed (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06) 8.15 mph

$M =$  material moisture content (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)= 2.525 %

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

Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.00153 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 \text{ pile}) =$  0.73 ton/yr

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

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

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

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

0.00023 lb/ton

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

0.053

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

8.15 mph

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

2.5 %

Control Efficiency = 0% (Water or chemical spray)

0 %

Calculation: (480 ton/hr) \* (2000 hrs/yr) \* (0.00023 lb/ton) \* (ton/2000 lb) \* (1 pile) =

**0.11** ton/yr**Conveyor Transfer Point (SCC 3-05-02006)**

Maximum Process Rate = 480 ton/hr (Maximum plant process rate)

480 ton/hr

Maximum Hours of Operation = 2,000 hrs/yr

2,000 hrs/yr

Number of Transfers = 2 transfers (Assumed)

2 transfers

**Total PM Emissions:**

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

0.00014 lb/ton

Calculation: (480 ton/hr) \* (2000 hrs/yr) \* (2 transfers) \* (ton/2000 lb) \* (0.00014 lb/ton) =

**0.13** ton/yr

Note: Based on controlled emissions factors

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

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

0.000046 lb/ton

Calculation: (480 ton/hr) \* (2000 hrs/yr) \* (0.5376 lbs/day) \* (ton/2000 lb) \* (0.00014 lb/ton) =

**0.04** ton/yr

Note: Based on controlled emissions factors

**Cold Aggregate Screen**

Maximum Process Rate =

480 ton/hr

Maximum Hours of Operation =

2,000 hrs/year

Number of Screens =

1 screens

**Total PM Emissions:**

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

0.0036 lb/ton

Calculation: (480 ton/hr) \* (2000 hrs/year) \* (1 screens) \* (ton/2000 lb) \* (0.0036 lb/ton) =

**1.7** ton/yr

Note: Based on controlled emissions factors

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

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

0.0022 lb/ton

Calculation: (480 ton/hr) \* (2000 hrs/year) \* (1 screens) \* (ton/2000 lb) \* (0.0022 lb/ton) =

**1.06** ton/yr**Hot Oil Heater**

Production Rate =

5.00 gal/hr

Maximum Hours of Operation =

2,000 hrs/yr

**CO Emissions:**

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

0.0012 lb/gal

Calculation: (2000 hrs/yr) \* (5.00 gal/hr) \* (0.0012 lb/gal) \* (ton/2000 lb) =

**0.006** ton/yr**Dryer, fabric filter (SCC 3-05-002-05, -55 to -63)****Propane fuel**

Maximum Process Rate (Application information):

480 ton/hr

Maximum Hours of Operation (Annual):

2,000 hrs/yr

Dry Standard Volumetric Flowrate:

12,636 dscfm

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

Emission Factor (permit limit)

0.04 gr/dscf

Calculation:  $(0.04 \text{ gr/dscf}) * (12,636 \text{ dscfm}) * (1 \text{ lb} / 7000 \text{ gr}) * (60 \text{ min/hr}) =$  **4.33** lb/hr  
 Calculation:  $(4.33 \text{ lb/hr}) * (2000 \text{ hrs/yr}) * (0.0005 \text{ ton/lb}) =$  **4.33** ton/yr

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

*Based on Emission Limit*

Emission Factor (AP-42 Table 11.1-4, PM10 is 30% of filterable PM) 0.012 gr/dscf  
 Calculation:  $(0.012 \text{ gr/dscf}) * (12,636 \text{ dscfm}) * (1 \text{ lb} / 7000 \text{ gr}) * (60 \text{ min/hr}) =$  **1.30** lb/hr  
 Calculation:  $(1.30 \text{ lb/hr}) * (2000 \text{ hrs/yr}) * (0.0005 \text{ ton/lb}) =$  **1.30** ton/yr

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

*Based on Emission Limit*

Emission Factor (AP-42 Table 11.1-4, PM10 is 21% of filterable PM) 0.0084 gr/dscf  
 Calculation:  $(0.0084 \text{ gr/dscf}) * (12,636 \text{ dscfm}) * (1 \text{ lb} / 7000 \text{ gr}) * (60 \text{ min/hr}) =$  **0.91** lb/hr  
 Calculation:  $(0.91 \text{ lb/hr}) * (2000 \text{ hrs/yr}) * (0.0005 \text{ ton/lb}) =$  **0.91** ton/yr

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

*Based on AP-42 Drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. The data indicate that fuel type does not significantly effect PM emissions*

Emission Factor (fabric filter, AP 42, Table 11.1-3, 3/04, inorganic+organic) 0.0194 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.0194 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$  **9.31** ton/yr  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.0194 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) =$  **9.31** ton/yr

**CO Emissions:**

Emission Factor ( AP 42, Table 11.1-7, 03/04, propane (as natural gas)) 0.13 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.13 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$  **62.40** ton/yr  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.13 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) =$  **62.40** ton/yr

**NOx Emissions:**

Emission Factor (propane (as natural gas), AP 42, Table 11.1-7, 3/04) 0.026 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.026 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$  **12.48** ton/yr  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.026 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) =$  **12.48** ton/yr

**SO2 Emissions:**

Emission Factor (AP 42, Table 11.1-8, 3/04 propane (as natural gas)) 0.0034 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.0034 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$  **1.63** ton/yr  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.0034 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) =$  **1.63** ton/yr

**VOC Emissions:**

Emission Factor (AP 42, Table 11.1-8, 3/04 propane (as natural gas)) 0.032 lb/ton  
 Control Efficiency = 0% 0 %  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.032 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$  **15.36** ton/yr  
 Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.032 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1 - 0/100) =$  **15.36** ton/yr

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

Maximum Process Rate (Maximum plant process rate)= 480 ton/hr  
 Maximum Hours of Operation (Annual)= 2,000 hr/year

**Total PM Emissions:**

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

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

Emission Factor =  $0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$  = 0.00059 lb/ton

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

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

Calculation:  $(480 \text{ ton/hr}) * (2000 \text{ hr/year}) * (0.00059 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$  **0.28** TYP

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

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

Emission Factor = $0.0504(-V)e^{(0.0251)(T + 460) - 20.43} * (94\%) =$	0.01146	lb/ton
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	F
Calculation: $(480 \text{ ton/hr}) * (2000 \text{ hr/year}) * (0.01146 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$	<b>5.50</b>	TPY

**CO Emissions:**

Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = $0.00488(-V)e^{(0.0251)(T + 460) - 20.43} = 0.00118 \text{ lb/ton}$	0.00118	lb/ton
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	F
Calculation: $(480 \text{ ton/hr}) * (2000 \text{ hr/year}) * (0.00118 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$	<b>0.57</b>	TPY

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

Maximum Process Rate (Maximum plant process rate)=	480	ton/hr
Maximum Hours of Operation =	2,000	hrs/yr

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

Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = $0.000181 + 0.00141(-V)e^{(0.0251)(T + 460) - 20.43} = 0.00023 \text{ lb/ton}$	0.00023	lb/ton
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 250 F (Max. from application, process flow narrative)	250	F
Calculation: $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.00023 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$	<b>0.112</b>	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.		
Emission Factor = $0.0172(-V)e^{(0.0251)(T + 460) - 20.43} * 94\% = 0.00060 \text{ lb/ton}$	0.00060	lb/ton
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 250 F (Max. from application, process flow narrative)	250	F
Calculation: $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.00060 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) =$	<b>0.29</b>	ton/yr

**CO Emissions:**

Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = $0.00558(-V)e^{(0.0251)(T + 460) - 20.43} = -0.50000$	0.00021	
Where: V = Asphalt volatility = 250 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 0 % (Default value per AP 42, Table 11.1-14, 3/04)	250	F
Calculation: $(480 \text{ ton/hr}) * (2000 \text{ hrs/yr}) * (0.00021) * (\text{ton}/2000 \text{ lb}) =$	0.10	ton/yr

**Haul Roads**

Vehicle Miles Traveled (VMT) per Day (Estimate)	5	VMT/day
VMT per hour = $(5 \text{ VMT/day}) * (\text{day}/24 \text{ hrs}) =$	0.21	VMT/hr
Hours of Operation =	2,000	hrs/yr

**PM Emissions:**

Predictive equation for emission factor for unpaved roads at industrial sites provided per AP 42, Ch. 13.2.2, 11/06.		
Emission Factor = $k * (s / 12)^a * (W / 3)^b = 13.90 \text{ lb/VMT}$	13.90	lb/VMT
Where: k = constant = 4.9 lbs/VMT (Value for PM30/TSP)	4.9	lbs/VMT
s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area)	8.3	%
W = mean vehicle weight = 54 tons (1994 average loaded/unloaded or a 40 ton truck)	54	tons
a = constant = 0.7 (Value for PM30/TSP)	0.7	
b = constant = 0.45 (Value for PM30/TSP)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant)	50	%
Calculation: $(2000 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (13.90 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) =$	<b>2.90</b>	tons/yr
Calculation: $(2000 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (13.90 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) * (1-50/100) =$	<b>1.45</b>	tons/yr

**PM10 Emissions:**

Emission Factor = $k * (s / 12)^a * (W / 3)^b = 3.95 \text{ lb/VMT}$	3.95	lb/VMT
Where: k = constant = 1.5 lbs/VMT (Value for PM10)	1.5	lbs/VMT
s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area)	8.3	%
W = mean vehicle weight = 54 tons (1994 average loaded/unloaded or a 40 ton truck)	54	tons
a = constant = 0.9 (Value for PM10)	0.9	
b = constant = 0.45 (Value for PM10)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant)	50	%
Calculation: $(2000 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (3.95 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) =$	<b>0.82</b>	tons/yr
Calculation: $(2000 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (3.95 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) * (1-50/100) =$	<b>0.41</b>	tons/yr

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

Emission Factor = $k * (s / 12)^a * (W / 3)^b = 0.40 \text{ lb/VMT}$	0.40	lb/VMT
Where: k = constant = 0.15 lbs/VMT (Value for PM2.5)	0.15	lbs/VMT
s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area)	8.3	%
W = mean vehicle weight = 54 tons (1994 average loaded/unloaded or a 40 ton truck)	54	tons
a = constant = 0.9 (Value for PM2.5)	0.9	
b = constant = 0.45 (Value for PM2.5)	0.45	
Control Efficiency = 50% (Water spray or chemical dust suppressant)	50	%
Calculation: $(2000 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (0.40 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) =$	<b>0.08</b>	tons/yr
Calculation: $(2000 \text{ hrs/yr}) * (0.21 \text{ VMT/hr}) * (0.40 \text{ lb/VMT}) * (\text{ton}/2000 \text{ lb}) * (1-50/100) =$	<b>0.04</b>	tons/yr

**Diesel Engine Generator (1465 bhp)**

Operational Capacity of Generator	910	kw
Operational Capacity of Engine = 1,465 hp	1,465	hp
Hours of Operation = 2,000 hours	2,000	hours

**Total PM/PM10/PM2.5 Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	2.20E-03	lbs/hp-hr
Calculation: $(2,000 \text{ hours}) * (1,465 \text{ hp}) * (0.0022 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) =$	<b>3.22</b>	ton/yr

**NOx Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	3.10E-02	lbs/hp-hr
Calculation: $(2,000 \text{ hours}) * (1,465 \text{ hp}) * (0.031 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) =$	<b>45.42</b>	ton/yr

**CO Emissions:**

Emission Factor (AP-42, Sec. 3.3, Table 3.3-1, 10/96)=	6.68E-03	lbs/hp-hr
Calculation: $(2,000 \text{ hours}) * (1,465 \text{ hp}) * (0.00668 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) =$	<b>9.79</b>	ton/yr

**VOC Emissions:**

Emission Factor (AP-42, Table 3.3-1, TOC, Exhaust + Crankcase, 10/96)=	2.51E-03	lbs/hp-hr
Calculation: $(2,000 \text{ hours}) * (1,465 \text{ hp}) * (0.0025141 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) =$	<b>3.68</b>	ton/yr

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

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.05E-03	lbs/hp-hr
Calculation: $(2,000 \text{ hours}) * (1,465 \text{ hp}) * (0.00205 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) =$	<b>3.00</b>	ton/yr

**Diesel Engine Generator (534 bhp)**

Operational Capacity of Engine =	350	kw
Hours of Operation =	534	hp
	2,000	hours

**Total PM/PM10/PM2.5 Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	2.20E-03	lbs/hp-hr
Calculation: $(2,000 \text{ hours}) * (534 \text{ hp}) * (0.0022 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) =$	<b>1.17</b>	ton/yr

**NOx Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	3.10E-02	lbs/hp-hr
Calculation: $(2,000 \text{ hours}) * (534 \text{ hp}) * (0.031 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) =$	<b>16.55</b>	ton/yr

**CO Emissions:**

Emission Factor (AP-42, Sec. 3.3, Table 3.3-1, 10/96)= 6.68E-03 lbs/hp-hr  
Calculation: (2,000 hours) \* (534 hp) \* (0.00668 lbs/hp-hr) \* (ton/2000 lb) = **3.57** ton/yr

**VOC Emissions:**

Emission Factor (AP-42, Table 3.3-1, TOC, Exhaust + Crankcase, 10/96)= 2.51E-03 lbs/hp-hr  
Calculation: (2,000 hours) \* (534 hp) \* (0.0025141 lbs/hp-hr) \* (ton/2000 lb) = **1.34** ton/yr

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

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96) 2.05E-03 lbs/hp-hr  
Calculation: (2,000 hours) \* (534 hp) \* (0.00205 lbs/hp-hr) \* (ton/2000 lb) = **1.09** ton/yr

V. Air Quality Impacts

MAQP #4741-00 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. Furthermore, this facility is a portable source that would operate on an intermittent and temporary basis, so any effects to air quality will be minor and of limited duration.

VI. Ambient Air Impact Analysis

Based on the information provided and the conditions established in MAQP #4741-00, 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.

VII. Taking or Damaging Implication Analysis

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

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

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

VIII. Environmental Assessment

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

Addendum 1  
Facility  
Montana Air Quality Permit (MAQP) #4741-00

An addendum to MAQP #4741-00 is hereby granted to LHC, Inc. (LHC) 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:

LHC owns and operates a portable drum-mix asphalt plant and associated equipment with a maximum production capacity of 480-tons per hour (TPH). The equipment used at the facility includes:

- Diesel fueled asphalt oil heater
- Propane fueled drum asphalt dryer
- 1,465 brake horsepower (bhp) engine/generator
- 534 bhp engine/generator
- Associated equipment

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

Addendum 1 applies to the LHC facility while operating at any location in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) nonattainment areas. 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 PM<sub>10</sub> nonattainment area where LHC 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) – LHC may operate at any location in or within 10 km of the Butte, Columbia Falls, Kalispell, Libby, Thompson Falls, and Whitefish PM<sub>10</sub> nonattainment areas.
- C. LHC shall comply with the limitations and conditions contained in Addendum 1 to MAQP #4741-00 while operating in or within 10 km of any of the previously identified PM<sub>10</sub> 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 – Summer Season Conditions (April 1 - September 30)

1. Asphalt plant particulate matter emissions shall be limited to 0.04 grains per dry standard cubic foot (gr/dscf) from the asphalt drum mix drier exhaust (ARM 17.8.340, ARM 17.8.752, and 40 Code of Federal Regulations (CFR) 60, Subpart I).
2. LHC shall not cause or authorize to be discharged into the atmosphere from any equipment, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).

3. LHC 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).
4. LHC 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.4 (ARM 17.8.749 and ARM 17.8.752).
5. LHC shall install, operate, and maintain a fabric-filter baghouse for particulate matter air pollution control from the asphalt drum mix drier exhaust. A device to measure the pressure drop (magnehelic gauge, manometer, etc.) on the control devices (baghouse) 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 and ARM 17.8.752).
6. LHC shall use only propane as fuel for the asphalt heater and diesel as fuel for the hot mix dryer (ARM 17.8.749).
7. LHC shall not operate or have on-site more than 2 diesel engines/generators. The maximum total combined rated capacity of the engines that drive the generators shall not exceed 1,999 bhp (ARM 17.8.749).

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

1. Asphalt plant particulate matter emissions shall be limited to 0.04 grains per dry standard cubic feet (gr/dscf) from the asphalt drum mix drier exhaust (ARM 17.8.340, ARM 17.8.752, and 40 CFR) 60, Subpart I).
2. LHC shall not cause or authorize to be discharged into the atmosphere from any equipment, any visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
3. LHC 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).
4. LHC 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.4 (ARM 17.8.749).
5. LHC shall install, operate, and maintain a fabric-filter baghouse for particulate matter air pollution control from the asphalt drum mix drier exhaust. A device to measure the pressure drop (magnehelic gauge, manometer, etc.) on the control devices (baghouse) 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 and ARM 17.8.752).
6. LHC shall use only propane as fuel for the asphalt heater and diesel as fuel for the hot mix dryer (ARM 17.8.749).
7. LHC shall not operate or have on-site more than 2 diesel engines/generators. The total maximum combined rated capacity of the engines that drive the generators shall not exceed 1,999 bhp and operation of the engines/generators shall not exceed 4 hours per day (ARM 17.8.749).

8. During the Winter Season, asphalt plant production shall not exceed 4 hours per day (ARM 17.8.749).
9. During the Winter Season, asphalt plant production shall not exceed 1,920 tons per day (ARM 17.8.749).

#### C. 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 five years and submitted to the Department upon request. The information must include (ARM 17.8.749):
  - a. Daily tons of asphalt produced. LHC shall document, by day, the total asphalt production. LHC shall sum the total asphalt production for the previous day to demonstrate compliance with the limitations in Section III.B.9;
  - b. Daily hours of operation at each site;
  - c. Daily hours of operation and the bhp for each engine at each site;
  - d. Type and amount of fuel used for the:
    - i. Asphalt plant (hot mix dryer),
    - ii. Hot oil heater, and,
    - iii. Diesel engine/generator.
  - e. Fugitive dust information consisting of the daily total miles driven on unpaved roads within the operating site for all plant vehicles.

Addendum 1 Analysis  
LHC, Inc.  
Montana Air Quality Permit (MAQP) #4741-00

I. Permitted Equipment

LHC owns and operates a portable drum-mix asphalt plant and associated equipment with a maximum production capacity of 480 tons per hour (TPH). The equipment used at the facility includes:

- Diesel fueled asphalt oil heater
- Propane fueled drum asphalt dryer
- 1,465 brake horsepower (bhp) engine/generator
- 534 bhp engine/generator
- Associated equipment

II. Source Description

For a typical operational set-up, aggregate is loaded into the cold feed bins. The aggregate is conveyed into the single drum dryer/mixer to dry the aggregate and mix with the asphalt cement (AC) hot oil that is supplied by the ADM direct fire AC tank. The combined aggregate and oil mixture spills into the 75 foot drag chain and is deposited into the 65 ton surge bin. All the exhaust removed from the drum dryer/mixer is processed in the baghouse to remove any fines. The baghouse is pulsed with air to remove the fines which are then returned back into the drum dryer/mixer for recycling.

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

<b>SUMMER</b>	<b>lbs/day</b>						
<b>Emission Source</b>	<b>PM</b>	<b>PM10</b>	<b>PM2.5</b>	<b>NOx</b>	<b>CO</b>	<b>VOC</b>	<b>SO<sub>2</sub></b>
Cold Aggregate Storage Piles	37.15	17.57	2.66	--	--	--	--
Cold Aggregate Handling/Conveyors	3.23	1.06	0.00	--	--	--	--
Cold Aggregate Screen	41.47	25.34	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	--	--	--	--	0.1440	--	--
480 TPH Drum Mix Asphalt Dryer	327.47	254.68	59.08	299.52	1497.60	368.64	39.17
Asphalt Surge Bin (silo) Filling	6.75	6.75	6.75	--	13.59	131.97	--
Plant Load-Out	0.45	0.45	0.45	--	2.37	1.14	--
Haul Roads / Vehicle Traffic	69.50	19.76	1.98	--	--	--	--
1,465 bhp Diesel Engine Generator	77.35	77.35	77.35	1089.96	234.87	88.40	72.08
534 bhp Diesel Engine Generator	28.20	28.20	28.20	397.30	85.61	32.22	26.27
<b>Total Emissions</b>	<b>563.36</b>	<b>402.97</b>	<b>148.27</b>	<b>1389.48</b>	<b>1748.57</b>	<b>590.15</b>	<b>111.25</b>

a. The asphalt plant and engine generators may operate 24 hr/day but not more than 2,000 hrs/yr in accordance with the conditions and limitations in MAQP#4741-00. PM<sub>10</sub> emissions do not exceed 547 lb/day.

<b>WINTER</b>	<b>lbs/day</b>						
<b>Emission Source</b>	<b>PM</b>	<b>PM10</b>	<b>PM2.5</b>	<b>NOx</b>	<b>CO</b>	<b>VOC</b>	<b>SO<sub>2</sub></b>
Cold Aggregate Storage Piles	6.19	2.93	0.44	--	--	--	--
Cold Aggregate Handling/Conveyors	0.54	0.18	0.00	--	--	--	--
Cold Aggregate Screen (controlled)	6.91	4.22	--	--	--	--	--
Diesel-Fired Asphalt Oil Heater	--	--	--	--	0.024	--	--
480 TPH Drum Mix Asphalt Dryer	54.58	42.45	40.89	49.92	249.60	61.44	6.53
Asphalt Surge Bin (silo) Filling	1.12	1.12	1.12	--	2.27	21.99	--
Plant Load-Out	0.00	0.00	0.00	--	0.39	0.00	--
Haul Roads / Vehicle Traffic	11.58	3.29	0.33	--	--	--	--
1,465 hp Diesel Engine Generator	12.89	12.89	12.89	181.66	39.14	14.73	12.01
534 bhp Diesel Engine Generator	4.70	4.70	4.70	66.22	14.27	5.37	1.09
<b>Total Emissions</b>	<b>98.52</b>	<b>71.79</b>	<b>60.38</b>	<b>297.80</b>	<b>305.70</b>	<b>103.54</b>	<b>19.64</b>

a. Hours of operation restricted to 4 hrs/day to keep PM10 emissions below 82 lbs/day

#### **Cold Aggregate Storage Piles**

**Predictive equation for emission factor for storage piles per AP 42, Sec. 13.2.4.3, 11/06. (conservative application to bins)**

Maximum Process Rate (Maximum plant process rate)=	480	ton/hr
Number of Piles =	1	pile
Maximum Hours of Operation (summer hours)=	24	hrs/day
Maximum Hours of Operation (winter hours)=	4.0	hrs/day

#### **PM Emissions:**

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

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

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

U = mean wind speed (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)=	8.15	mph
M = material moisture content (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)=	2.525	%
Calculation: (480 ton/hr) * (24 hrs/day) * (0.00322 lb/ton) * (1 pile) =	<b>37.15</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.00322 lb/ton) * (1 pile) =	<b>6.19</b>	lb/day

**PM10 Emissions:**

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

Emission Factor = $k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} =$	0.00153	lb/ton
Where: k = particle size multiplier (Value for PM < 10 microns per AP 42, Sec. 13.2.4.3, 11/06)=	0.35	
U = mean wind speed (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)=	8.15	mph
M = material moisture content (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)=	2.525	%
Calculation: (480 ton/hr) * (24 hrs/day) * (0.00153 lb/ton) * (1 pile) = 17.57 lb/day (Summer hours)	<b>17.57</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.00153 lb/ton) * (1 pile) = 2.93 lb/day (Winter hours)	<b>2.93</b>	lb/day

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

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

Emission Factor = $k (0.0032) * (U/5)^{1.3} * (M / 2)^{-1.4} =$	0.00023	lb/ton
Where: k = particle size multiplier (Value for PM < 2.5 microns per AP 42, Sec. 13.2.4.3, 11/06)=	0.053	
U = mean wind speed (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)=	8.15	mph
M = material moisture content (Estimate avg based on values provided in AP 42, Sec. 13.2.4.3, 11/06)=	2.5	%
Calculation: (480 ton/hr) * (24 hrs/day) * (0.00023 lb/ton) * (1 pile) = 2.66 lb/day (Summer hours)	<b>2.66</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.00023 lb/ton) * (1 pile) = 0.44 lb/day (Winter hours)	<b>0.44</b>	lb/day

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

Note: Based on controlled emissions factors

Maximum Process Rate = 480 ton/hr (Maximum plant process rate)	480	ton/hr
Maximum Hours of Operation = 24 hrs/day (summer hours)	24	hrs/day
Maximum Hours of Operation = 4 hrs/day (winter hours)	4.0	hrs/day
Number of Transfers = 2 transfers (Assumed)	2	transfers

**Total PM Emissions:**

Emission Factor = 0.00014 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.00014	lb/ton
Calculation: (480 ton/hr) * (24 hrs/day) * (2 transfers) * (0.00014 lb/ton) =	<b>3.23</b>	lbs/day
Calculation: (480 ton/hr) * (4 hrs/day) * (2 transfers) * (0.00014 lb/ton) =	<b>0.54</b>	lbs/day

**Total PM10 Emissions:**

Emission Factor = 0.000046 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.000046	lb/ton
Calculation: (480 ton/hr) * (24 hrs/day) * (2 transfers) * (0.000046 lb/ton) =	<b>1.06</b>	lbs/day
Calculation: (480 ton/hr) * (4 hrs/day) * (2 transfers) * (0.000046 lb/ton) =	<b>0.18</b>	lbs/day

**Cold Aggregate Screen**

Note: Based on controlled emissions factors

Maximum Process Rate =	480	ton/hr
Maximum Hours of Operation =	24	hrs/day
Maximum Hours of Operation =	4.0	hrs/day
Number of Screens =	1	screens

**Total PM Emissions:**

Emission Factor = 0.0036 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.0036	lb/ton
Summer Calculation: (480 ton/hr) * (24 hrs/day) * (1 screens) * (0.0036 lb/ton) =	<b>41.47</b>	lbs/day
Winter Calculation: (480 ton/hr) * (4 hrs/day) * (1 screens) A20 * (0.0036 lb/ton) =	<b>6.91</b>	lbs/day

**Total PM10 Emissions:**

Emission Factor = 0.0022 lb/ton (controlled, AP 42, Table 11.19.2-2, 8/04)	0.0022	lb/ton
Summer Calculation: (480 ton/hr) * (24 hrs/day) * (1 screens) * (0.0022 lb/ton) =	<b>25.34</b>	lbs/day
Winter Calculation: (480 ton/hr) * (4 hrs/day) * (1 screens) * (0.0036 lb/ton) =	<b>4.22</b>	lbs/day

**Hot Oil Heater**

Production Rate = 5.00 gal/hr	5.00 gal/hr
Maximum Hours of Operation (summer) =	24 hrs/day
Maximum Hours of Operation (winter) =	4.0 hrs/day

**CO Emissions:**

Emission Factor = 0.0012 lb/gal (AP-42, Section 11.1, Table 11.1-13, No.2 fuel oil, 3/04)	0.0012 lb/gal
Calculation (summer): (24 hrs/day) * (5 gal/hr) * (0.0012 lb/gal) =	<b>0.1440</b> lbs/day
Calculation (winter): (4 hrs/day) * (5 gal/hr) * (0.0012 lb/gal) =	<b>0.0240</b> lbs/day

**Drver, fabric filter (SCC 3-05-002-05, -55 to -63)****Propane fuel**

Maximum Process Rate (Application information)=	480 ton/hr
Maximum Hours of Operation (summer hours)=	24 hrs/day
Maximum Hours of Operation (winter hours)=	4.0 hrs/day
Dry Standard Volumetric Flowrate:	12,636 dscfm

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

Emission Factor (permit limit)=	0.04 gr/dscf
Calculation: (0.04 gr/dscf) * (12,636 dscfm) * (1 lb / 7000 gr) * (60 min/hr) =	<b>4.33</b> lb/hr
Calculation: (4.33 lb/hr) * (24 hrs/day) (Summer hours)=	<b>103.98</b> lbs/day
Calculation: (4.33 lb/hr) * (4 hrs/day) (Winter hours)=	<b>17.33</b> lbs/day

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

Emission Factor = 0.012 gr/dscf (AP-42 Table 11.1-4, PM10 is 30% of filtereable PM)	0.012 gr/dscf
Calculation: (0.012 gr/dscf) * (12,636 dscfm) * (1 lb / 7000 gr) * (60 min/hr) =	<b>1.30</b> lb/hr
Calculation: (1.30 lb/hr) * (24 hrs/day) (Summer hours)=	<b>31.19</b> lbs/day
Calculation: (1.30 lb/hr) * (4 hrs/day) (Winter hours)=	<b>5.20</b> lbs/day

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

Emission Factor = 0.0084 gr/dscf (AP-42 Table 11.1-4, PM10 is 21% of filtereable PM)	0.0084 gr/dscf
Calculation: (0.0084 gr/dscf) * (12,636 dscfm) * (1 lb / 7000 gr) * (60 min/hr) =	<b>0.91</b> lb/hr
Calculation: (0.91 lb/hr) * (24 hrs/day) (Summer hours)=	<b>21.84</b> lbs/day
Calculation: (0.91 lb/hr) * (4 hrs/day) (Winter hours)=	<b>3.64</b> lbs/day

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

*Based on AP-42 Drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. The data indicate that fuel type does not significantly effect PM emissions*

Emission Factor (fabric filter, AP 42, Table 11.1-3, 3/04, inorganic+organic)=	0.0194 lb/ton
Calculation: (480 ton/hr) * (24 hrs/day) * (0.0194 lb/ton) (Summer hours)=	<b>223.49</b> lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.0194 lb/ton) (Winter hours)=	<b>37.25</b> lb/day

**CO Emissions:**

Emission Factor ( AP 42, Table 11.1-7, 03/04, propane (as natural gas))=	0.13 lb/ton
Calculation: (480 ton/hr) * (24 hrs/day) * (0.13 lb/ton) (Summer hours)=	<b>1497.60</b> lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.13 lb/ton) (Winter hours)=	<b>249.60</b> lb/day

**NOx Emissions:**

Emission Factor (propane (as natural gas), AP 42, Table 11.1-7, 3/04)=	0.026 lb/ton
Calculation: (480 ton/hr) * (24 hrs/day) * (0.026 lb/ton) (Summer hours)=	<b>299.52</b> lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.026 lb/ton) (Winter hours)=	<b>49.92</b> lb/day

**SO2 Emissions:**

Emission Factor (AP 42, Table 11.1-8, 3/04 propane (as natural gas))=	0.0034 lb/ton
Calculation: (480 ton/hr) * (24 hrs/day) * (0.0034 lb/ton) (Summer hours)=	<b>39.17</b> lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.0034 lb/ton) (Winter hours)=	<b>6.53</b> lb/day

**VOC Emissions:**

Emission Factor = (AP 42, Table 11.1-8, 3/04 propane (as natural gas))=	0.032	lb/ton
Calculation: (480 ton/hr) * (24 hrs/day) * (0.032 lb/ton) (Summer hours)=	<b>368.64</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.032 lb/ton) (Winter hours)=	<b>61.44</b>	lb/day

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

Maximum Process Rate = 480 ton/hr (Maximum plant process rate)	480	ton/hr
Maximum Hours of Operation (summer hours)=	24	hrs/day
Maximum Hours of Operation (winter hours)=	4.0	hrs/day

**Total PM Emissions:**

Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = $0.000332 + 0.00105(-V)e^{((0.0251)(T + 460) - 20.43)}$ =	0.00059	lb/ton
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	F
Calculation: (480 ton/hr) * (24 hrs/day) * (0.00059 lb/ton) * =	<b>6.75</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.00059 lb/ton) * =	<b>1.12</b>	lb/day

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

Predictive equation for TOC emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = $0.0504(-V)e^{((0.0251)(T + 460) - 20.43)}$ * (94%) = 0.01146 lb/ton	0.01146	lb/ton
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	F
Calculation: (480 ton/hr) * (24 hrs/day) * (0.01146 lb/ton) =	<b>131.97</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.01146 lb/ton) * =	<b>21.99</b>	lb/day

**CO Emissions:**

Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = $0.00488(-V)e^{((0.0251)(T + 460) - 20.43)}$ = 0.00118 lb/ton	0.00118	lb/ton
Where: V = Asphalt volatility = -0.5 (Default value per AP 42, Table 11.1-14, 3/04)	-0.5	
T = HMA mix temperature = 325 F (Default value per AP 42, Table 11.1-14, 3/04)	325	F
Calculation: (480 ton/hr) * (24 hrs/day) * (0.00118 lb/ton) =	<b>13.59</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.00118 lb/ton) * =	<b>2.27</b>	lb/day

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

Maximum Process Rate = 480 ton/hr (Maximum plant process rate)	480	ton/hr
Maximum Hours of Operation = 24 hrs/day (summer hours)	24	hrs/day
Maximum Hours of Operation = 4 hrs/day (winter hours)	4.0	hrs/day

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

Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = $0.000181 + 0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$ =	0.00023	lb/ton
Where: V = Asphalt volatility (Default value per AP 42, Table 11.1-14, 3/04)=	-0.5	
T = HMA mix temperature (Max. from application, process flow narrative)=	250	F
Calculation: (480 ton/hr) * (24 hrs/day) * (0.00023 lb/ton) =	<b>2.68</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.00023 lb/ton) =	<b>0.45</b>	lb/day

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

Predictive equation for emission factor provided per AP 42, Table 11.1-14, 3/04.		
Emission Factor = $0.00141(-V)e^{((0.0251)(T + 460) - 20.43)}$ =	0.00005	lb/ton
Where: V = Asphalt volatility (Default value per AP 42, Table 11.1-14, 3/04)=	-0.5	
T = HMA mix temperature (Max. from application, process flow narrative)=	250	F
Calculation: (480 ton/hr) * (24 hrs/day) * (0.00005 lb/ton) =	<b>0.60</b>	lb/day
Calculation: (480 ton/hr) * (4 hrs/day) * (0.00005 lb/ton) =	<b>0.10</b>	lb/day

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

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

Emission Factor =  $0.0172(-V)e^{(0.0251)(T + 460) - 20.43} * 94\% =$  0.00060 lb/ton

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

T = HMA mix temperature (Max. from application, process flow narrative)= 250 F

Calculation: (480 ton/hr) \* (24 hrs/day) \* (0.00060 lb/ton) = **6.85** lb/day

Calculation: (480 ton/hr) \* (4 hrs/day) \* (0.00060 lb/ton) = **1.14** lb/day

**CO Emissions:**

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

Emission Factor =  $0.00558(-V)e^{(0.0251)(T + 460) - 20.43} =$  0.00021

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

T = HMA mix temperature (Default value per AP 42, Table 11.1-14, 3/04)= 250 F

Calculation: (480 ton/hr) \* (24 hrs/day) \* (0.00021) = **0.10** ton/yr

Calculation: (480 ton/hr) \* (4 hrs/day) \* (0.00021) = **2.37** lb/day

**Haul Roads**

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

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

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

Maximum Hours of Operation (winter hours)= 4.0 hrs/day

**PM Emissions:**

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

Emission Factor =  $k * (s / 12)^a * (W / 3)^b =$  13.90 lb/VMT

Where: k = constant = 4.9 lbs/VMT (Value for PM30/TSP,) 4.9 lbs/VMT

s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area,) 8.3 %

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

a = constant = 0.7 (Value for PM30/TSP) 0.7

b = constant = 0.45 (Value for PM30/TSP) 0.45

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

Calculation: (0.21 VMT/hr) \* (24 hrs/day) \* (13.90 lb/VMT) = **69.50** lb/day

Calculation: (24 hrs/day) \* (0.21 VMT/hr) \* (13.90 lb/VMT) (1-50/100) = **34.75** lb/day

Calculation: (0.21 VMT/hr) \* (4 hrs/day) \* (13.90 lb/VMT) = **11.58** lb/day

Calculation: (4 hrs/day) \* (0.21 VMT/hr) \* (13.90 lb/VMT) (1-50/100) = **5.79** lb/day

**PM10 Emissions:**

Emission Factor =  $k * (s / 12)^a * (W / 3)^b =$  3.95 lb/VMT

Where: k = constant = 1.5 lbs/VMT (Value for PM10) 1.5 lbs/VMT

s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area) 8.3 %

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

a = constant = 0.9 (Value for PM10) 0.9

b = constant = 0.45 (Value for PM10) 0.45

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

Calculation: (0.21 VMT/hr) \* (24 hrs/day) \* (3.95 lb/VMT) = **19.76** lb/day

Calculation: (24 hrs/day) \* (0.21 VMT/hr) \* (3.95 lb/VMT) (1-50/100) = **9.88** lb/day

Calculation: (0.21 VMT/hr) \* (4 hrs/day) \* (3.95 lb/VMT) = **3.29** lb/day

Calculation: (4 hrs/day) \* (0.21 VMT/hr) \* (3.95 lb/VMT) (1-50/100) = **1.65** lb/day

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

Emission Factor =  $k * (s / 12)^a * (W / 3)^b = 0.40$  lb/VMT 0.40 lb/VMT

Where: k = constant = 0.15 lbs/VMT (Value for PM2.5) 0.15 lbs/VMT

s = surface silt content = 8.3 % (Mean value, sand/gravel processing, material storage area) 8.3 %

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

a = constant = 0.9 (Value for PM2.5) 0.9

b = constant = 0.45 (Value for PM2.5) 0.45

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

Calculation: (0.21 VMT/hr) \* (24 hrs/day) \* (0.40 lb/VMT) = **1.98** lb/day

Calculation: (24 hrs/day) \* (0.21 VMT/hr) \* (0.40 lb/VMT) (1-50/100) = **0.99** lb/day

Calculation: (0.21 VMT/hr) \* (4 hrs/day) \* (0.40 lb/VMT) = **0.33** lb/day

Calculation: (4 hrs/day) \* (0.21 VMT/hr) \* (0.40 lb/VMT) (1-50/100) = **0.16** lb/day

**Diesel Engine Generator (1465 bhp)**

Operational Capacity of Engine = 1,465 hp	1,465.0	hp
Maximum Hours of Operation = 24 hrs/day (summer hours)	24	hrs/day
Maximum Hours of Operation = 4 hrs/day (winter hours)	4.0	hrs/day

**Total PM/PM10/PM2.5 Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	2.20E-03	lbs/hp-hr
Calculation: (24 hrs/day) * (1,465 hp) * (0.0022 lbs/hp-hr) =	<b>77.35</b>	lbs/day
Calculation: (4 hrs/day) * (1,465 hp) * (0.0022 lbs/hp-hr) =	<b>12.89</b>	lbs/day

**NOx Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	3.10E-02	lbs/hp-hr
Calculation: (24 hrs/day) * (1,465 hp) * (0.031 lbs/hp-hr) =	<b>1,089.96</b>	lbs/day
Calculation: (4 hrs/day) * (1,465 hp) * (0.031 lbs/hp-hr) =	<b>181.66</b>	lbs/day

**CO Emissions:**

Emission Factor (AP-42, Sec. 3.3, Table 3.3-1, 10/96)=	6.68E-03	lbs/hp-hr
Calculation: (24 hrs/day) * (1,465 hp) * (0.00668 lbs/hp-hr) =	<b>234.87</b>	lbs/day
Calculation: (4 hrs/day) * (1,465 hp) * (0.00668 lbs/hp-hr) =	<b>39.14</b>	lbs/day

**VOC Emissions:**

Emission Factor (AP-42, Table 3.3-1, TOC, Exhaust + Crankcase, 10/96)=	2.51E-03	lbs/hp-hr
Calculation: (24 hrs/day) * (1,465 hp) * (0.0025141 lbs/hp-hr) =	<b>88.40</b>	lbs/yr
Calculation: (4 hrs/day) * (1,465 hp) * (0.0025141 lbs/hp-hr) =	<b>14.73</b>	lbs/day

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

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.05E-03	lbs/hp-hr
Calculation: (24 hrs/day) * (1,465 hp) * (0.00205 lbs/hp-hr) =	<b>72.08</b>	lbs/yr
Calculation: (4 hrs/day) * (1,465 hp) * (0.00205 lbs/hp-hr) =	<b>12.01</b>	lbs/day

**Diesel Engine Generator (534 bhp)**

Operational Capacity of Engine = 534 hp	534.0	hp
Maximum Hours of Operation = 24 hrs/day (summer hours)	24	hrs/day
Maximum Hours of Operation = 4 hrs/day (winter hours)	4.0	hrs/day

**Total PM/PM10/PM2.5 Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	2.20E-03	lbs/hp-hr
Calculation: (24 hrs/day) * (534 hp) * (0.0022 lbs/hp-hr) =	<b>28.20</b>	lbs/day
Calculation: (4 hrs/day) * (534 hp) * (0.0022 lbs/hp-hr) =	<b>4.70</b>	lbs/day

**NOx Emissions:**

Emission Factor(AP-42, Sec. 3.3, Table 3.3-1, 10/96) =	3.10E-02	lbs/hp-hr
Calculation: (24 hrs/day) * (534 hp) * (0.031 lbs/hp-hr) =	<b>397.30</b>	lbs/day
Calculation: (4 hrs/day) * (534 hp) * (0.031 lbs/hp-hr) =	<b>66.22</b>	lbs/day

**CO Emissions:**

Emission Factor (AP-42, Sec. 3.3, Table 3.3-1, 10/96)=	6.68E-03	lbs/hp-hr
Calculation: (24 hrs/day) * (534 hp) * (0.00668 lbs/hp-hr) =	<b>85.61</b>	lbs/day
Calculation: (4 hrs/day) * (534 hp) * (0.00668 lbs/hp-hr) =	<b>14.27</b>	lbs/day

**VOC Emissions:**

Emission Factor (AP-42, Table 3.3-1, TOC, Exhaust + Crankcase, 10/96)=	2.51E-03	lbs/hp-hr
Calculation: (24 hrs/day) * (534 hp) * (0.0025141 lbs/hp-hr) =	<b>32.22</b>	lbs/yr
Calculation: (4 hrs/day) * (534 hp) * (0.0025141 lbs/hp-hr) =	<b>5.37</b>	lbs/day

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

Emission Factor = 0.00205 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)	2.05E-03	lbs/hp-hr
Calculation: (24 hrs/day) * (534 hp) * (0.00205 lbs/hp-hr) =	<b>26.27</b>	lbs/yr
Calculation: (4 hrs/day) * (534 hp) * (0.00205 lbs/hp-hr) =	<b>4.38</b>	lbs/day

## V. Existing Air Quality

On July 1, 1987, the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>). Due to exceedances of the national standards for PM<sub>10</sub>, the cities of Kalispell (and the nearby Evergreen area), Columbia Falls, Butte, Whitefish, Libby, Missoula, and Thompson Falls were designated by EPA as nonattainment for PM<sub>10</sub>. As a result of this designation, the EPA required the Department and the City-County Health Departments to submit PM<sub>10</sub> State Implementation Plans (SIP). The SIPs consisted of emission control plans that controlled fugitive dust emissions from roads, parking lots, construction, and demolition, since technical studies identified these sources to be the major contributors to PM<sub>10</sub> emissions.

MAQP #4741-00 and Addendum 1 are for a portable drum-mix asphalt plant that will locate at sites in or within 10 kilometers (km) of certain PM<sub>10</sub> nonattainment areas. The more stringent operating conditions contained in the addendum will minimize any potential impact on the nonattainment areas and will protect the national ambient air quality standards. Also, this facility is a portable source that would be expected to operate on an intermittent and temporary basis and any effects on air quality would be expected to be minor and short-lived.

## VI. Air Quality Impacts

MAQP #4741-00 and Addendum 1 will cover the operations of this portable crushing/screening plant while operating at any location within Montana, excluding those counties that have a Department approved permitting program and those areas that are tribal lands.

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

VII. Taking or Damaging Implication Analysis

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

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

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

VIII. Environmental Assessment

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

Addendum Analysis Prepared by: Deanne Fischer  
Date: May 4, 2012

**DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**Permitting and Compliance Division**  
**Air Resources Management Bureau**  
**P.O. Box 200901, Helena, MT 59620**  
**(406) 444-3490**

**FINAL ENVIRONMENTAL ASSESSMENT (EA)**

*Issued To:* LHC, Inc.

*Montana Air Quality Permit number (MAQP):* 4741-00

*Preliminary Determination Issued:* May 18, 2012

*Department Decision Issued:* June 19, 2012

*Permit Final:* July 06, 2012

1. *Legal Description of Site:* LHC, Inc. (LHC) would operate a portable drum mix asphalt plant, with the home pit located in Sections 25 and 26, Township 29N, Range 22W, Flathead County, Montana. However, MAQP #4741-00 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 kilometer (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM<sub>10</sub>) nonattainment areas.

MAQP #4741-00 and Addendum #1 would apply to the LHC facility while operating at any location in or within 10 km of a certain PM<sub>10</sub> 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:* LHC would operate a portable drum mix asphalt plant and associated equipment with a 480 ton per hour (TPH) maximum production capacity and two diesel-fired generator engines with a total maximum combined capacity of up to 1,999 brake horsepower (bhp) at various locations throughout Montana.
3. *Objectives of Project:* The objective of this project would be to produce revenue for LHC through the sale and use of asphalt. The issuance of the permit would allow LHC 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 LHC 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 #4741-00.
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

The applicant stated that the portable asphalt plant would occupy approximately one acre, not including aggregate stockpiles. 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 and would have intermittent and seasonal operations. 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 occupy approximately one acre, and 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

E. 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. In an effort to assess any potential impacts to any vegetation cover, quantity, and quality in the proposed home pit (in Sections 25 and 26, Township 29N, Range 22W, Flathead County, Montana.), the Department contacted the Montana Natural Heritage Program (MNHP). Search results concluded 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.

F. Aesthetics

MAQP #4741-00 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 use is industrial-rural. Approximately one acre of land would be disturbed as part of this proposed action. The operation of the proposed equipment would be visible and audible but there are no close neighbors or structures. Any disturbance to the aesthetic value of the area would be minor because of its location within an existing pre-disturbed industrial site.

G. Air Quality

Air quality impacts from the proposed project would be minor because the facility would be relatively small and comparable in nature to other similar sources permitted by the Department. MAQP #4741-00 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 potential to emit (PTE) was below the major source threshold level of 100 tons per year (TPY) for any regulated pollutant due to federally enforceable permit conditions which limit the total annual hours of operation. Pollutant deposition from the 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.

#### H. 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 home pit (in Sections 25 and 26, Township 29N, Range 22W, Flathead County, Montana.), the Department contacted the Montana Natural Heritage Program (MNHP). Search results concluded there are three 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 great blue heron, bull trout, and, lake trout.

Given the fact that most of the species of concern would not likely be located within the operational area of the project and the nature of similar permitted crushing and screening operations, any effects on the local populations are expected to be minimal.

In addition, initial and typical operations would take place within a previously disturbed industrial site, further limiting the potential for impact to any unique endangered, fragile, or limited environmental resource. Therefore, the overall industrial nature of the area would not change as a result of the proposed project and any associated impacts would be minor.

#### I. Demands on Environmental Resource of Water, Air and Energy

The portable asphalt plant would provide its own energy for operation from the portable diesel engines/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.

#### J. 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.

#### K. 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 and emissions and would have temporary and intermittent operations. The proposed initial location is within an existing industrial site with no existing social structures or mores.

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 would employ two to three operational crew. 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 initially 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 industrial rural land. Pollutant deposition from the 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.

#### E. Human Health

Conditions would be incorporated into MAQP #4741-00 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 emissions, water spray for fugitive emissions, and other process limits that would be required by MAQP #4741-00. 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. LHC has stated that they would have two to three 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. LHC would be allowed by MAQP #4741-00 to operate the portable asphalt plant and associated equipment in areas designated by EPA as attainment or unclassified for ambient air quality. MAQP #4741-00 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 LHC, 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.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permitting action is for the construction and operation of a portable asphalt plant. MAQP #4741-00 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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