



Montana Department of
ENVIRONMENTAL **Q**UALITY

Brian Schweitzer, Governor

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November 2, 2009

Stephen Buck
Thompson River Redi-Mix
P.O. Box 2269
Thompson Falls, MT 59873

Dear Mr. Buck:

Montana Air Quality Permit #3791-01 is deemed final as of October 31, 2009, by the Department of Environmental Quality (Department). This permit is for a concrete batch plant operation. All conditions of the Department's Decision remain the same. Enclosed is a copy of your permit with the final date indicated.

For the Department,

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

Trista Glazier
Air Quality Specialist
Air Resources Management Bureau
(406) 444-3403

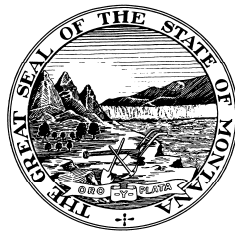
VW:DS
Enclosure

Montana Department of Environmental Quality
Permitting and Compliance Division

Montana Air Quality Permit #3791-01

Thompson River Redi-Mix
P.O. Box 2269
Thompson Falls, MT 59873

October 31, 2009



MONTANA AIR QUALITY PERMIT

Issued To: Thompson River Redi-Mix
P.O. Box 2269
Thompson Falls, MT 59873

MAQP #3791-01
Administrative Amendment (AA) Request
Received: 8/14/09
Department's Decision on AA: 10/15/09
Permit Final: 10/31/09
AFS #: 777-3791

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

Section I: Permitted Facilities

A. Plant Location

Thompson River operates a concrete batch plant operation, which will originally locate in Section 14, Township 26 North, Range 33 West, in Sanders County, Montana. However, MAQP #3791-01 applies while operating at any location in Montana, except within those areas having a Department of Environmental Quality (Department)-approved permitting program, those areas considered tribal lands, or those areas in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) nonattainment areas. *A Missoula County air quality permit will be required for locations within Missoula County, Montana.* Addendum 1 applies to the Thompson River facility while operating at any location in or within 10 km of certain PM₁₀ nonattainment areas during the summer months (April 1 – September 30) and at sites approved by the Department during the winter months (October 1 – March 31). A description of the permitted equipment is contained in the permit analysis.

B. Current Permit Action

On August 14, 2009, the Department received a request to amend MAQP #3791-00 to allow for the operation of the facility at any location in or within 10 km of certain PM₁₀ nonattainment areas. The current permit action includes Addendum 1 which contains operating requirements when Thompson River operates in or within 10 km of certain PM₁₀ nonattainment areas.

Section II: Limitations and Conditions

A. Emission Control Requirements

1. Thompson River shall install, operate, and maintain the fabric filter dust collector, a rubber boot load-out spout as specified in their MAQP and all supporting documentation (ARM 17.8.752):
 - a. Thompson River shall install, operate, and maintain the fabric filter dust collector on every cement and cement supplement silo ventilation opening; and

- b. Thompson River shall install, operate, and maintain the rubber boot load-out spout on every product loadout opening on the concrete plant, where cement and aggregate materials are transferred for mixing.
2. Thompson River shall not cause or authorize to be discharged into the atmosphere from the ready mix plant:
 - a. Any vent emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304 and ARM 17.8.752).
 - b. Any fugitive emissions from the source or from any material transfer operations, including, but not limited to, truck loading or unloading, which exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.308 and ARM 17.8.752).
3. Thompson River shall not cause or authorize to be discharged into the atmosphere from any street, road, or parking lot any visible fugitive emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes and must take reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308 and ARM 17.8.752).
4. Thompson River shall treat all unpaved portions of the haul roads, access roads, parking lots, and 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.3 (ARM 17.8.752).
5. Total concrete plant production shall be limited to 718,320 cubic yards of concrete during any rolling 12-month time period (ARM 17.8.749).
6. If the permitted equipment is used in conjunction with any other equipment owned or operated by Thompson River, at the same site, production shall be limited to correspond with an emission level that does not exceed 250 tons of emissions during any rolling 12-month time period. Any calculations used to establish production levels shall be approved by the Department (ARM 17.8.749).
7. Thompson River shall not operate more than one diesel-powered engine/generator with a maximum capacity of 298 hp at any one time. The diesel-powered engine/generator shall not be operated more than 16 hours per day (ARM 17.8.749).

B. Emissions Monitoring

1. Thompson River shall inspect the fabric filter dust collector and its vents, which are used for controlling emissions from the silo and weigh hopper, every 6 months of operation to ensure that each collector is operating at the optimum efficiency. Records of inspections, repairs, and maintenance shall be kept for a minimum of 5 years (ARM 17.8.749).
2. Thompson River shall maintain on-site records of inspections, repairs, and maintenance. All records compiled in accordance with this permit shall be maintained by Thompson River as a permanent business record for at least 5 years following the date of the measurement, shall be submitted to the Department upon request, and shall be available at the plant site for inspection by the Department (ARM 17.8.749).

C. Testing Requirements

1. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. The Department may require testing (ARM 17.8.105).

D. Operational Reporting Requirements

1. If this concrete batch plant is moved to another location, an Intent to Transfer Form must be sent to the Department. In addition, 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 Intent to Transfer Form and 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 17.8.765).
2. Thompson River shall maintain on-site records showing daily hours of operation and daily production rates, for the last 12 months. All records compiled in accordance with this permit must be maintained by Thompson River as a permanent business record for at least 5 years following the date of the measurement, must be submitted to the Department upon request, and must be available at the plant site for inspection by the Department (ARM 17.8.749).
3. Thompson River shall supply the Department with annual production information for all emission points, as required by the Department, in the annual emission inventory request. The request will include, but is not limited to, all sources identified in the most recent emission inventory report and sources identified in Section I.A of the permit analysis.
4. Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).
5. Thompson River 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).
6. Thompson River shall document, by month, the amount of concrete produced. By the 25th day of each month, Thompson River shall calculate the total amount of concrete produced during the previous month. The monthly information will be used to verify compliance with the rolling 12-month limitation in Section II.A.5. The information for each of the previous months shall be submitted along with the annual emission inventory (ARM 17.8.749).

Section III: General Conditions

- A. Inspection – Thompson River 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 (CEMS, 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 Thompson River fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Thompson River of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided for in ARM 17.8.740, et seq. (ARM 17.8.756)
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, et seq., MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by Thompson River 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. Thompson River 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.

Permit Analysis
Thompson River Redi-Mix
MAQP #3791-01

I. Introduction

A. Permitted Equipment

Thompson River Redi-Mix (Thompson River) operates a concrete batch plant, which includes an electric powered 1988 Ross 100 concrete batch plant (maximum capacity of 82 cubic yards per hour (yd³/hr)), a 2004 Besser Model DLS-260 Baghouse, a White 298-horsepower (hp) diesel generator, and associated equipment. A fabric filter controls particulate emissions from the cement silo. A rubber boot load-out spout controls particulate emissions from the cement batcher.

B. Source Description

For a typical operational setup, stockpiles of sand and gravel for concrete production are stored on site. A loader transfers the sand and gravel from the stockpiles to a weight hopper and the sand and gravel is then conveyed into the batch plant. The cement silo transfers the cement into the batch plant where water is added. The sand, gravel, cement, and water are then loaded into mixing trucks where the materials are mixed together to form concrete. The concrete is then transferred to various construction operations.

C. Permit History

The Department of Environmental Quality (Department) received a Montana Air Quality Permit (MAQP) application on February 16, 2006. MAQP #3791-00 was issued April 11, 2006.

D. Current Permit Action

On August 14, 2009, the Department received a request to amend MAQP #3791-00 to allow for the operation of the facility at any location in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) nonattainment areas. The current permit action includes Addendum 1 which contains operating requirements when Thompson River operates in or within 10 km of certain PM₁₀ nonattainment areas. **MAQP #3791-01** replaces MAQP #3791-00.

E. Additional Information

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

II. Applicable Rules and Regulations

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

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

1. ARM 17.8.101 Definitions. This rule is a list of applicable definitions used in this subchapter, 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 Montana Clean Air Act, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

Thompson River shall comply with all 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, which 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 in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

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

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

Thompson River must comply 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, Thompson River shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause or authorize to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth in this section.
6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank truck or trailer is equipped with a vapor loss control device as described in (1) of this rule.
7. ARM 17.8.340 Standards of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). The owner or operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the standards and provisions of 40 CFR Part 60.

This truck mix concrete plant consists of a 1988 Ross 100 concrete batch plant and associated equipment. NSPS (40 CFR Part 60, General Provisions and Subpart F, Portland Cement Plants) does not apply because the truck mix plant does not meet the definition of an affected facility.

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 Thompson River submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. A permit fee is not required for the current permit action because the permit action is considered an administrative permit change.
2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. This operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, as 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 alteration to construct, alter or use any asphalt plant, crusher or screen that has the Potential to Emit (PTE) greater than 15 tons per year of any pollutant. Thompson River has a PTE of greater than 15 tons per year of total particulate matter; 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, alteration or use of a source. Thompson River was not required to submit a permit application for the current permit action because it is an administrative 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. Thompson River was not required to submit an affidavit of publication of public notice because the current permit action is administrative.
 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 Best Available Control Technology (BACT) shall be utilized. The required BACT analysis is included in Section IV 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 Thompson River 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 altered 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 Thompson River, 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 air quality permit may be transferred from one location to another if the Department receives a complete notice of Intent to Transfer location, the facility will operate in the new location for less than 1 year, the facility will comply with the FCAA and the Clean Air Act of Montana, and the facility complies with other applicable rules. (2) This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

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

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in

this subchapter.

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

This facility is not a major stationary source because it is not listed and does not have a PTE of greater than 250 tons per year (excluding fugitive emissions) of any air pollutant.

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

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 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 a lesser quantity as the Department may establish by rule, or
 - c. PTE > 70 tons/year of PM₁₀ in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality MAQP #3791-01 for Thompson River, the following conclusions were made:
 - a. The facility's PTE is less than 100 tons/year for any air pollutant.
 - b. The facility's PTE is less than 10 tons/year of any one HAP and less than 25 tons/year of all HAPs.
 - c. This source is not located in a serious PM₁₀ nonattainment area.
 - d. This facility is not subject to any current NSPS standards.
 - e. This facility is not subject to any current NESHAP standards.
 - f. This source is not a Title IV affected source nor a solid waste combustion unit.
 - g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that this facility would be a minor source of emissions, as defined under the Title V Operating Permit Program.

III. BACT Determination

A BACT determination is required for any new or altered source. Thompson River shall install on the new or altered source the maximum air pollution control capability that is technologically practicable and economically feasible, except that BACT shall be used.

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

IV. Emission Inventory

Emission Source	Tons per 8760 hours					
	PM	PM ₁₀	NO _x	VOC	CO	SO _x
1. Aggregate Delivery to Ground Storage	2.31	1.11	--	--	--	--
2. Sand Delivery to Ground Storage	0.54	0.25	--	--	--	--
3. Aggregate Transfer to Conveyor	2.31	1.11	--	--	--	--
4. Sand Transfer to Conveyor	0.54	0.25	--	--	--	--
5. Aggregate Transfer to Elevated Storage	1.16	0.55	--	--	--	--
6. Sand Transfer to Elevated Storage	0.27	0.13	--	--	--	--
7. Cement Delivery to Storage Silo	0.09	0.03	--	--	--	--
8. Cement Supplement (Fly ash) Unloading to Silo	0.12	0.06	--	--	--	--
9. Weigh Hopper Loading of Sand/Aggregate	3.69	1.73	--	--	--	--
10. Truck Mix Loading	41.05	11.56	--	--	--	--
11. Diesel Generator	2.87	2.87	40.46	3.22	8.72	2.68
12. Haul Roads	5.68	1.57	--	--	--	--
Total	60.61	21.23	40.46	3.22	8.72	2.68

1. Aggregate Delivery to Ground Storage

Maximum Process Rate = 76.47 tons/hr (46% of total concrete)

Hours of Operation = 8,760 hours

PM Emissions:

Emission Factor = 0.0069 lbs/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (8,760 hours) * (76.47 tons/hr) * (0.0069 lbs/ton) * (ton/2000 lb) = 2.31 tons

Calculation: (8,760 hours) * (76.47 tons/hr) * (0.0069 lbs/ton) * (ton/2000 lb) * (1-0/100) = 2.31 tons

Calculation: (8,760 hours) * (76.47 tons/hr) * (0.0069 lbs/ton) = 4,621.85 lbs

Calculation: (8,760 hours) * (76.47 tons/hr) * (0.0069 lbs/ton) * (1-0/100) = 4,621.85 lbs

PM-10 Emissions:

Emission Factor = 0.0033 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (8,760 hours) * (76.47 tons/hr) * (0.0033 lb/ton) * (ton/2000 lb) = 1.11 tons

Calculation: (8,760 hours) * (76.47 tons/hr) * (0.0033 lb/ton) * (ton/2000 lb) * (1-0/100) = 1.11 tons

Calculation: (8,760 hours) * (76.47 tons/hr) * (0.0033 lb/ton) = 2,210.45 lbs

Calculation: (8,760 hours) * (76.47 tons/hr) * (0.0033 lb/ton) * (1-0/100) = 2,210.45 lbs

2. Sand Delivery to Ground Storage

Maximum Process Rate = 58.55 ton/hr (35% of total concrete)

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.0021 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.54 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 0.54 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) = 1,077.05 \text{ lbs}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (1-0/100) = 1,077.05 \text{ lbs}$ **PM-10 Emissions:**

Emission Factor = 0.00099 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.25 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 0.25 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) = 507.75 \text{ lbs}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (1-0/100) = 507.75 \text{ lbs}$ **3. Aggregate Transfer to Conveyor**

Maximum Process Rate = 76.47 ton/hr (46% of total concrete)

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.0069 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0069 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 2.31 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0069 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 2.31 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0069 \text{ lb/ton}) = 4,621.85 \text{ lbs}$ Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0069 \text{ lb/ton}) * (1-0/100) = 4,621.85 \text{ lbs}$ **PM-10 Emissions:**

Emission Factor = 0.0033 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0033 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 1.11 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0033 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 1.11 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0033 \text{ lb/ton}) = 2,210.45 \text{ lbs}$ Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0033 \text{ lb/ton}) * (1-0/100) = 2,210.45 \text{ lbs}$ **4. Sand Transfer to Conveyor**

Maximum Process Rate = 58.55 ton/hr (35% of total concrete)

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.0021 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.54 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 0.54 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) = 1,077.05 \text{ lbs}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (1-0/100) = 1,077.05 \text{ lbs}$ **PM-10 Emissions:**

Emission Factor = 0.00099 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.25 \text{ tons}$ Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 0.25 \text{ tons}$

= 0.25 tons

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) = 507.75 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (1-0/100) = 507.75 \text{ lbs}$

5. Aggregate Transfer to Storage Bins

Maximum Process Rate = 76.47 ton/hr (46% of total concrete)

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.0069 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 50% (water slurry)

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0069 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 2.31 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0069 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-50/100)$
= 1.16 tons

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0069 \text{ lb/ton}) = 4,621.85 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0069 \text{ lb/ton}) * (1-50/100) = 2,310.93 \text{ lbs}$

PM-10 Emissions:

Emission Factor = 0.0033 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 50% (water slurry)

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0033 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 1.11 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0033 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-50/100)$
= 0.55 tons

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0033 \text{ lb/ton}) = 2,210.45 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (76.47 \text{ ton/hr}) * (0.0033 \text{ lb/ton}) * (1-50/100) = 1,105.23 \text{ lbs}$

6. Sand Transfer to Storage Bins

Maximum Process Rate = 58.55 ton/hr (35% of total concrete)

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.0021 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 50% (water slurry)

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.54 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-50/100)$
= 0.27 tons

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) = 1,077.05 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.0021 \text{ lb/ton}) * (1-50/100) = 538.52 \text{ lbs}$

PM-10 Emissions:

Emission Factor = 0.00099 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 50% (water slurry)

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.25 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-50/100)$
= 0.13 tons

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) = 507.75 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (58.55 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (1-50/100) = 253.88 \text{ lbs}$

7. Cement Delivery to Silo

Maximum Process Rate = 20.13 ton/hr (12% of total concrete)

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.00099 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (20.13 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.09 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (20.13 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100)$
= 0.09 tons

Calculation: $(8,760 \text{ hr/yr}) * (20.13 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) = 174.58 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (20.13 \text{ ton/hr}) * (0.00099 \text{ lb/ton}) * (1-0/100) = 174.58 \text{ lbs}$

PM-10 Emissions:

Emission Factor = 0.00034 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (20.13 \text{ ton/hr}) * (0.00034 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.03 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (20.13 \text{ ton/hr}) * (0.00034 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 0.03 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (20.13 \text{ ton/hr}) * (0.00034 \text{ lb/ton}) = 59.96 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (20.13 \text{ ton/hr}) * (0.00034 \text{ lb/ton}) * (1-0/100) = 59.96 \text{ lbs}$

8. Cement Supplement Unloading to Silo

Maximum Process Rate = 2.99 ton/hr (2% of total concrete)

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.0089 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (2.99 \text{ ton/hr}) * (0.0089 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.12 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (2.99 \text{ ton/hr}) * (0.0089 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 0.12 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (2.99 \text{ ton/hr}) * (0.0089 \text{ lb/ton}) = 233.35 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (2.99 \text{ ton/hr}) * (0.0089 \text{ lb/ton}) * (1-0/100) = 233.35 \text{ lbs}$

PM-10 Emissions:

Emission Factor = 0.0049 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (2.99 \text{ ton/hr}) * (0.0049 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 0.06 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (2.99 \text{ ton/hr}) * (0.0049 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 0.06 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (2.99 \text{ ton/hr}) * (0.0049 \text{ lb/ton}) = 128.47 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (2.99 \text{ ton/hr}) * (0.0049 \text{ lb/ton}) * (1-0/100) = 128.47 \text{ lbs}$

9. Weigh Hopper Loading of Sand/Aggregate

Maximum Process Rate = 164.98 ton/hr

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.0051 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0051 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 3.69 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0051 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 3.69 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0051 \text{ lb/ton}) = 7,370.83 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0051 \text{ lb/ton}) * (1-0/100) = 7,370.83 \text{ lbs}$

PM-10 Emissions:

Emission Factor = 0.0024 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0024 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 1.73 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0024 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 1.73 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0024 \text{ lb/ton}) = 3,468.62 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0024 \text{ lb/ton}) * (1-0/100) = 3,468.62 \text{ lbs}$

10. Truck Mix Loading of Cement/Supplement/Sand/Aggregate

Maximum Process Rate = 164.98 ton/hr

Hours of Operation = 8,760 hr/yr

PM Emissions:

Emission Factor = 0.0568 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0568 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 41.05 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0568 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 41.05 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0568 \text{ lb/ton}) = 82,090.76 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.0568 \text{ lb/ton}) * (1-0/100) = 82,090.76 \text{ lbs}$

PM-10 Emissions:

Emission Factor = 0.016 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.016 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) = 11.56 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.016 \text{ lb/ton}) * (\text{ton}/2000 \text{ lb}) * (1-0/100) = 11.56 \text{ tons}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.016 \text{ lb/ton}) = 23,124.16 \text{ lbs}$

Calculation: $(8,760 \text{ hr/yr}) * (164.98 \text{ ton/hr}) * (0.016 \text{ lb/ton}) * (1-0/100) = 23,124.16 \text{ lbs}$

11. Diesel Engine Generator

Operational Capacity of Engine = 298 hp

Hours of Operation = 8,760 hours

PM Emissions:

PM Emissions = 2.87 tons (Assume PM = PM10)

PM Emissions = 5,743.06 lbs (Assume PM = PM10)

PM-10 Emissions:

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

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.0022 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) = 2.87 \text{ tons}$

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.0022 \text{ lbs/hp-hr}) = 5,743.06 \text{ lbs}$

NOx Emissions:

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

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.031 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) = 40.46 \text{ tons}$

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.031 \text{ lbs/hp-hr}) = 80,924.88 \text{ lbs}$

CO Emissions:

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

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.00668 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) = 8.72 \text{ tons}$

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.00668 \text{ lbs/hp-hr}) = 17,438.01 \text{ lbs}$

VOC Emissions:

Emission Factor = 0.00247 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.00247 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) = 3.22 \text{ tons}$

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.00247 \text{ lbs/hp-hr}) = 6,447.89 \text{ lbs}$

SOx Emissions:

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

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.00205 \text{ lbs/hp-hr}) * (\text{ton}/2000 \text{ lb}) = 2.68 \text{ tons}$

Calculation: $(8,760 \text{ hours}) * (298 \text{ hp}) * (0.00205 \text{ lbs/hp-hr}) = 5,351.48 \text{ lbs}$

12. Haul Roads

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

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

Hours of Operation = 8,760 hours

PM Emissions:

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

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

Where: k = constant = 4.9 lbs/VMT (Value for PM30/TSP, AP 42, Table 13.2.2-2, 11/06)
s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06)

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

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

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

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

Calculation: (8760 hours) * (0.21 VMT/hr) * (12.46 lb/VMT) * (ton/2000 lb) = 11.37 tons

Calculation: (8760 hours) * (0.21 VMT/hr) * (12.46 lb/VMT) * (ton/2000 lb) * (1-50/100) = 5.68 tons

Calculation: (8760 hours) * (0.21 VMT/hr) * (12.46 lb/VMT) = 22,739.74 lbs

Calculation: (8760 hours) * (0.21 VMT/hr) * (12.46 lb/VMT) * (1-50/100) = 11,369.87 lbs

PM10 Emissions:

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

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

Where: k = constant = 1.5 lbs/VMT (Value for PM10, AP 42, Table 13.2.2-2, 11/06)
s = surface silt content = 7.1 % (Mean value, sand/gravel processing, material storage area, AP 42, Table 13.2.2-1, 11/06)

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

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

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

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

Calculation: (8760 hours) * (0.21 VMT/hr) * (3.43 lb/VMT) * (ton/2000 lb) = 3.13 tons

Calculation: (8760 hours) * (0.21 VMT/hr) * (3.43 lb/VMT) * (ton/2000 lb) * (1-50/100) = 1.57 tons

Calculation: (8760 hours) * (0.21 VMT/hr) * (3.43 lb/VMT) = 6,267.53 lbs

Calculation: (8760 hours) * (0.21 VMT/hr) * (3.43 lb/VMT) * (1-50/100) = 3,133.76 lbs

V. Existing Air Quality

MAQP #3791-01 is issued for the operation of a portable truck mix concrete batch plant to be originally located in Section 14, Township 26 North, Range 33 West, in Sanders County, Montana. This facility would be allowed to operate at this proposed site and any other areas designated as attainment or unclassified for all National Ambient Air Quality Standards (NAAQS); excluding counties that have a Department approved permitting program, areas considered Tribal Lands, or areas in or within 10 kilometers (km) of certain PM₁₀ nonattainment areas. Addendum 1 applies when operating at locations in or within 10 km of certain PM₁₀ nonattainment areas. The permit contains operational conditions and limitations that would protect air quality for this site and the surrounding area. Also, 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 short-lived.

VI. Ambient Air Quality Impacts

This permit is for a portable truck mix concrete batch plant to be located in various locations around Montana. The amount of controlled particulate emissions generated by this project should not cause concentrations of PM₁₀ in the ambient air that exceed any set standard. In addition, this source is portable and any air quality impacts will be short-lived.

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

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

Addendum 1
Thompson River Redi-Mix
MAQP #3791-01

An addendum to Montana Air Quality Permit (MAQP) #3791-01 is hereby granted to Thompson River Redi-Mix (Thompson River) 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:

Thompson River operates a concrete batch plant, which includes an electric powered 1988 Ross 100 concrete batch plant (maximum capacity of 82 cubic yards per hour (yd³/hr)), a 2004 Besser Model DLS-260 Baghouse, a White 298-horsepower (hp) diesel generator, and associated equipment. A fabric filter controls particulate emissions from the cement silo. A rubber boot load-out spout controls particulate emissions from the cement batcher.

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

Addendum 1 applies to the Thompson River facility while operating at any location in or within 10 kilometers (km) of certain particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀) nonattainment areas. Additionally, seasonal and site restrictions apply to the facility as follows:

- A. During the winter season (October 1-March 31) - The only location in or within 10 km of a PM₁₀ nonattainment area where Thompson River may operate any site that may be approved, in writing, by the Department of Environmental Quality (Department).
- B. During the summer season (April 1-September 30) – Thompson River may operate at any location in or within 10 km of the Butte, Columbia Falls, Kalispell, Libby, Thompson Falls, and Whitefish PM₁₀ nonattainment areas.
- C. Thompson River shall comply with the limitations and conditions contained in Addendum 1 to MAQP #3791-01 while operating in or within 10 km of any of the previously identified PM₁₀ nonattainment areas. Addendum 1 shall be valid until revoked or modified. The Department reserves the authority to modify Addendum 1 at any time based on local conditions of any future site. These conditions may include, but are not limited to, local terrain, meteorological conditions, proximity to residences or other businesses, etc.

III. Limitations and Conditions

A. Operational Limitations and Conditions

- 1. Thompson River shall install, operate, and maintain the fabric filter dust collector, a rubber boot load-out spout as specified in their MAQP and all supporting documentation (ARM 17.8.752):
 - a. Thompson River shall install, operate, and maintain the fabric filter dust collector on every cement and cement supplement silo ventilation opening; and

- b. Thompson River shall install, operate, and maintain the rubber boot load-out spout on every product loadout opening on the concrete plant, where cement and aggregate materials are transferred for mixing.
2. Thompson River shall not cause or authorize to be discharged into the atmosphere from the ready mix plant:
 - a. Any vent emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
 - b. Any fugitive emissions from the source or from any material transfer operations, including, but not limited to, truck loading or unloading, which exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.749).
3. Thompson River shall not cause or authorize to be discharged into the atmosphere from any street, road, or parking lot any visible fugitive emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes and must take reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.749).
4. Thompson River shall treat all unpaved portions of the haul roads, access roads, parking lots, and 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.3 (ARM 17.8.752).
5. Thompson River shall not operate more than one concrete batch plant at any one time. Total concrete production shall not exceed 1,394 cubic yards per day (ARM 17.8.749).
6. Thompson River shall not operate more than one diesel-powered engine/generator with a maximum capacity of 298 hp at any one time. The diesel-powered engine/generator shall not be operated more than 16 hours per day (ARM 17.8.749).

B. Operational Reporting Requirements

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

- c. Daily hours of operation at each site,
 - d. Gallons of diesel used by the generator at each site,
 - e. Hours of operation and size for the generator at each site, and
 - f. Fugitive dust information consisting of the total miles driven on unpaved roads for all plant vehicles.
4. Thompson River shall document, by day, the total concrete production. Thompson River shall sum the total concrete production for the previous day to verify compliance with the limitation in Section III.A.5. A written report of compliance and the emissions inventory shall be submitted to the Department annually. The report for the previous calendar year shall be submitted and may be submitted along with the annual emissions inventory (ARM 17.8.749).
 5. Thompson River shall document, by day, the hours of operation of the diesel-powered engine/generator. Thompson River shall sum the hours of operation of the diesel-powered engine/generator for the previous day to verify compliance with the limitation in Section III.A.6. A written report of compliance and the emissions inventory shall be submitted to the Department annually. The report for the previous calendar year shall be submitted and may be submitted along with the annual emissions inventory (ARM 17.8.749).

Addendum 1 Analysis
Thompson River Redi-Mix
MAQP #3791-01

I. Permitted Equipment

Thompson River Redi-Mix (Thompson River) operates a concrete batch plant, which includes an electric powered 1988 Ross 100 concrete batch plant (maximum capacity of 82 cubic yards per hour (yd³/hr)), a 2004 Besser Model DLS-260 Baghouse, a White 298-horsepower (hp) diesel generator, and associated equipment. A fabric filter controls particulate emissions from the cement silo. A rubber boot load-out spout controls particulate emissions from the cement batcher.

II. Source Description

For a typical operational setup, stockpiles of sand and gravel for concrete production are stored on site. A loader transfers the sand and gravel from the stockpiles to a weight hopper and the sand and gravel is then conveyed into the batch plant. The cement silo transfers the cement into the batch plant where water is added. The sand, gravel, cement, and water are then loaded into mixing trucks where the materials are mixed together to form concrete. The concrete is then transferred to various construction operations.

III. Applicable Rules and Regulations

The following are partial quotations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the 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

Emission Source	Pounds per day					
	PM	PM ₁₀	NO _x	VOC	CO	SO _x
1. Aggregate Delivery to Ground Storage	8.44	4.04	--	--	--	--
2. Sand Delivery to Ground Storage	1.97	0.93	--	--	--	--
3. Aggregate Transfer to Conveyor	8.44	4.04	--	--	--	--
4. Sand Transfer to Conveyor	1.97	0.93	--	--	--	--
5. Aggregate Transfer to Elevated Storage	4.22	2.02	--	--	--	--
6. Sand Transfer to Elevated Storage	0.98	0.46	--	--	--	--
7. Cement Delivery to Storage Silo	0.32	0.11	--	--	--	--
8. Cement Supplement (Fly ash) Unloading to Silo	0.43	0.23	--	--	--	--
9. Weigh Hopper Loading of Sand/Aggregate	13.46	6.34	--	--	--	--
10. Truck Mix Loading	149.94	42.24	--	--	--	--
11. Diesel Generator	10.49	10.49	147.81	11.78	31.85	9.77
12. Haul Roads	20.77	5.72	--	--	--	--
Total	221.42	77.54	147.81	11.78	31.85	9.77

1. Aggregate Delivery to Ground Storage

Maximum Process Rate = 76.47 tons/hr (46% of total concrete)

Hours of Operation = 16 hours (permit limit)

PM Emissions:

Emission Factor = 0.0069 lbs/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (76.47 tons/hr) * (0.0069 lbs/ton) * (1-0/100) = 8.44 lbs

PM-10 Emissions:

Emission Factor = 0.0033 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (76.47 tons/hr) * (0.0033 lb/ton) * (1-0/100) = 4.04 lbs

2. Sand Delivery to Ground Storage

Maximum Process Rate = 58.55 ton/hr (35% of total concrete)

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.0021 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (58.55 ton/hr) * (0.0021 lb/ton) * (1-0/100) = 1.97 lbs

PM-10 Emissions:

Emission Factor = 0.00099 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (58.55 ton/hr) * (0.00099 lb/ton) * (1-0/100) = 0.93 lbs

3. Aggregate Transfer to Conveyor

Maximum Process Rate = 76.47 ton/hr (46% of total concrete)

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.0069 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (76.47 ton/hr) * (0.0069 lb/ton) * (1-0/100) = 8.44 lbs

PM-10 Emissions:

Emission Factor = 0.0033 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (76.47 ton/hr) * (0.0033 lb/ton) * (1-0/100) = 4.04 lbs

4. Sand Transfer to Conveyor

Maximum Process Rate = 58.55 ton/hr (35% of total concrete)

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.0021 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (58.55 ton/hr) * (0.0021 lb/ton) * (1-0/100) = 1.97 lbs

PM-10 Emissions:

Emission Factor = 0.00099 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (58.55 ton/hr) * (0.00099 lb/ton) * (1-0/100) = 0.93 lbs

5. Aggregate Transfer to Storage Bins

Maximum Process Rate = 76.47 ton/hr (46% of total concrete)

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.0069 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 50% (water slurry)

Calculation: (16 hours) * (76.47 ton/hr) * (0.0069 lb/ton) * (1-50/100) = 4.22 lbs

PM-10 Emissions:

Emission Factor = 0.0033 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 50% (water slurry)

Calculation: (16 hours) * (76.47 ton/hr) * (0.0033 lb/ton) * (1-50/100) = 2.02 lbs

6. Sand Transfer to Storage Bins

Maximum Process Rate = 58.55 ton/hr (35% of total concrete)

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.0021 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 50% (water slurry)

Calculation: (16 hours) * (58.55 ton/hr) * (0.0021 lb/ton) * (1-50/100) = 0.98 lbs

PM-10 Emissions:

Emission Factor = 0.00099 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 50% (water slurry)

Calculation: (16 hours) * (58.55 ton/hr) * (0.00099 lb/ton) * (1-50/100) = 0.46 lbs

7. Cement Delivery to Silo

Maximum Process Rate = 20.13 ton/hr (12% of total concrete)

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.00099 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (20.13 ton/hr) * (0.00099 lb/ton) * (1-0/100) = 0.32 lbs

PM-10 Emissions:

Emission Factor = 0.00034 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (20.13 ton/hr) * (0.00034 lb/ton) * (1-0/100) = 0.11 lbs

8. Cement Supplement Unloading to Silo

Maximum Process Rate = 2.99 ton/hr (2% of total concrete)

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.0089 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (2.99 ton/hr) * (0.0089 lb/ton) * (1-0/100) = 0.43 lbs

PM-10 Emissions:

Emission Factor = 0.0049 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (2.99 ton/hr) * (0.0049 lb/ton) * (1-0/100) = 0.23 lbs

9. Weigh Hopper Loading of Sand/Aggregate

Maximum Process Rate = 164.98 ton/hr

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.0051 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (164.98 ton/hr) * (0.0051 lb/ton) * (1-0/100) = 13.46 lbs

PM-10 Emissions:

Emission Factor = 0.0024 lb/ton (uncontrolled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (164.98 ton/hr) * (0.0024 lb/ton) * (1-0/100) = 6.34 lbs

10. Truck Mix Loading of Cement/Supplement/Sand/Aggregate

Maximum Process Rate = 164.98 ton/hr

Hours of Operation = 16 hours

PM Emissions:

Emission Factor = 0.0568 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (164.98 ton/hr) * (0.0568 lb/ton) * (1-0/100) = 149.94 lbs

PM-10 Emissions:

Emission Factor = 0.016 lb/ton (controlled, AP-42, Table 11.12-2, 6/06)

PM Control Efficiency = 0%

Calculation: (16 hours) * (164.98 ton/hr) * (0.016 lb/ton) * (1-0/100) = 42.24 lbs

11. Diesel Engine Generator

Operational Capacity of Engine = 298 hp

Hours of Operation = 16 hours

PM Emissions:

PM Emissions = 10.49 lbs (Assume PM = PM10)

PM-10 Emissions:

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

Calculation: (16 hours) * (298 hp) * (0.0022 lbs/hp-hr) = 10.49 lbs

NOx Emissions:

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

Calculation: (16 hours) * (298 hp) * (0.031 lbs/hp-hr) = 147.81 lbs

CO Emissions:

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

Calculation: (16 hours) * (298 hp) * (0.00668 lbs/hp-hr) = 31.85 lbs

VOC Emissions:

Emission Factor = 0.00247 lbs/hp-hr (AP-42, Sec. 3.3, Table 3.3-1, 10/96)

Calculation: (16 hours) * (298 hp) * (0.00247 lbs/hp-hr) = 11.78 lbs

SOx Emissions:

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

Calculation: (16 hours) * (298 hp) * (0.00205 lbs/hp-hr) = 9.77 lbs

12. Haul Roads

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

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

Hours of Operation = 16 hours

PM Emissions:

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

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

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

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

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

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

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

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

Calculation: (16 hours) * (0.21 VMT/hr) * (12.46 lb/VMT) = 41.53 lbs

Calculation: (16 hours) * (0.21 VMT/hr) * (12.46 lb/VMT) * (1-50/100) = 20.77 lbs

PM10 Emissions:

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

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

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

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

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

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

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

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

Calculation: (16 hours) * (0.21 VMT/hr) * (3.43 lb/VMT) = 11.45 lbs

Calculation: (16 hours) * (0.21 VMT/hr) * (3.43 lb/VMT) * (1-50/100) = 5.72 lbs

V. Existing Air Quality

On July 1, 1987, the Environmental Protection Agency (EPA) promulgated new National Ambient Air Quality Standards (NAAQS) for particulate matter with an aerodynamic diameter of 10 microns or less (PM₁₀). Due to exceedances of the national standards for PM₁₀, the cities of Kalispell (and the nearby Evergreen area), Columbia Falls, Butte, Whitefish, Libby, Missoula, and Thompson Falls were designated by EPA as nonattainment for PM₁₀. As a result of this designation, the EPA required the Department and the City-County Health Departments to submit PM₁₀ State Implementation Plans (SIP). The SIPs consisted of emission control plans that controlled fugitive dust emissions from roads, parking lots, construction, and demolition, since technical studies identified these sources to be the major contributors to PM₁₀ emissions.

MAQP #3791-01 and Addendum 1 are for a portable crushing/screening plant that will locate at sites in or within 10 kilometers (km) of certain PM₁₀ nonattainment areas. The more stringent operating conditions contained in the addendum will minimize any potential impact on the nonattainment areas and will protect the national ambient air quality standards. Also, this facility is a portable source that would operate on an intermittent and temporary basis and any effects on air quality will be minor and short-lived.

VI. Air Quality Impacts

Permit #3791-01 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 crushing/screening plant, while operating in or within 10 km of a PM₁₀ nonattainment area (during the winter months, October 1 through March 31, the specific site may be approved by the Department). Additionally, the facility will also be allowed to operate in or within 10 km of PM₁₀ nonattainment areas during the summer months (April 1 through September 30).

VII. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications (see permit analysis for assessment).

VIII. Environmental Assessment

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

Permit Analysis Prepared by: Trista Glazier
Date: September 17, 2009