INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

TO: Interested Parties / Applicant

DATE: April 28, 2011

RE: MAC Construction & Excavating, Inc. / 019-30146-05282

FROM: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Suite N 501E, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for considerations at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER.dot12/03/07

IDEM

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Richard Downs
MAC Construction and Excavating, Inc.
P.O. Box 6787
New Albany, Indiana 47151

April 28, 2011

Re: 019-30146-05282
First Significant Revision to
F019-28936-05282

Dear Richard Downs:

Mac Construction and Excavating, Inc. was issued a Federally Enforceable State Operating Permit (FESOP) Renewal No. F019-28936-05282 on September 16, 2010 for a stationary drum mix asphalt plant located at 1417 Quarry Road, Jeffersonville, Indiana 47130. On January 25, 2011, the Office of Air Quality (OAQ) received an application from the source requesting to modify it permit to change from blast furnace slag to steel slag in its aggregate mix, and to modify its compliance determination methods when using multiple fuels and steel slag. The attached Technical Support Document (TSD) provides additional explanation of the changes to the source/permit. Pursuant to the provisions of 326 IAC 2-8-11.1, these changes to the permit are required to be reviewed in accordance with the Significant Permit Revision (SPR) procedures of 326 IAC 2-8-11.1(f). Pursuant to the provisions of 326 IAC 2-8-11.1, a significant permit revision to this permit is hereby approved as described in the attached Technical Support Document (TSD).

Pursuant to 326 IAC 2-8-11.1, this permit shall be revised by incorporating the significant permit revision into the permit. All other conditions of the permit shall remain unchanged and in effect. Attached please find the entire revised permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Jack Harmon, of my staff, at 317-233-4228 or 1-800-451-6027, and ask for extension 3-4228.

Sincerely,

Iryn Calilung, Section Chief
Permits Branch
Office of Air Quality

Attachments: Technical Support Document and revised permit

IC/jh

cc: File - Clark County
Clark County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch
Billing, Licensing and Training Section

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Federally Enforceable State Operating Permit Renewal
OFFICE OF AIR QUALITY

MAC Construction and Excavating, Inc.
1417 Quarry Road
Jeffersonville, Indiana 47130

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The issuance or possession of this permit shall not alone constitute a defense against an alleged violation of any law, regulation or standard, except for the requirement to obtain a FESOP under 326 IAC 2-8.

Operation Permit No.: F019-28936-05282	
Original Signed by: Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: September 16, 2010 Expiration Date: September 16, 2020
First Significant Revision No.: 019-30146-05282	
Issued by: Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: April 28, 2011 Expiration Date: September 16, 2020

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SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-8-3(b)]

The Permittee owns and operates a stationary stationary drum mix asphalt plant.

Source Address:	1417 Quarry Road, Jeffersonville, Indiana 47130
General Source Phone Number:	812-670-0204
SIC Code:	2951
County Location:	Clark
Source Location Status:	Nonattainment for PM2.5 standard Attainment for all other criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

This stationary source consists of the following emission units and pollution control devices:

(a) One (1) drum mix asphalt plant, identified as Unit ID ES1, with a maximum rated throughput capacity of 400 tons per hour, equipped with one (1) 100 million British thermal units per hour (MMBtu/hr) fuel oil-fired burner, using either No. 4 fuel oil, No. 6 fuel oil, or waste oil, with particulate emissions controlled by one (1) baghouse, identified as CD-1, exhausting at one (1) stack (Stack ID: EP1). This drum mix unit uses steel slag in its aggregate mix, and does not produce cold mix.

Under NSPS 40 CFR Part 60, Subpart I, this source is considered an affected source.

(b) One (1) 30,000 gallon split fuel tank, consisting of one (1) 19,500 gallon storage reservoir, identified as Tank 1a, and one (1) 10,500 gallon storage reservoir, identified as Tank 1b, with both storage reservoirs separated by a permanent wall divider;

(c) Two (2) 20,000 gallon liquid asphalt cement storage tanks, identified as Tanks 2 and 4; and

(d) One (1) 15,000 gallon liquid asphalt storage tank, identified as Tank 3.

A.3 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(I)]

This stationary source also includes the following insignificant activities:

(a) Fuel oil-fired combustion sources with heat input equal to or less than two million (2,000,000) Btu per hour and firing fuel containing less than five-tenths (0.5) percent sulfur by weight including:

(1) One (1) No. 2 distillate fuel oil-fired hot oil heater, rated at 1.2 MMBtu per hour; exhausting through stack EP2.

(b) VOC and HAP storage containers storing lubricating oils, hydraulic oils, machining oils, and machining fluids.

(c) The following equipment related to manufacturing activities not resulting in the emission of HAPs: brazing equipment, cutting torches, soldering equipment, welding equipment. [326 IAC 6-3-2(e)(2)]

(d) Structural steel and bridge fabrication activities using 80 tons or less of welding consumables.

(e) Equipment used to collect any material that might be released during a malfunction, process upset, or spill cleanup, including catch tanks, temporary liquid separators, tanks, and fluid handling equipment.

(f) Aggregate and RAP storage piles.

A.4 FESOP Applicability [326 IAC 2-8-2]

This stationary source, otherwise required to have a Part 70 permit as described in 326 IAC 2-7-2(a), has applied to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) to renew a Federally Enforceable State Operating Permit (FESOP).

SECTION B GENERAL CONDITIONS

B.1 Definitions [326 IAC 2-8-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]

(a) This permit, F019-28936-05282, is issued for a fixed term of ten (10) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

(b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

B.3 Term of Conditions [326 IAC 2-1.1-9.5]

Notwithstanding the permit term of a permit to construct, a permit to operate, or a permit modification, any condition established in a permit issued pursuant to a permitting program approved in the state implementation plan shall remain in effect until:

(a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or

(b) the emission unit to which the condition pertains permanently ceases operation.

B.4 Enforceability [326 IAC 2-8-6] [IC 13-17-12]

Unless otherwise stated, all terms and conditions in this permit, including any provisions designed to limit the source's potential to emit, are enforceable by IDEM, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

B.5 Severability [326 IAC 2-8-4(4)]

The provisions of this permit are severable; a determination that any portion of this permit is invalid shall not affect the validity of the remainder of the permit.

B.6 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]

This permit does not convey any property rights of any sort or any exclusive privilege.

B.7 Duty to Provide Information [326 IAC 2-8-4(5)(E)]

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

B.8 Certification [326 IAC 2-8-3(d)][326 IAC 2-8-4(3)(C)(i)][326 IAC 2-8-5(1)]

(a) A certification required by this permit meets the requirements of 326 IAC 2-8-5(a)(1) if:

(i) it contains a certification by an "authorized individual", as defined by 326 IAC 2-1.1-1(1), and

(ii) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) The Permittee may use the attached Certification Form, or its equivalent with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.

(c) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

B.9 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]

(a) The Permittee shall annually submit a compliance certification report which addresses the status of the source's compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. All certifications shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than April 15 of each year to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) The annual compliance certification report shall include the following:

(1) The appropriate identification of each term or condition of this permit that is the basis of the certification;

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

(4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and

(5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

B.10 Compliance Order Issuance [326 IAC 2-8-5(b)]

IDEM, OAQ may issue a compliance order to this Permittee upon discovery that this permit is in nonconformance with an applicable requirement. The order may require immediate compliance or contain a schedule for expeditious compliance with the applicable requirement.

B.11 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)][326 IAC 2-8-5(a)(1)]

(a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

The Permittee shall implement the PMPs.

(b) If required by specific condition(s) in Section D of this permit where no PMP was previously required, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The PMP extension notification does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

The Permittee shall implement the PMPs.

(c) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions. The PMPs and their submittal do not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(d) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

B.12 Emergency Provisions [326 IAC 2-8-12]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except as provided in 326 IAC 2-8-12.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, or Southeast Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or
Telephone Number: 317-233-0178 (ask for Office of Air Quality, Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865
Southeast Regional Office phone: (812) 358-2027; fax: (812) 358-2058**.**

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-8-4(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.

(g) Operations may continue during an emergency only if the following conditions are met:

(1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

(2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:

(A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and

(B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]

(a) All terms and conditions of permits established prior to F019-28936-05282 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised, or

(3) deleted.

(b) All previous registrations and permits are superseded by this permit.

B.14 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]

The Permittee's right to operate this source terminates with the expiration of this permit unless a timely and complete renewal application is submitted at least nine (9) months prior to the date of expiration of the source's existing permit, consistent with 326 IAC 2-8-3(h) and 326 IAC 2-8-9.

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)][326 IAC 2-8-7(a)][326 IAC 2-8-8]

(a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Federally Enforceable State Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-8-4(5)(C)] The notification by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ determines any of the following:

(1) That this permit contains a material mistake.

(2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.

(3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]

(c) Proceedings by IDEM, OAQ to reopen and revise this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. Such reopening and revision shall be made as expeditiously as practicable. [326 IAC 2-8-8(b)]

(d) The reopening and revision of this permit, under 326 IAC 2-8-8(a), shall not be initiated before notice of such intent is provided to the Permittee by IDEM, OAQ at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

B.16 Permit Renewal [326 IAC 2-8-3(h)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(b) A timely renewal application is one that is:

(1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and

(2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified, pursuant to 326 IAC 2-8-3(g), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.17 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]

(a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.18 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

(a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-8-15(b) through (d) without a prior permit revision, if each of the following conditions is met:

(1) The changes are not modifications under any provision of Title I of the Clean Air Act;

(2) Any approval required by 326 IAC 2-8-11.1 has been obtained;

(3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);

(4) The Permittee notifies the:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Regulation Development Branch - Indiana (AR-18J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

in advance of the change by written notification at least ten (10) days in advance of the proposed change. The Permittee shall attach every such notice to the Permittee's copy of this permit; and

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-8-15(b) through (d). The Permittee shall make such records available, upon reasonable request, for public review.

Such records shall consist of all information required to be submitted to IDEM, OAQ in the notices specified in 326 IAC 2-8-15(b)(2), (c)(1), and (d).

(b) Emission Trades [326 IAC 2-8-15(c)]
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-8-15(c).

(c) Alternative Operating Scenarios [326 IAC 2-8-15(d)]
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ, or U.S. EPA is required.

(d) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

B.19 Source Modification Requirement [326 IAC 2-8-11.1]

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2.

B.20 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee’s right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

(a) Enter upon the Permittee's premises where a FESOP source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;

(b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

(d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and

(e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.21 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

(a) The Permittee must comply with the requirements of 326 IAC 2-8-10 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.

(b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:

Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

Any such application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

B.22 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ no later than thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

(b) Failure to pay may result in administrative enforcement action or revocation of this permit.

(c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

B.23 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any condition of this permit, nothing in this permit shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether the Permittee would have been in compliance with the condition of this permit if the appropriate performance or compliance test or procedure had been performed.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

Emission Limitations and Standards [326 IAC 2-8-4(1)]

C.1 Overall Source Limit [326 IAC 2-8]

The purpose of this permit is to limit this source's potential to emit to less than major source levels for the purpose of Section 502(a) of the Clean Air Act.

(a) Pursuant to 326 IAC 2-8:

(1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period.

(2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and

(3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

(b) Pursuant to 326 IAC 2-2 (PSD), potential to emit particulate matter (PM) from the entire source shall be limited to less than two hundred fifty (250) tons per twelve (12) consecutive month period.

(c) This condition shall include all emission points at this source including those that are insignificant as defined in 326 IAC 2-7-1(21). The source shall be allowed to add insignificant activities not already listed in this permit, provided that the source's potential to emit does not exceed the above specified limits.

(d) Section D of this permit contains independently enforceable provisions to satisfy this requirement.

C.2 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-1 (Applicability) and 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.3 Open Burning [326 IAC 4-1] [IC 13-17-9]

The Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

C.4 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator except as provided in 326 IAC 4-2 or in this permit. The Permittee shall not operate a refuse incinerator or refuse burning equipment except as provided in 326 IAC 9-1-2 or in this permit.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

C.6 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the attached plan as in Attachment A.

C.7 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

(a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.

(b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:

(1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or

(2) If there is a change in the following:

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

(c) The Permittee shall ensure that the notice is postmarked or delivered according to the guidelines set forth in 326 IAC 14-10-3(2).

(d) The notice to be submitted shall include the information enumerated in 326 IAC 14-10-3(3).

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers

and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.

(f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

(g) Indiana Licensed Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

Testing Requirements [326 IAC 2-8-4(3)]

C.8 Performance Testing [326 IAC 3-6]

(a) For performance testing required by this permit, a test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.9 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]

C.10 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]

Unless otherwise specified in this permit, for all monitoring requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or of initial start-up, whichever is later, to begin such monitoring. If due to circumstances beyond the Permittee's control, any monitoring equipment required by this permit cannot be installed and operated no later than ninety (90) days after permit issuance or the date of initial startup, whichever is later, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date.

The notification which shall be submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units or emission units added through a permit revision shall be implemented when operation begins.

C.11 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.

(b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

Corrective Actions and Response Steps [326 IAC 2-8-4][326 IAC 2-8-5(a)(1)]

C.12 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall maintain the most recently submitted written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

C.13 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]

If a regulated substance, as defined in 40 CFR 68, is present at a source in more than a threshold quantity, the Permittee must comply with the applicable requirements of 40 CFR 68.

C.14 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

Upon detecting an excursion where a response step is required by the D Section or an exceedance of a limitation in this permit:

(a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.

(b) The response shall include minimizing the period of any startup, shutdown or malfunction. The response may include, but is not limited to, the following:

(1) initial inspection and evaluation;

(2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or

(3) any necessary follow-up actions to return operation to normal or usual manner of operation.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;

(2) review of operation and maintenance procedures and records; and/or

(3) inspection of the control device, associated capture system, and the process.

(d) Failure to take reasonable response steps shall be considered a deviation from the permit.

(e) The Permittee shall record the reasonable response steps taken.

C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ, no later than seventy-five (75) days after the date of the test.

(b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Record Keeping and Reporting Requirements [326 IAC 2-8-4(3)]

C.16 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, for all record keeping requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or the date of initial start-up, whichever is later, to begin such record keeping.

C.17 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

(b) The address for report submittal is:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

(c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.

(d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

C.18 Compliance with 40 CFR 82 and 326 IAC 22-1

Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with applicable standards for recycling and emissions reduction.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) drum mix asphalt plant, identified as Unit ID ES1, with a maximum rated throughput capacity of 400 tons per hour, equipped with one (1) 100 million British thermal units per hour (MMBtu/hr) fuel oil-fired burner, using either No. 4 fuel oil, No. 6 fuel oil, or waste oil, with particulate emissions controlled by one (1) baghouse, identified as CD-1, exhausting at one (1) stack (Stack ID: EP1). This drum mix unit uses steel slag in its aggregate mix, and does not produce cold mix.

Under NSPS 40 CFR Part 60, Subpart I, this source is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-8-4(1)]

D.1.1 Particulate Matter (PM) [326 IAC 6.5-1-2(a)]

Pursuant to 326 IAC 6.5-1-2(a) (Particulate Matter Limitations), particulate emissions from the dryer/mixer shall not exceed 0.03 gr/dscf.

D.1.2 PSD Minor Limit [326 IAC 2-2]

In order to render 326 IAC 2-2 not applicable,

(a) The amount of asphalt processed shall not exceed 960,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(b) The Particulate Matter (PM) emissions from the dryer/mixer shall not exceed 0.407 pounds of PM per ton of asphalt produced.

Compliance with these limits, combined with limited potential to emit PM emissions to less than two hundred fifty (250) tons per twelve (12) consecutive month period will render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.3 FESOP Limits [326 IAC 2-8-4][326 IAC 8-1-6] [326 IAC 2-2]

Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following:

(a) The amount of asphalt processed shall not exceed 960,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) The amount of steel slag used shall not exceed 100,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) PM_{10} emissions from the dryer/mixer shall not exceed 0.172 pounds per ton of asphalt produced.

(d) $PM_{2.5}$ emissions from the dryer/mixer shall not exceed 0.191 pounds per ton of asphalt produced.

(e) CO emissions from the dryer/mixer shall not exceed 0.130 pounds per ton of asphalt produced.

(f) VOC emissions shall not exceed 0.032 pounds per ton of asphalt produced.

(g) SO_2 emissions from the use of steel slag in the dryer/mixer shall not exceed 0.0014 pounds SO_2 per ton of slag processed.

Compliance with these limits, combined with limited potential to emit PM10, PM2.5, SO2, and CO from all other emission units, shall limit source-wide total potential to emit of PM_{10}, $PM_{2.5}$, SO_2 and CO emissions to less than one hundred (100) tons per twelve (12) consecutive month period, each, and VOC to less than twenty-five (25) tons per twelve (12) consecutive month period. Therefore, compliance with these limits will render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), 326 IAC 2-7 (Part 70), 326 IAC 2-5.1-3 Nonattainment NSR, and 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities) not applicable.

D.1.4 Fuel Limitations [326 IAC 2-8-4] [326 IAC 2-2][326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP), the Permittee shall comply with the following fuel limitations:

(a) Fuel Content and Slag Specifications

(1) The sulfur content of the No. 6 fuel oil used shall not exceed five-tenths percent (0.50%) by weight.

(2) The sulfur content of the No. 4 fuel oil shall not exceed five-tenths percent (0.5%) by weight.

(3) The sulfur content of the waste oil shall not exceed forty-seven hundredths percent (0.47%) by weight.

(4) The sulfur content of the steel slag shall not exceed thirty-three hundredths percent (0.33%) by weight.

(5) The HCl emissions shall not exceed 0.007524 pounds of HCl per gallon of waste oil used.

(6) The chlorine content of the waste oil shall not exceed one hundred fourteen thousandths percent (0.114%) by weight.

(b) Pursuant to 326 IAC 2-8-4, the SO2 emissions from the aggregate mixer/dryer burner shall be limited as follows:

(1) <u>Single Fuel Usage Limitations</u>

When combusting only one type of fuel per twelve (12) consecutive month period in the dryer/mixer burner the usage of fuel shall be limited as follows:

(i) No. 4 fuel oil usage shall not exceed 2,570,014 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(ii) No. 6 fuel oil usage shall not exceed 2,455,427 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(iii) Waste oil usage shall not exceed 2,789,854 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) Multiple Fuel Usage Limitations

When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of steel slag in the aggregate mix, emissions from the dryer/mixer shall be limited as follows:

(i) SO2 emissions from the dryer/mixer from combustion and use of steel slag shall not exceed 95.17 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limits, combined with the emissions from all other units at this source, shall limit the source-wide total potential to emit NOx and SO_2 to less than 100 tons per 12 consecutive month period, each, HCL to less than 10 tons per 12 consecutive month period, and any combination of HAPs to less than 25 tons per 12 consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

D.1.5 SO_2 Emissions [326 IAC 7-1.1-2]

Pursuant to 326 IAC 7-1.1-2 (Sulfur Dioxide Emission Limitations), the SO_2 emissions from the dryer/mixer, which exhaust through stack EP1 shall not exceed the following:

(a) 0.5 pounds per million Btu heat input for distillate oil combustion; and

(b) 1.6 pounds per million Btu heat input for residual oil combustion.

Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated by reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate in pounds per MMBtu upon request.

D.1.6 VOC Emissions [326 IAC 2-8-4][326 IAC 2-2] [326 IAC 8-5-2]

The Permittee shall not use cutback asphalt liquid binder nor produce cold mix asphalt. Any change or modification that would cause the source to use cutback asphalt or begin cold mix production shall require prior approval from IDEM, OAQ.

D.1.7 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan is required for the dryer/mixer, and its baghouse control device. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements

D.1.8 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with the Conditions D.1.1, D.1.2, and D.1.3, the Permittee shall perform the following:

(a) In order to ensure compliance with the PM limit, the Permittee shall perform PM testing of the dryer/mixer utilizing methods approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration.

(b) In order to demonstrate compliance with the PM2.5 and PM10 limits, the Permittee shall perform PM2.5 and PM10 testing on the dryer/mixer not later than 180 days of publication of the new or revised condensable PM test method(s) referenced in the U.S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5), signed on May 8th, 2008, or five

(5) years from the most recent valid compliance stack test, whichever is later. This testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). These tests shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.

(c) In order to demonstrate compliance with the SO2 limits, due to the usage of steel slag, the Permittee shall perform SO2 testing on dryer/mixer not later than 180 days of the issuance of the permit when slag is being used, or from the time slag is first used, whichever is earlier. This testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

D.1.9 PM, $PM_{10,}$ and $PM_{2.5}$ Control

(a) In order to comply with Conditions D.1.1, D.1.2, D.1.3 (c), and D.1.3(d), the baghouse for particulate control, shall be in operation and control emissions from dryer/mixer at all times that the rotary dryer/mixer is in operation.

(b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

D.1.10 Sulfur Dioxide (SO_2) Emissions and Sulfur Content

(a) Compliance with the slag limitations established in Condition D.1.4(a)(4) shall be determined utilizing one of the following options:

(1) Providing vendor analysis of all slag delivered, if accompanied by a vendor certification; or

(2) Analyzing a sample of the slag delivery to determine the sulfur content of the slag, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A determination of noncompliance pursuant to any of the methods specified in (1) or (2) above shall not be refuted by evidence of compliance pursuant to the other method.

(b) Compliance with the fuel limitations established in Condition D.1.4 shall be determined utilizing one of the following options. Pursuant to 326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements), compliance shall be demonstrated on a thirty (30) day calendar-month average.

(1) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate compliance with Condition D.1.4 by one of the following methods:

(A) Providing vendor analysis of all fuel delivered, if accompanied by a vendor certification; or

(B) Analyzing the fuel sample to determine the sulfur content of the fuel via

the procedures in 40 CFR 60, Appendix A, Method 19.

(i) Fuel samples may be collected from the fuel storage tank immediately after the fuel tank is filled and before any oil is combusted; and

(ii) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.

(2) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the 100 MMBtu/hr burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

A determination of noncompliance pursuant to any of the methods specified in (1) or (2) above shall not be refuted by evidence of compliance pursuant to the other method.

D.1.11 Multiple Fuel Usage / Sulfur Dioxide (SO2) Emissions

(a) In order to determine compliance with Condition D.1.4(b)(2) - Sulfur Dioxide (SO_2) Limits, when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of steel slag in the aggregate mix, the Permittee shall use the following equation to determine the tons of SO2 emitted per twelve (12) consecutive month period:

Sulfur Dioxide emission calculation

$$S = \frac{F(E_F) + R(E_R) + W(E_W) + L(E_L)}{2{,}000 \text{ lbs / ton}}$$

Where:

S = tons of sulfur dioxide emissions for twelve (12) month consecutive period

F = gallons of No. 4 fuel oil used in last twelve (12) months

R = gallons of No. 6 fuel oil used in last twelve (12) months

W= gallons of Waste oil used in the last twelve (12) months

L = tons of steel slag used in last twelve (12) months with less than or equal to thirty-three hundredths percent (0.33%) sulfur content

Emission Factors:

E_F = 0.075 pounds per gallon of No. 4 fuel oil

E_R = 0.0785 pounds per gallon of No. 6 fuel oil

E_W = 0.0691 pounds per gallon of Waste oil

E_L = 0.0014 pounds per ton of steel slag

D.1.12 Hydrogen Chloride (HCl) Emissions and Chlorine Content

Pursuant to 326 IAC 2-8-4, the Permittee shall demonstrate compliance with Condition D.1.4(a)(5) providing a vendor analysis of each fuel delivery accompanied by a vendor certification.

Compliance Monitoring Requirements [326 IAC 2-8-4] [326 IAC 2-8-5(a)(1)]

D.1.13 Visible Emissions Notations

(a) Visible emission notations of the conveyers, material transfer points, and the dryer/mixer, stack exhaust (EP1) shall be performed at least once per day during normal daylight

operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) If abnormal emission is observed, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions and Exceedances. Failure to take response steps in accordance with Section C – Response to Excursions and Exceedances shall be considered a deviation from this permit.

D.1.14 Parametric Monitoring

The Permittee shall record the pressure drop across the baghouse used in conjunction with the mixer/dryer, at least once per day when the mixing/drying process is in operation and venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 2.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C – Response to Excursions and Exceedances. A pressure reading that is outside of the above mentioned range is not a deviation from this permit, however, failure to take response steps in accordance with Section C – Response to Excursions and Exceedances, shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.1.15 Broken or Failed Bag Detection

In the event that bag failure has been observed:

(a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

(b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the emission unit. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Bag failure can be indicated by a significant drop in the baghouses' pressure reading with abnormal visible emissions, by an opacity violation, or by other means such as gas temperature, flow rate, air infiltration, leaks, dust traces or triboflows.

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.1.16 Record Keeping Requirements

(a) To document the compliance status with Conditions D.1.2 and D.1.3, the Permittee shall maintain records of the amount of asphalt produced per month.

(b) To document the compliance status with Condition D.1.3, the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken daily and shall be complete and sufficient to establish compliance with the SO_2 emission limits established in Condition D.1.4. For the sulfur content limit, the compliance determination period is each calendar month.

(1) Calendar dates covered in the compliance determination period;

(2) Actual slag usage, sulfur content in weight percent (wt%) and the equivalent sulfur dioxide emission rates for all slag used at the source per month;

(3) A certification, signed by the owner or operator, that the records of the slag supplier certifications represent all of the slag used during the period; and

If the slag supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:

(4) Slag supplier certifications;

(5) The name of the slag supplier; and

(6) A statement from the slag supplier that certifies the sulfur content of the slag.

(c) To document the compliance status with Conditions D.1.3, and D.1.4, the Permittee shall maintain records in accordance with (1) through (7) below. Records maintained for (1) through (7) shall be taken daily and shall be complete and sufficient to establish compliance with the SO_2, HCl and NO_X emission limits established in Conditions D.1.3, and D.1.4. For the annual fuel limits, the compliance determination period is the most recent twelve (12) consecutive month period. For the HCl and sulfur content limits, the compliance determination period is each calendar month.

(1) Calendar dates covered in the compliance determination period;

(2) Actual fuel usage, sulfur content, heat content, and equivalent sulfur dioxide and nitrogen oxide emission rates for each fuel used at the source per month;

(3) Actual recycled (waste) oil usage, chlorine content in weight percent (wt%), and equivalent hydrogen chloride (HCl) emission rate per month;

(4) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and

If the fuel supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:

(5) Fuel supplier certifications;

(6) The name of the fuel supplier; and

(7) A statement from the fuel supplier that certifies the sulfur content of the No. 2 fuel

oil and the recycled (waste) oil, and the chlorine, ash, and lead content of recycled (waste) oil.

(d) To document the compliance status with Condition D.1.13, the Permittee shall maintain records of visible emission notations of the conveyers, material transfer points, and the mixer/dryer stack exhaust (EP-1) at least once per day when the asphalt plant is operating. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the plant did not operate that day).

(e) To document the compliance status with Condition D.1.14, the Permittee shall maintain records of the pressure drop daily. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (e.g., the mixer/dryer did not operate that day).

(f) The Permittee shall maintain records of all recording/monitoring data, calculations, and support information. Section C - General Record Keeping Requirements, contains the Permittee's obligation with regard to the records required by this condition. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

D.1.17 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.2, D.1.3, D.1.4, and D.1.5, shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the “authorized individual” as defined by 326 IAC 2-1.1-1(1).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(b) One (1) 30,000 gallon split fuel tank, consisting of one (1) 19,500 gallon storage reservoir, identified as Tank 1a, and one (1) 10,500 gallon storage reservoir, identified as Tank 1b, with both storage reservoirs separated by a permanent wall divider;

(c) Two (2) 20,000 gallon liquid asphalt cement storage tanks, identified as Tanks 2 and 4; and

(d) One (1) 15,000 gallon liquid asphalt storage tank, identified as Tank 3.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

Record Keeping and Reporting Requirement [326 IAC 2-8-4(3)] [326 IAC 2-8-16]

D.2.1 Record Keeping Requirements [326 IAC 8-9]

(a) Pursuant to 326 IAC 8-9-6(a), the Permittee shall keep all records for Tanks 1a, 1b, 2, 3, and 4 required by this section for three (3) years unless specified otherwise. Records required by subsection (b) shall be maintained for the life of the vessel.

(b) Pursuant to 326 IAC 8-9-6(b), the Permittee shall maintain a record for Tanks 1a, 1b, 2, 3, and 4, and submit to the department a report containing the following information for each vessel:

(1) The vessel identification number.
(2) The vessel dimensions.
(3) The vessel capacity.

SECTION E.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) drum mix asphalt plant, identified as Unit ID ES1, with a maximum rated throughput capacity of 400 tons per hour, equipped with one (1) 100 million British thermal units per hour (MMBtu/hr) fuel oil-fired burner, using either No. 4 fuel oil, No. 6 fuel oil, or waste oil, with particulate emissions controlled by one (1) baghouse, identified as CD-1, exhausting at one (1) stack (Stack ID: EP1). This drum mix unit uses steel slag in its aggregate mix, and does not produce cold mix.

Under NSPS 40 CFR Part 60, Subpart I, this source is considered an affected source.

(The information describing the process contained in this emissions unit description box is descriptive information and does not constitute enforceable conditions.)

E.1.1 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR Part 60, Subpart I.

E.1.2 Particulate Matter (PM) [326 IAC 12] [40 CFR 60.90, Subpart I]

Pursuant to 326 IAC 12, (40 CFR Part 60.90, Subpart I) “Standards of Performance for Hot Mix Asphalt Facilities”, the particulate matter emissions from the aggregate mixing and drying operation (Emission Unit ID ES1) shall be limited to 0.04 grains per dry standard cubic foot (gr/dscf). Compliance with condition D.1.7 will satisfy this requirement.

The dryer/mixer is subject to the following provisions of 40 CFR 60, Subpart I:

(1) 40 CFR 60.90.
(2) 40 CFR 60.91.
(3) 40 CFR 60.92, and
(4) 40 CFR 60.93.

This Subpart is shown in its entirety in Attachment B of the permit.

E.1.3 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

To document the compliance status with Condition E.1.2, the Permittee shall perform the stack testing required under NSPS 40 CFR 60, Subpart I, utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: MAC Construction and Excavating, Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.: F019-28936-05282

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this permit.

Please check what document is being certified:

- ☐ Annual Compliance Certification Letter
- ☐ Test Result (specify)_____
- ☐ Report (specify)_____
- ☐ Notification (specify)_____
- ☐ Affidavit (specify)_____
- ☐ Other (specify)_____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:
Printed Name:
Title/Position:
Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
Phone: (317) 233-0178
Fax: (317) 233-6865

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) EMERGENCY OCCURRENCE REPORT

Source Name: MAC Construction and Excavating, Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.: F019-28936-05282

This form consists of 2 pages **Page 1 of 2**

☐ This is an emergency as defined in 326 IAC 2-7-1(12)
- The Permittee must notify the Office of Air Quality (OAQ), within four (**4**) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and
- The Permittee must submit notice in writing or by facsimile within two (**2**) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:
Control Equipment:
Permit Condition or Operation Limitation in Permit:
Description of the Emergency:
Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A **Page 2 of 2**

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency? Y N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO_2, VOC, NO_X, CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by:_____

Title / Position:_____

Date:_____

Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

FESOP Quarterly Report

Source Name: MAC Construction and Excavating, Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.: F019-28936-05282
Facility: Entire Asphalt Plant
Parameter: Asphalt Production
Limit: Shall not exceed 960,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:_____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

FESOP Quarterly Report

Source Name: MAC Construction and Excavating, Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.: F019-28936-05282
Facility: Entire Asphalt Plant
Parameter: Steel Slag Usage
Limit: Shall not exceed 100,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:_____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

FESOP Quarterly Report

Source Name: MAC Construction and Excavating, Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.: F019-28936-05282
Facility: Dryer/Mixer
Parameter: No. 4 Fuel Oil Usage to limit SO2 emissions
Limit: When combusting only one type of fuel in the dryer/burner, the usage of No. 4 Fuel oil for the dryer burner shall not exceed 2,570,014 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	No. 4 Fuel Oil Usage This Month (gallons)	No. 4 Fuel Oil Usage Previous 11 Months (gallons)	No. 4 Fuel Oil Usage 12 Month Total (gallons)
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:_____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

FESOP Quarterly Report

Source Name: MAC Construction and Excavating, Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.: F019-28936-05282
Facility: Dryer/Mixer
Parameter: No. 6 Fuel Oil Usage to limit SO2 emissions
Limit: When combusting only one type of fuel in the dryer/burner, the usage of No. 6 Fuel oil for the dryer burner shall not exceed 2,455,427 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	No. 6 Fuel Oil Usage This Month (gallons)	No. 6 Fuel Oil Usage Previous 11 Months (gallons)	No. 6 Fuel Oil Usage 12 Month Total (gallons)
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:_____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH

FESOP Quarterly Report

Source Name: MAC Construction and Excavating, Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.: F019-28936-05282
Facility: Dryer/Mixer
Parameter: Waste Oil Usage to limit SO2 emissions
Limit: When combusting only one type of fuel in the dryer/burner, the usage of Waste oil for the dryer burner shall not exceed 2,789,854 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	Waste Oil Usage This Month (gallons)	Waste Oil Usage Previous 11 Months (gallons)	Waste Oil Usage 12 Month Total (gallons)
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.
Deviation has been reported on:_____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: MAC Construction and Excavating, Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.: F019-28936-05282

Months: _____ **to** _____ **Year:** _____

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked ANo deviations occurred this reporting period@.	
☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	**Duration of Deviation:**
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed by:_____

Title / Position:_____

Date:_____

Phone: _____

ATTACHMENT A

ASPHALT PLANT SITE FUGITIVE DUST CONTROL PLAN
For

MAC Construction and Excavating, Inc.
Jeffersonville, Indiana

Revised: July 1, 2010

The one lane road on the asphalt plant site is asphalt. Hanson's Quarry has asphalt from their scales to Hamburg Pike. The two-lane road from the scale house to the asphalt plant is crushed limestone.

Hanson's Quarry maintains a water truck to control dust. A twenty-five (25) foot earthen berm has been created on the south side of the facility to reduce the possibility of dust traveling off the property.

The facility also has an automatic dust suppression sprinkler system which comes on at regular intervals not to exceed every two (2) hours during plant operation, and more frequently as needed to control dust.

ATTACHMENT B

NSPS Subpart I, Hot Mix Asphalt Facilities for FESOP Renewal No.: 019-28936-05282 MAC Construction and Excavating, Inc.

§ 60.90 Applicability and designation of affected facility.

(a) The affected facility to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: 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.

(b) Any facility under paragraph (a) of this section that commences construction or modification after June 11, 1973, is subject to the requirements of this subpart.

§ 60.91 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and in subpart A of this part.

(a) ***Hot mix asphalt facility*** means any facility, as described in §60.90, used to manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements.

[51 FR 12325, Apr. 10, 1986]

§ 60.92 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:

(1) Contain particulate matter in excess of 0.04 gr/dscf (90 mg/dscm).

(2) Exhibit 20 percent opacity, or greater.

§ 60.93 Test methods and procedures.

(a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).

(b) The owner or operator shall determine compliance with the particulate matter standards in §60.92 as follows:

(1) Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).

(2) Method 9 and the procedures in §60.11 shall be used to determine opacity.

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Significant Permit Revision to a Federally Enforceable State Operating Permit (FESOP) Renewal

Source Description and Location

Source Name:	**MAC Construction and Excavating, Inc.**
Source Location:	**1417 Quarry Road, Jeffersonville, Indiana 47130**
County:	**Clark**
SIC Code:	**2951**
Operation Permit No.:	**F 019-28936-05282**
Operation Permit Issuance Date:	**September 16, 2010**
Significant Permit Revision No.:	**019-30146-05282**
Permit Reviewer:	**Jack Harmon**

On January 25, 2011, the Office of Air Quality (OAQ) received an application from MAC Construction and Excavating, Inc. related to a modification to an existing stationary drum mix asphalt plant. Additional information was received on January 26, 2011 and March 1, 2011.

Existing Approvals

The source was issued FESOP Renewal No. 019-28936-05282 on September 16, 2010. There have been no subsequent approvals.

County Attainment Status

The source is located in Clark County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Attainment effective July 19, 2007, for the 8-hour ozone standard.[1]
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Not designated.

[1]Attainment effective October 23, 2001, for the 1-hour ozone standard for the Louisville area, including Clark County, and is a maintenance area for the 1-hour ozone National Ambient Air Quality Standard (NAAQS) for purposes of 40 CFR Part 51, Subpart X*. The 1-hour standard was revoked effective June 15, 2005.

Basic nonattainment designation effective federally April 5, 2005, for PM2.5.

(a) Ozone Standards
Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Clark County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) $PM_{2.5}$
Clark County has been classified as nonattainment for PM2.5 in 70 FR 943 dated January 5, 2005. On May 8, 2008, U.S. EPA promulgated specific New Source Review rules for $PM_{2.5}$ emissions. These rules became effective on July 15, 2008. Therefore, direct $PM_{2.5}$ and SO_2 emissions were reviewed pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5. See the State Rule Applicability – Entire Source section.

(c) Other Criteria Pollutants
Clark County has been classified as nonattainment in Indiana for PM2.5. Therefore, these emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

Fugitive Emissions

This type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2, 326 IAC 2-3, or 326 IAC 2-7, however, there is an applicable New Source Performance Standard that was in effect on August 7, 1980 (NSPS 40 CFR Part 60, Subpart I); therefore fugitive emissions, from the affected facility to which the New Source Performance Standard is applicable, are counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Status of the Existing Source

The table below summarizes the potential to emit of the entire source, prior to the proposed revision, after consideration of all enforceable limits established in the effective permits:

	Potential To Emit After Issuance (tons/year)							
Process/ Emission Unit	**PM**	**PM_{10}***	**$PM_{2.5}$**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**
Dryer Fuel Combustion, with baghouse (worst case)	24.68	19.67	19.67	95.10	59.60	0.77	6.34	6.59 (5.80 HCl)
Dryer/Mixer Process, with baghouse	195.38	82.42	91.48	27.84	26.40	15.36	62.40	5.12 (1.49 formaldehyde)
Dryer, 46P, Slag Processing, with baghouse	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00
Hot Oil Heater Combustion (worst case)	0.07	0.12	0.12	2.55	0.72	0.03	0.42	0.01
Worst Case Emissions	195.45	82.54	91.60	99.00	60.32	15.39	62.82	6.61 (5.80 HCl)
Fugitive Emissions								
Asphalt Loadout, Silo Filling, and Yard	0.53	0.53	0.53	0.00	0.00	8.22	1.38	0.14 (0.04 formaldehyde)
Material Storage Piles	0.62	0.22	0.22	0.00	0.00	0.00	0.00	0.00
Material Processing and Handling	3.10	1.47	0.22	0.00	0.00	0.00	0.00	0.00
Material Crushing, Screening, and Conveying	15.23	5.56	5.56	0.00	0.00	0.00	0.00	0.00
Paved and Unpaved Roads	34.06	8.68	0.87	0.00	0.00	0.00	0.00	0.00
Cold Mix Asphalt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gasoline Fuel Transfer and Dispensing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volatile Organic Liquid Storage Vessels	0.00	0.00	0.00	0.00	0.00	negl	0.00	negl
Total Fugitive Emissions	53.55	16.46	7.40	0.00	0.00	8.22	1.38	0.14
Total Emissions	**249.00**	**99.00**	**99.00**	**99.00**	**60.32**	**23.61**	**64.21**	**6.74 (5.80 HCl)**
PSD Threshold	**250.0**	**250.0**	**NA**	**250.0**	**250.0**	**250.0**	**250.0**	**NA**
Title V Threshold	**NA**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**10 for single HAP and 25 for total HAPs**
Emission Offset Threshold	**NA**	**NA**	**100.0**	**NA**	**NA**	**NA**	**NA**	

	Potential To Emit After Issuance (tons/year)							
Process/ Emission Unit	**PM**	**PM_{10}***	**$PM_{2.5}$**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**

negl. = negligible

* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated polutant".

(a) This existing source is not a major stationary source, under PSD (326 IAC 2-2), because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(1).

(b) This existing source is not a major stationary source under Emission Offset (326 IAC 2-3), because no nonattainment regulated pollutant is emitted at a rate of 100 tons per year or more.

(c) This existing source is not a major source of HAPs, as defined in 40 CFR 63.41, because the Permittee has accepted limits on HAPs emissions to less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).

Description of Proposed Revision

The Office of Air Quality (OAQ) has reviewed an application, submitted by MAC Construction and Excavating, Inc. on January 25, 2011, relating to a request to change the type and usage amounts of the slag used in its aggregate asphalt mix. The source is currently permitted to use blast furnace slag. In order to adjust to changing market conditions, the source requests to change from using blast furnace slag in its aggregate mix to using steel slag in its aggregate mix. The changes are shown in the table below. This change is actually a decrease in uncontrolled SO2 emissions from the change to steel slag in its aggregate mix. The source requested to leave its overall source-wide emission limit the same, so the decrease in slag emissions resulted in a corresponding increase in fuel usage limits, resulting in no change to the overall limits for SO2 emissions. This change would not trigger any new federal or state requirements, and the source would continue to be subject to emission limits and usage limits.

Type of Slag	Sulfur Content (% by weight)	Emission Factor (lb/ton of slag used)	Usage per Twelve (12) consecutive month period	Uncontrolled Potential to Emit SO2 (tons/year)
Blast Furnace Slag (existing)	1.50% maximum	0.7400	3,634 tons	1.34
Steel Slag (proposed)	0.33% maximum	0.0014	100,000 tons	0.07
				(1.27)

The source has also requested a change in its compliance methods, in order to provide production flexibility with its aggregate mix. A compliance equation would be added and the source would be required to track and permitted to adjust its usage of slag and fuels in order to maintain compliance with the emissions limits contained in the permit.

The source has also requested a descriptive change to its list of emissions units in order to better describe the units within its operation. One tank, identified as Tank #4, installed in 2008, with a maximum storage capacity of 20,000 gallons, and which is identical to Tank #2, will be added to Sections A.2(c) and D.2 of the permit. This added tank will be subject to the same requirements as Tank #2.

Enforcement Issues

There are no pending enforcement actions related to this revision.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – FESOP Revision

The following table is used to determine the appropriate permit level under 326 IAC 2-8.11.1. This table reflects the PTE before controls of the proposed revision. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Process/ Emission Unit	PTE of Proposed Revision (tons/year)								
	PM	PM10*	PM2.5	SO_2	NOx	VOC	CO	Total HAPs	Worst Single HAP
Dryer/Mixer Slag Processing	0.00	0.00	0.00	(1.27)	0.00	0.00	0.00	0.00	0.00
Dryer/Mixer Combustion	0.00	0.00	0.00	1.27	0.00	0.00	0.00	0.00	0.00
Total PTE of Proposed Revision	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

negl. = negligible
* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant".

This FESOP is being revised through a FESOP Significant Permit Revision pursuant to 326 IAC 2-8-11.1(g)(1)(2) and (3), because the revision involves a change in the compliance methods, change in existing applicable requirements and an adjustment of the emission limits.

PTE of the Entire Source After Issuance of the FESOP Revision

The table below summarizes the potential to emit of the entire source, reflecting adjustment of existing limits, with updated emissions shown as **bold** values and previous emissions shown as ~~strikethrough~~ values.

Process/ Emission Unit	**Potential To Emit After Issuance (tons/year)**							
	PM	**PM_{10}***	**$PM_{2.5}$**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**
Dryer Fuel Combustion, with baghouse (worst case)	24.68	19.67	19.67	**96.38** ~~95.10~~	59.60	0.77	6.34	6.59 (5.80 HCl)
Dryer/Mixer Process, with baghouse	195.38	82.42	91.48	27.84	26.40	15.36	62.40	5.12 (1.49 formaldehyde)
Dryer, 46P, Slag Processing, with baghouse	0.00	0.00	0.00	**0.07** ~~1.34~~	0.00	0.00	0.00	0.00
Hot Oil Heater Combustion (worst case)	0.07	0.12	0.12	2.55	0.72	0.03	0.42	0.01
Worst Case Emissions	195.45	82.54	91.60	99.00	60.32	15.39	62.82	6.61 (5.80 HCl)
Fugitive Emissions								
Asphalt Loadout, Silo Filling, and Yard	0.53	0.53	0.53	0.00	0.00	8.22	1.38	0.14 (0.04 formaldehyde)
Material Storage Piles	0.62	0.22	0.22	0.00	0.00	0.00	0.00	0.00
Material Processing and Handling	3.10	1.47	0.22	0.00	0.00	0.00	0.00	0.00

	Potential To Emit After Issuance (tons/year)							
Process/ Emission Unit	**PM**	**PM_{10}***	**$PM_{2.5}$**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**
Material Crushing, Screening, and Conveying	15.23	5.56	5.56	0.00	0.00	0.00	0.00	0.00
Paved and Unpaved Roads	34.06	8.68	0.87	0.00	0.00	0.00	0.00	0.00
Cold Mix Asphalt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gasoline Fuel Transfer and Dispensing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volatile Organic Liquid Storage Vessels	0.00	0.00	0.00	0.00	0.00	negl	0.00	negl
Total Fugitive Emissions	53.55	16.46	7.40	0.00	0.00	8.22	1.38	0.14
Total Emissions	249.00	99.00	99.00	99.00	60.32	23.61	64.21	6.74 (5.80 HCl)
PSD Threshold	250.0	250.0	NA	250.0	250.0	250.0	250.0	NA
Title V Threshold	NA	100.0	100.0	100.0	100.0	100.0	100.0	10 for single HAP and 25 for total HAPs
Emission Offset Threshold	NA	NA	100.0	NA	NA	NA	NA	

negl. = negligible

* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated polutant".

The table below summarizes the potential to emit of the entire source after issuance of this revision, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this FESOP permit revision, and only to the extent that the effect of the control equipment is made practically enforceable in the permit. (Note: the table below was generated from the above table, with bold text un-bolded and strikethrough text deleted.)

	Potential To Emit After Issuance (tons/year)							
Process/ Emission Unit	**PM**	**PM_{10}***	**$PM_{2.5}$**	**SO_2**	**NOx**	**VOC**	**CO**	**Total HAPs**
Dryer Fuel Combustion, with baghouse (worst case)	24.68	19.67	19.67	96.38	59.60	0.77	6.34	6.59 (5.80 HCl)
Dryer/Mixer Process, with baghouse	195.38	82.42	91.48	27.84	26.40	15.36	62.40	5.12 (1.49 formaldehyde)
Dryer, 46P, Slag Processing, with baghouse	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00
Hot Oil Heater Combustion (worst case)	0.07	0.12	0.12	2.55	0.72	0.03	0.42	0.01
Worst Case Emissions	195.45	82.54	91.60	99.00	60.32	15.39	62.82	6.61 (5.80 HCl)
Fugitive Emissions								
Asphalt Loadout, Silo Filling, and Yard	0.53	0.53	0.53	0.00	0.00	8.22	1.38	0.14 (0.04 formaldehyde)
Material Storage Piles	0.62	0.22	0.22	0.00	0.00	0.00	0.00	0.00
Material Processing and Handling	3.10	1.47	0.22	0.00	0.00	0.00	0.00	0.00
Material Crushing, Screening, and Conveying	15.23	5.56	5.56	0.00	0.00	0.00	0.00	0.00
Paved and Unpaved Roads	34.06	8.68	0.87	0.00	0.00	0.00	0.00	0.00
Cold Mix Asphalt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gasoline Fuel Transfer and Dispensing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volatile Organic Liquid Storage Vessels	0.00	0.00	0.00	0.00	0.00	negl	0.00	negl
Total Fugitive Emissions	53.55	16.46	7.40	0.00	0.00	8.22	1.38	0.14
Total Emissions	**249.00**	**99.00**	**99.00**	**99.00**	**60.32**	**23.61**	**64.21**	**6.74 (5.80 HCl)**
PSD Threshold	**250.0**	**250.0**	**NA**	**250.0**	**250.0**	**250.0**	**250.0**	**NA**
Title V Threshold	**NA**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**10 for single HAP and 25 for total HAPs**
Emission Offset Threshold	**NA**	**NA**	**100.0**	**NA**	**NA**	**NA**	**NA**	

negl. = negligible

* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated polutant".

(a) FESOP Status
This revision to an existing Title V minor stationary source will not change the minor status, because the potential to emit criteria pollutants from the entire source will still be limited to less than the Title V major source threshold levels. Therefore, the source will still be subject to the provisions of 326 IAC 2-8 (FESOP).

In order to comply with the requirements of 326 IAC 2-8-4 (FESOP), the source shall comply with the following:

(1) The amount of steel slag used shall not exceed 100,000 tons per twelve (12) consecutive month period, with complinace determined at the end of each month. This requirement has changed from the existing permit due to the type of slag used in the aggegate mix.

(2) SO2 emissions from the use of the steel slag in the dryer/mixer shall not exceed 0.0014 pounds SO2 per ton of steel slag used. This requirement has changed from the existing permit due to the type of slag used in the aggregate mix.

(3) The sulfur content of the steel slag shall not exceed 0.33% by weight.

Compliance with these limits, combined with the potential to emit PM10, PM2.5, SO2. NOx, VOC, and CO from all other emission units at this source shall continue to limit the source-wide total potential to emit of PM10, PM2.5, SO2. NOx, VOC, and CO to less than 100 tons per 12 consecutive month period, each, any single HAP to less than ten (10) tons per 12 consecutive month period, and total HAPs to less than twenty-five (25) tons per 12 consecutive month period and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), 326 IAC 2-3 (Emission Offset), 326 IAC 2-1.1-5 (Nonattainment New Source Review), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable.

(b) PSD Minor Source
This modification to an existing PSD minor stationary source will not change the PSD minor status, because the potential to emit of all attainment regulated pollutants from the entire source will continue to be less than the PSD major source threshold levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Compliance with these limits, combined with the potential to emit PM from all other emission units at this source, shall limit the source-wide total potential to emit of PM to less than 250 tons per 12 consecutive month period and shall render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

(c) Emission Offset Minor Source
This modification to an existing Emission Offset minor stationary source will not change the Emission Offset minor status, because the potential to emit of all nonattainment regulated pollutants from the entire source will continue to be less than the Emission Offset major source threshold levels. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply.

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

(a) There are no new New Source Performance Standards (NSPS) (326 IAC 12 and 40 CFR Part 60) included for this proposed revision.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

(b) There are no new National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included for this proposed revision.

Compliance Assurance Monitoring (CAM)

(g) Pursuant to 40 CFR 64.2, Compliance Assurance Monitoring (CAM) is not included in the permit, because the potential to emit of the source is limited to less than the Title V major source thresholds and the source is not required to obtain a Part 70 or Part 71 permit.

State Rule Applicability Determination

The following state rules are applicable to the proposed revision:

(a) 326 IAC 2-8-4 (FESOP)
This revision to an existing Title V minor stationary source will not change the minor status, because the potential to emit criteria pollutants from the entire source will still be limited to less than the Title V major source threshold levels. Therefore, the source will still be subject to the provisions of 326 IAC 2-8 (FESOP). See PTE of the Entire Source After Issuance of the FESOP Revision Section above.

(b) 326 IAC 2-2 (Prevention of Significant Deterioration(PSD))
This modification to an existing PSD minor stationary source will not change the PSD minor status, because the potential to emit of all attainment regulated pollutants from the entire source will continue to be less than the PSD major source threshold levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply. See PTE of the Entire Source After Issuance of the FESOP Revision Section above.

(c) 326 IAC 2-3 (Emission Offset) and 326 IAC 2-1.1-5 (Nonattainment New Source Review)
This modification to an existing Emission Offset minor stationary source will not change the Emission Offset minor status, because the potential to emit of all nonattainment regulated pollutants from the entire source will continue to be less than the Emission Offset major source threshold levels. Therefore, pursuant to 326 IAC 2-3, the Emission Offset requirements do not apply. See PTE of the Entire Source After Issuance of the FESOP Revision Section above.

This modification to an existing minor stationary source under 326 IAC 2-1.1-5 (Nonattainment New Source Review) will not change the minor status, because the potential to emit of PM2.5 from the entire source will continue to be less than 100 tons per year. Therefore, pursuant to 326 IAC 2-1.1-5, the Nonattainment New Source Review requirements do not apply. See PTE of the Entire Source After Issuance of the FESOP Revision Section above.

(d) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The proposed revision is not subject to the requirements of 326 IAC 2-4.1, since the unlimited potential to emit of HAPs from the steel slag is less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs.

(e) 326 IAC 2-6 (Emission Reporting)
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.

(f) 326 IAC 5-1 (Opacity Limitations)
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary

Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(1) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

(g) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

(h) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
Due to this revision, the source is subject to the requirements of 326 IAC 6-5, because the paved and unpaved roads have potential fugitive particulate emissions greater than 25 tons per year. Pursuant to 326 IAC 6-5, fugitive particulate matter emissions shall be controlled according to the Fugitive Dust Control Plan, which is included as Attachment A to the permit.

Compliance Determination, Monitoring and Testing Requirements

(a) The source has requested an additional compliance determination method by calculating the emissions of each fuel and steel slag, using a monthly average calculation for each fuel used and for the steel slag used in its aggregate mix, to determine compliance with the total SO2 limits when combusting multiple fuels and steel slag.

The source shall use the following equation to determine the tons of SO2 emitted per twelve (12) consecutive month period:

(1) Sulfur Dioxide emission calculation

$$S = \frac{F(E_F) + R(E_R) + W(E_W) + L(E_L)}{2{,}000 \text{ lbs / ton}}$$

Where:

S = tons of sulfur dioxide emissions for twelve (12) month consecutive period

F = gallons of No. 4 fuel oil used in last twelve (12) months

R = gallons of No. 6 fuel oil used in last twelve (12) months

W= gallons of Waste oil used in the last twelve (12) months

L = tons of steel slag used in last twelve (12) months with less than or equal to thirty-three hundredths percent (0.33%) sulfur content

Emission Factors:

E_F = 0.075 pounds per gallon of No. 4 fuel oil

E_R = 0.0785 pounds per gallon of No. 6 fuel oil

E_W = 0.0691 pounds per gallon of Waste oil

E_L = 0.0014 pounds per ton of steel slag

(b) There are no other new compliance determination and monitoring requirements as the result of this revision. The source will continue to comply with all existing compliance requirements

conditions contained in permit number F019-28936-05282, issued September 16, 2010.

(b) There are no new testing requirements applicable to this proposed revision. The source will continue to comply with all existing compliance conditions contained in permit number F019-28936-05282, issued September 16, 2010.

Proposed Changes

(a) The following changes listed below are due to the proposed revision. Deleted language appears as ~~strikethrough~~ text and new language appears as **bold** text:

(1) The source has requested to replace its usage of blast furnace slag in its aggregate mix and replace it with steel slag, and has requested a usage limit of 100,000 tons per year, and a maximum sulfur content limit of 0.33% by weight. Sections A.2(a), D.1(a), and E.1(a) have been changed to update the description of the slag used. Corresponding conditions D.1.3, D.1.4, and D.1.8 have been changed to reflect the changes associated with the steel slag, its usage limit, its sulfur content limit, and its emission factor. FESOP Quarterly Reports have been changed to reflect the changes to steel slag and the usage limit.

(2) The source has requested a change in its compliance method by adding an equation to track SO2 emissions when combusting multiple fuels and steel slag. The permit has been changed to add appropriate language to Condition D.1.4 to the permit, specifying limits when combusting single fuels, and limits when combusting multiple fuels and steel slag. Due to the addition of a compliance determination equation for fuel and slag usage, the fuel equivalency language in Condition D.1.4 has been eliminated. Additionally, a new condition has been inserted as D.1.11 to require the equation as a method of compliance determination, and subsequent conditions have been renumbered.

(3) The source has requested to change descriptive information to more accurately reflect the current operation at its facility. Specifically, the source wishes to add Tank #4, to Section A.2(c) and Section D.2 of the permit. The tank was added in 2008, and is identical to Tank #2, currently described in that section. The Tank #4 will be added to Sections A.2(c) and Section D.2 of the permit, and it will have the same reporting and recordkeeping requirements as Tank #2.

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]

This stationary source consists of the following emission units and pollution control devices:

(a) One (1) drum mix asphalt plant, identified as Unit ID ES1, with a maximum rated throughput capacity of 400 tons per hour, equipped with one (1) 100 million British thermal units per hour (MMBtu/hr) fuel oil-fired burner, using either No. 4 fuel oil, No. 6 fuel oil, or waste oil, with particulate emissions controlled by one (1) baghouse, identified as CD-1, exhausting at one (1) stack (Stack ID: EP1). This drum mix unit uses **steel** slag in its aggregate mix, and does not produce cold mix.

(c) ~~One~~ **Two** (~~1~~ **2**) 20,000 gallon liquid asphalt cement storage tank**s**, identified as Tank**s** 2 **and 4**; and

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SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

(a) One (1) drum mix asphalt plant, identified as Unit ID ES1, with a maximum rated

throughput capacity of 400 tons per hour, equipped with one (1) 100 million British thermal units per hour (MMBtu/hr) fuel oil-fired burner, using either No. 4 fuel oil, No. 6 fuel oil, or waste oil, with particulate emissions controlled by one (1) baghouse, identified as CD-1, exhausting at one (1) stack (Stack ID: EP1). This drum mix unit uses **steel** slag in its aggregate mix, and does not produce cold mix.

D.1.3 FESOP Limits [326 IAC 2-8-4][326 IAC 8-1-6] [326 IAC 2-2]

Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following:

(b) The amount of **steel** slag used shall not exceed ~~3,634~~ **100,000** tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(g) SO_2 emissions from the use of **steel** slag in the dryer/mixer shall not exceed ~~0.74~~ **0.0014** pounds SO_2 per ton of slag processed.

D.1.4 Fuel Limitations [326 IAC 2-8-4] [326 IAC 2-2][326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP), the Permittee shall comply with the following fuel limitations:

(a) Fuel Content and Slag Specifications

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(4) The sulfur content of the **steel** slag shall not exceed ~~one and five-tenths~~ **thirty-three hundredths** percent (~~1.5%~~ **0.33%**) by weight.

(b) Pursuant to 326 IAC 2-8-4, the SO2 emissions from the aggregate mixer/dryer burner shall be limited as follows:

~~(1) Pursuant to 326 IAC 2-8-4, the SO_2 emissions from the mixer/dryer burner shall be limited as follows:~~

~~(i) The usage of No. 6 fuel oil for the dryer burner shall not exceed 2,422,954 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.~~

~~For the purpose of determining compliance with this limit based on SO2 emissions, the following shall apply:~~

~~(i) every 1,000 gallons of No. 4 fuel oil burned in the aggregate dryer burner shall be equivalent to 952.4 gallons of No. 6 fuel oil based on SO2 emissions and a maximum No. 4 fuel oil sulfur content of 0.5% such that the total gallons of No. 6 fuel oil input does not exceed the limit specified;~~
~~(ii) every 1,000 gallons of waste oil burned in the aggregate dryer burner shall be equivalent to 860.0 gallons of No. 6 fuel oil based on SO2 emissions and a maximum waste oil sulfur content of 0.47% such that the total gallons of No. 6 fuel oil input does not exceed the limit specified.~~

(1) <u>Single Fuel Usage Limitations</u>

When combusting only one type of fuel per twelve (12) consecutive month

period in the dryer/mixer burner the usage of fuel shall be limited as follows:

(i) No. 4 fuel oil usage shall not exceed 2,570,014 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(ii) No. 6 fuel oil usage shall not exceed 2,455,427 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(iii) Waste oil usage shall not exceed 2,789,854 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) <u>Multiple Fuel Usage Limitations</u>

When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of steel slag in the aggregate mix, emissions from the dryer/mixer shall be limited as follows:

(i) SO2 emissions from the dryer/mixer from combustion and use of steel slag shall not exceed 95.17 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limits, combined with the emissions from all other units at this source, shall limit the source-wide total potential to emit NOx and SO_2 to less than 100 tons per 12 consecutive month period, each, HCL to less than 10 tons per 12 consecutive month period, and any combination of HAPs to less than 25 tons per 12 consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

D.1.8 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with the Conditions D.1.1,D.1.2, and D.1.3, the Permittee shall perform the following:

(c) In order to demonstrate compliance with the SO2 limits, due to the usage of **steel** slag, the Permittee shall perform SO2 testing on dryer/mixer not later than 180 days of the issuance of the permit when slag is being used, or from the time slag is first used, whichever is earlier. This testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.

D.1.11 Multiple Fuel Usage / Sulfur Dioxide (SO2) Emissions

(a) In order to determine compliance with Condition D.1.4(b)(2) - Sulfur Dioxide (SO_2) Limits, when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of steel slag in the

aggregate mix, the Permittee shall use the following equation to determine the tons of SO2 emitted per twelve (12) consecutive month period:

Sulfur Dioxide emission calculation

$$S = \frac{F(E_F) + R(E_R) + W(E_W) + L(E_L)}{2{,}000 \text{ lbs / ton}}$$

Where:

S = tons of sulfur dioxide emissions for twelve (12) month consecutive period

F = gallons of No. 4 fuel oil used in last twelve (12) months

R = gallons of No. 6 fuel oil used in last twelve (12) months

W= gallons of Waste oil used in the last twelve (12) months

L = tons of steel slag used in last twelve (12) months with less than or equal to thirty-three hundredths percent (0.33%) sulfur content

Emission Factors:

E_F = 0.075 pounds per gallon of No. 4 fuel oil

E_R = 0.0785 pounds per gallon of No. 6 fuel oil

E_W = 0.0691 pounds per gallon of Waste oil

E_L = 0.0014 pounds per ton of steel slag

D.1.1~~1~~**2** Hydrogen Chloride (HCl) Emissions and Chlorine Content

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D.1.1~~2~~**3** Visible Emissions Notations

D.1.1~~3~~**4** Parametric Monitoring

D.1.1~~4~~**5** Broken or Failed Bag Detection

D.1.1~~5~~**6** Record Keeping Requirements

D.1.1~~6~~**7** Reporting Requirements

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

(c) ~~One~~ **Two** (~~1~~ **2**) 20,000 gallon liquid asphalt cement storage tank**s**, identified as Tank**s** 2 **and 4**; and

D.2.1 Record Keeping Requirements [326 IAC 8-9]

(a) Pursuant to 326 IAC 8-9-6(a), the Permittee shall keep all records for Tanks 1a, 1b, 2, ~~and~~ 3**, and 4** required by this section for three (3) years unless specified otherwise. Records required by subsection (b) shall be maintained for the life of the vessel.

(b) Pursuant to 326 IAC 8-9-6(b), the Permittee shall maintain a record for Tanks 1a, 1b, 2,

~~and~~ 3**, and 4,** and submit to the department a report containing the following information for each vessel:

SECTION E.1 EMISSIONS UNIT OPERATION CONDITIONS

(a) One (1) drum mix asphalt plant, identified as Unit ID ES1, with a maximum rated throughput capacity of 400 tons per hour, equipped with one (1) 100 million British thermal units per hour (MMBtu/hr) fuel oil-fired burner, using either No. 4 fuel oil, No. 6 fuel oil, or waste oil, with particulate emissions controlled by one (1) baghouse, identified as CD-1, exhausting at one (1) stack (Stack ID: EP1). This drum mix unit uses **steel** slag in its aggregate mix, and does not produce cold mix.

FESOP Quarterly Report

Source Name:	MAC Construction and Excavating, Inc.
Source Address:	1417 Quarry Road, Jeffersonville, Indiana 47130
FESOP Permit No.:	F019-28936-05282
Facility:	Entire Asphalt Plant
Parameter:	**Steel** Slag Usage
Limit:	Shall not exceed ~~3,634~~ **100,000** tons per twelve (12) consecutive month period with compliance determined at the end of each month.

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on January 25, 2011. Additional information was received on January 26, 2011 and March 1, 2011.

The construction and operation of this proposed revision shall be subject to the conditions of the attached proposed FESOP Significant Revision No. 019-2-30146-05282. The staff recommends to the Commissioner that this FESOP Significant Revision be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Jack Harmon at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 233-4228 or toll free at 1-800-451-6027 extension 3-4228.

(b) A copy of the findings is available on the Internet at: http://www.in.gov/ai/appfiles/idem-caats/

(c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: www.in.gov/idem

Appendix A.1: Unlimited Emissions Calculations
Entire Source

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Asphalt Plant Maximum Capacity

Maximum Hourly Asphalt Production =	400	ton/hr								
Maximum Annual Asphalt Production =	3,504,000	ton/yr								
Maximum Annual Slag Usage =	100,000	ton/yr	0.33	% sulfur						
Maximum Dryer Fuel Input Rate =	100.0	MMBtu/hr								
Natural Gas Usage =	0	MMCF/yr								
No. 2 Fuel Oil Usage =	0	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Usage =	6,257,143	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage =	6,257,143	gal/yr, and	0.50	% sulfur						
Propane Usage =	0	gal/yr, and	0.00	gr/100 ft3 sulfur						
Butane Usage =	0	gal/yr, and	0.00	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	6,257,143	gal/yr, and	0.47	% sulfur	0.50	% ash	0.114	% chlorine,	0.010	% lead
Diesel Engine Oil Usage =	0	gal/yr, and								
Unlimited PM Dryer/Mixer Emission Factor =	28.0	lb/ton of asphalt production								
Unlimited PM10 Dryer/Mixer Emission Factor =	6.5	lb/ton of asphalt production								
Unlimited PM2.5 Dryer/Mixer Emission Factor =	1.5	lb/ton of asphalt production								
Unlimited VOC Dryer/Mixer Emission Factor =	0.032	lb/ton of asphalt production								
Unlimited CO Dryer/Mixer Emission Factor =	0.13	lb/ton of asphalt production								
Unlimited Steel Slag SO2 Dryer/Mixer Emission Factor =	0.0014	lb/ton of steel slag processed								

Unlimited/Uncontrolled Emissions

	Unlimited/Uncontrolled Potential to Emit (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Dryer Fuel Combustion (worst case)	100.11	79.78	79.78	245.59	147.04	3.13	15.64	26.47	23.54	(hydrogen chloride)
Dryer/Mixer (Process)	49056.00	11388.00	2628.00	101.62	96.36	56.06	227.76	18.68	5.43	(formaldehyde)
Dryer/Mixer Slag Processing	0	0	0	0.07	0	0	0	0	0	
Hot Oil Heater Fuel Combustion (worst case)	0.08	0.12	0.12	2.67	0.75	0.01	0.19	0.003	0.002	(hexane)
Worst Case Emissions*	**49056.08**	**11388.12**	**2628.12**	**248.33**	**147.79**	**56.07**	**227.95**	**26.47**	**23.54**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	1.94	1.94	1.94	0	0	30.01	5.05	0.50	0.16	(formaldehyde)
Material Storage Piles	0.62	0.22	0.22	0	0	0	0	0	0	
Material Processing and Handling	11.86	5.61	0.85	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	55.59	20.31	20.31	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	124.32	31.68	3.17	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	0.00	0	0.00	0.00	(xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.00	0	0.00	0.00	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	negl	0	
Total Fugitive Emissions	**194.33**	**59.76**	**26.48**	**0**	**0.00**	**30.01**	**5.05**	**0.50**	**0.00**	(xylenes)
Totals Unlimited/Uncontrolled PTE	**49250.40**	**11447.88**	**2654.61**	**248.33**	**147.79**	**86.08**	**233.00**	**26.98**	**23.54**	(xylenes)

negl = negligible
Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.
*Worst Case Emissions (tons/yr) = Worst Case Emissions from Dryer Fuel Combustion and Dryer/Mixer + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion
Fuel component percentages provided by the source.

Appendix A.1: Unlimited Emissions Calculations
Dryer/Mixer Fuel Combustion with Maximum Capacity > 100 MMBtu/hr

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

The following calculations determine the unlimited/uncontrolled emissions created from the combustion of natural gas, fuel oil, propane, butane, or used/waste oil in the dryer/mixer at the source.

Maximum Capacity

Maximum Hourly Asphalt Production =	400	ton/hr								
Maximum Annual Asphalt Production =	3,504,000	ton/yr								
Maximum Fuel Input Rate =	100	MMBtu/hr								
Natural Gas Usage =	0	MMCF/yr								
No. 2 Fuel Oil Usage =	0	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Usage =	6,257,143	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage =	6,257,143	gal/yr, and	0.50	% sulfur						
Propane Usage =	0	gal/yr, and	0.00	gr/100 ft3 sulfur						
Butane Usage =	0	gal/yr, and	0.00	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	6,257,143	gal/yr, and	0.47	% sulfur	0.50	% ash	0.114	% chlorine,	0.010	% lead
Diesel Engine Oil Usage =	0	gal/yr, and								

Unlimited/Uncontrolled Emissions

	Emission Factor (units)								Unlimited/Uncontrolled Potential to Emit (tons/yr)								
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil* (lb/kgal)	Residual (No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Diesel Engine (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Residual (No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	Diesel Engine (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	7.0	7.815	0.5	0.6	32.0	43.4	0.00	0.00	21.90	24.45	0.000	0.000	100.11	0.00	**100.11**
PM10/PM2.5	7.6	3.3	8.3	9.315	0.5	0.6	25.5	43.4	0.00	0.00	25.97	29.14	0.000	0.000	79.78	0.00	**79.78**
SO2	0.6	71.0	75.0	78.5	0.000	0.000	69.1	40.6	0.00	0.00	234.64	245.59	0.000	0.000	216.15	0.00	**245.59**
NOx	190	24.0	47.0	47.0	13.0	15.0	19.0	617.4	0.00	0.00	147.04	147.04	0.00	0.00	59.44	0.00	**147.04**
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	49.00	0.00	0.00	0.63	0.88	0.00	0.00	3.13	0.00	**3.13**
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	133.0	0	0.00	15.64	15.64	0.00	0.00	15.64	0.00	**15.64**
Hazardous Air Pollutant																	
HCl							7.5								23.54		**23.54**
Antimony			5.25E-03	5.25E-03			negl				1.64E-02	1.64E-02			negl		**1.6E-02**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01		0.0E+00	0.00E+00	4.13E-03	4.13E-03			3.44E-01		**3.4E-01**
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl		0.0E+00	0.00E+00	8.70E-05	8.70E-05			negl		**8.7E-05**
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03		0.0E+00	0.00E+00	1.25E-03	1.25E-03			2.91E-02		**2.9E-02**
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02		0.0E+00	0.00E+00	2.64E-03	2.64E-03			6.26E-02		**6.3E-02**
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04		0.0E+00		1.88E-02	1.88E-02			6.57E-04		**1.9E-02**
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55		0.0E+00	0.00E+00	4.72E-03	4.72E-03			1.7E+00		**1.72**
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02		0.0E+00	0.00E+00	9.39E-03	9.39E-03			2.13E-01		**0.21**
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04					0.0E+00	0.00E+00	3.54E-04	3.54E-04					**3.5E-04**
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02		0.0E+00	0.00E+00	2.64E-01	2.64E-01			3.44E-02		**0.264**
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl		0.0E+00	0.00E+00	2.14E-03	2.14E-03			negl		**2.1E-03**
1.1.1-Trichloroethane			2.36E-04	2.36E-04							7.38E-04	7.38E-04					**7.4E-04**
1,3-Butadiene								5.47E-03								0.00E+00	**0.0E+00**
Acetaldehyde								1.07E-01								0.00E+00	**0.0E+00**
Acrolein								1.30E-02								0.00E+00	**0.0E+00**
Benzene	2.1E-03		2.14E-04	2.14E-04				1.31E-01	0.0E+00		6.70E-04	6.70E-04				0.00E+00	**6.7E-04**
Bis(2-ethylhexyl)phthalate							2.2E-03								6.88E-03		**6.9E-03**
Dichlorobenzene	1.2E-03						8.0E-07		0.0E+00						2.50E-06		**2.5E-06**
Ethylbenzene			6.36E-05	6.36E-05							1.99E-04	1.99E-04					**2.0E-04**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				1.65E-01	0.0E+00	0.00E+00	1.03E-01	1.03E-01				0.00E+00	**0.103**
Hexane	1.8E+00								0.00								**0.000**
Phenol							2.4E-03								7.51E-03		**7.5E-03**
Toluene	3.4E-03		6.20E-03	6.20E-03				5.73E-02	0.0E+00		1.94E-02	1.94E-02				0.00E+00	**1.9E-02**
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	2.35E-02	negl		3.54E-03	3.54E-03			1.22E-01	0.00E+00	**1.2E-01**
Polycyclic Organic Matter		3.30E-03								0.00E+00							**0.0E+00**
Xylene			1.09E-04	1.09E-04				3.99E-02			3.41E-04	3.41E-04				0.00E+00	**3.4E-04**
								Total HAPs	**0.00**	**0.00**	**0.45**	**0.45**	**0**	**0**	**26.08**	**0.00**	**26.47**

Methodology

Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Propane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.0905 MMBtu]
Butane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.0974 MMBtu]
Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]
Sources of AP-42 Emission Factors for fuel combustion:
Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
Propane and Butane: AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)
Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5
Diesel Engine Oil: AP-42 Chapter 3.3 (dated 10/96), Tables 3.3-1 and 3.3-2
*Since there are no specific AP-42 HAP emission factors for combustion of No. 4 fuel oil, it was assumed that HAP emissions from combustion of No. 4 fuel oil were equal to combustion of residual or No. 6 fuel oil.

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (< 2.5 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide
HAP = Hazardous Air Pollutant
HCl = Hydrogen Chloride
PAH = Polyaromatic Hydrocarbon

Appendix A.1: Unlimited Emissions Calculations
Dryer/Mixer

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

The following calculations determine the unlimited/uncontrolled emissions from the aggregate drying/mixing

Maximum Hourly Asphalt Production = 400 ton/hr
Maximum Annual Asphalt Production = 3,504,000 ton/yr

	Uncontrolled Emission Factors (lb/ton)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			
	Drum-Mix Plant (dryer/mixer)			Drum-Mix Plant (dryer/mixer)			
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	**Worse Case PTE**
PM*	28	28	28	49056	49056	49056	**49056**
PM10*	6.5	6.5	6.5	11388	11388	11388	**11388**
PM2.5*	1.5	1.5	1.5	2628	2628	2628	**2628**
SO2**	0.0034	0.011	0.058	6.0	19.3	101.6	**101.6**
NOx**	0.026	0.055	0.055	45.6	96.4	96.4	**96.4**
VOC**	0.032	0.032	0.032	56.1	56.1	56.1	**56.1**
CO***	0.13	0.13	0.13	227.8	227.8	227.8	**227.8**
Hazardous Air Pollutant							
HCl			2.10E-04			3.68E-01	**0.37**
Antimony	1.80E-07	1.80E-07	1.80E-07	3.15E-04	3.15E-04	3.15E-04	**3.15E-04**
Arsenic	5.60E-07	5.60E-07	5.60E-07	9.81E-04	9.81E-04	9.81E-04	**9.81E-04**
Beryllium	negl	negl	negl	negl	negl	negl	**0.00E+00**
Cadmium	4.10E-07	4.10E-07	4.10E-07	7.18E-04	7.18E-04	7.18E-04	**7.18E-04**
Chromium	5.50E-06	5.50E-06	5.50E-06	9.64E-03	9.64E-03	9.64E-03	**9.64E-03**
Cobalt	2.60E-08	2.60E-08	2.60E-08	4.56E-05	4.56E-05	4.56E-05	**4.56E-05**
Lead	6.20E-07	1.50E-05	1.50E-05	1.09E-03	2.63E-02	2.63E-02	**2.63E-02**
Manganese	7.70E-06	7.70E-06	7.70E-06	1.35E-02	1.35E-02	1.35E-02	**1.35E-02**
Mercury	2.40E-07	2.60E-06	2.60E-06	4.20E-04	4.56E-03	4.56E-03	**4.56E-03**
Nickel	6.30E-05	6.30E-05	6.30E-05	0.11	0.11	0.11	**0.11**
Selenium	3.50E-07	3.50E-07	3.50E-07	6.13E-04	6.13E-04	6.13E-04	**6.13E-04**
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	0.07	0.07	0.07	**0.07**
Acetaldehyde			1.30E-03			2.28	**2.28**
Acrolein			2.60E-05			4.56E-02	**4.56E-02**
Benzene	3.90E-04	3.90E-04	3.90E-04	0.68	0.68	0.68	**0.68**
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.42	0.42	0.42	**0.42**
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	5.43	5.43	5.43	**5.43**
Hexane	9.20E-04	9.20E-04	9.20E-04	1.61	1.61	1.61	**1.61**
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.08	0.08	0.08	**0.08**
MEK			2.00E-05			0.04	**0.04**
Propionaldehyde			1.30E-04			0.23	**0.23**
Quinone			1.60E-04			0.28	**0.28**
Toluene	1.50E-04	2.90E-03	2.90E-03	0.26	5.08	5.08	**5.08**
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.33	1.54	1.54	**1.54**
Xylene	2.00E-04	2.00E-04	2.00E-04	0.35	0.35	0.35	**0.35**
						Total HAPs	**18.68**
						Worst Single HAP	**5.43** **(formaldehyde)**

Methodology
Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-3, 11.1-7, 11.1-8, 11.1-10, and 11.1-12
Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

* PM, PM10, and PM2.5 AP-42 emission factors based on drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. According to AP-42 fuel type does not significantly effect PM, PM10, and PM2.5 emissions.

** SO2, NOx, and VOC AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.

*** CO AP-42 emission factor determined by combining data from drum mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

Abbreviations
VOC - Volatile Organic Compounds
HCl = Hydrogen Chloride
SO2 = Sulfur Dioxide
HAP = Hazardous Air Pollutant
PAH = Polyaromatic Hydrocarbon

Appendix A.1: Unlimited Emissions Calculations
Dryer/Mixer Slag Processing

Company Name: **MAC Construction and Excavating Inc.**
Source Address: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

The following calculations determine the unlimited emissions from the processing of slag in the aggregate drying/mixing

Maximum Annual Slag Usage* = 100,000 ton/yr 0.33 % sulfur

	Emission Factor (lb/ton)**	Unlimited Potential to Emit (tons/yr)
Criteria Pollutant	Slag Processing	Slag Processing
SO2	0.0014	0.070

Methodology
* The maximum annual slag usage was provided by the source.

** Testing results for steel slag, obtained June, 2009 from similar operations at E&B Paving, Inc. facility located in Huntington, IN , produced an Emission Factor of 0.0007 lb/ton from steel slag containing 0.33%. However, the source has elected to use a safety factor and has requested to use an emission factor of 0.0014 lb/ton of steel slag used.
Unlimited Potential to Emit SO2 from Slag (tons/yr) = [(Maximum Annual Slag Usage (ton/yr)] * [Emission Factor (lb/ton)] * [ton/2000 lbs]
Abbreviations
SO2 = Sulfur Dioxide

Appendix A.1: Unlimited Emissions Calculations
Hot Oil Heater
Fuel Combustion with Maximum Capacity < 100 MMBtu/hr

Company Name: **MAC Construction and Excavating Inc.**
Source Location: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

Maximum Hot Oil Heater Fuel Input Rate =	1.20	MMBtu/hr		
Natural Gas Usage =	0	MMCF/yr		
No. 2 Fuel Oil Usage =	75,086	gal/yr, and	0.50	% sulfur

Unlimited/Uncontrolled Emissions

	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		
	Hot Oil Heater		Hot Oil Heater		
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	0.000	0.075	**0.08**
PM10/PM2.5	7.6	3.3	0.000	0.124	**0.12**
SO2	0.6	71.0	0.000	2.666	**2.67**
NOx	100	20.0	0.000	0.751	**0.75**
VOC	5.5	0.20	0.000	0.008	**0.01**
CO	84	5.0	0.000	0.188	**0.19**
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	0.0E+00	2.10E-05	**2.1E-05**
Beryllium	1.2E-05	4.2E-04	0.0E+00	1.58E-05	**1.6E-05**
Cadmium	1.1E-03	4.2E-04	0.0E+00	1.58E-05	**1.6E-05**
Chromium	1.4E-03	4.2E-04	0.0E+00	1.58E-05	**1.6E-05**
Cobalt	8.4E-05		0.0E+00		**0.0E+00**
Lead	5.0E-04	1.3E-03	0.0E+00	4.73E-05	**4.7E-05**
Manganese	3.8E-04	8.4E-04	0.0E+00	3.15E-05	**3.2E-05**
Mercury	2.6E-04	4.2E-04	0.0E+00	1.58E-05	**1.6E-05**
Nickel	2.1E-03	4.2E-04	0.0E+00	1.58E-05	**1.6E-05**
Selenium	2.4E-05	2.1E-03	0.0E+00	7.88E-05	**7.9E-05**
Benzene	2.1E-03		0.0E+00		**0.0E+00**
Dichlorobenzene	1.2E-03		0.0E+00		**0.0E+00**
Ethylbenzene					**0.0E+00**
Formaldehyde	7.5E-02	6.10E-02	0.0E+00	2.29E-03	**2.3E-03**
Hexane	1.8E+00		0.00		**0.0E+00**
Phenol					**0.0E+00**
Toluene	3.4E-03		0.0E+00		**0.0E+00**
Total PAH Haps	negl		negl		**0.0E+00**
Polycyclic Organic Matter		3.30E-03		1.24E-04	**1.2E-04**
		Total HAPs =	**0.0E+00**	**2.7E-03**	**0.003**

Methodology
Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]
Sources of AP-42 Emission Factors for fuel combustion:
Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide
HAP = Hazardous Air Pollutant
HCl = Hydrogen Chloride
PAH = Polyaromatic Hydrocarbon

Appendix A.1: Unlimited Emissions Calculations
Asphalt Load-Out, Silo Filling, and Yard Emissions

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

The following calculations determine the unlimited/uncontrolled fugitive emissions from hot asphalt mix load-out, silo filling, and on-site yard for a drum mix hot mix asphalt plant

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Maximum Annual Asphalt Production =	3,504,000	tons/yr

	Emission Factor (lb/ton asphalt)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Total**
Total PM*	5.2E-04	5.9E-04	NA	0.91	1.03	NA	**1.94**
Organic PM	3.4E-04	2.5E-04	NA	0.60	0.445	NA	**1.04**
TOC	0.004	0.012	0.001	7.29	21.35	1.927	**30.6**
CO	0.001	0.001	3.5E-04	2.36	2.067	0.617	**5.05**

NA = Not Applicable (no AP-42 Emission Factor)

PM/HAPs	**0.042**	**0.050**	**0**	**0.093**
VOC/HAPs	**0.108**	**0.272**	**0.028**	**0.408**
non-VOC/HAPs	**5.6E-04**	**5.8E-05**	**1.5E-04**	**7.7E-04**
non-VOC/non-HAPs	**0.53**	**0.30**	**0.14**	**0.97**

Total VOCs	**6.85**	**21.35**	**1.8**	**30.0**
Total HAPs	**0.15**	**0.32**	**0.029**	**0.50**
			Worst Single HAP	**0.155 (formaldehyde)**

Methodology
The asphalt temperature and volatility factor were provided by the source.
Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16
Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::
Total PM/PM10/PM2.5 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)
Silo Filling Emission Factor Equations (AP-42 Table 11.1-14):
PM/PM10 Ef = 0.000332 + 0.00105(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00105(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0504(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00488(-V)e^((0.0251)(T+460)-20.43)
On Site Yard CO emissions estimated by multiplying the TOC emissions by 0.32
*No emission factors available for PM10 or PM2.5, therefore IDEM assumes PM10 and PM2.5 are equivalent to Total PM.

Abbreviations
TOC = Total Organic Compounds
CO = Carbon Monoxide
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound

Appendix A.1: Unlimited Emissions Calculations
Asphalt Load-Out, Silo Filling, and Yard Emissions (continued)

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Organic Particulate-Based Compounds (Table 11.1-15)

					Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of Total Organic PM)**	**Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
PAH HAPs										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	1.6E-03	2.1E-03	NA	3.6E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	1.7E-04	6.2E-05	NA	2.3E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	4.2E-04	5.8E-04	NA	1.0E-03
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	1.1E-04	2.5E-04	NA	3.6E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	4.5E-05	0	NA	4.5E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	1.3E-05	0	NA	1.3E-05
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	1.1E-05	0	NA	1.1E-05
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	1.4E-05	0	NA	1.4E-05
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	4.7E-05	4.2E-05	NA	8.9E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	6.2E-04	9.3E-04	NA	1.5E-03
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	2.2E-06	0	NA	2.2E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	3.0E-04		NA	3.0E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	4.6E-03	4.5E-03	NA	9.1E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	2.8E-06	0	NA	2.8E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	1.4E-02	2.3E-02	NA	0.038
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	7.5E-03	8.1E-03	NA	1.6E-02
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	1.3E-04	1.3E-04	NA	2.6E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	4.8E-03	8.0E-03	NA	1.3E-02
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	9.0E-04	2.0E-03	NA	2.9E-03
Total PAH HAPs							**0.035**	**0.050**	**NA**	**0.086**
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	7.0E-03	0	0	7.0E-03

NA = Not Applicable (no AP-42 Emission Factor)

Methodology

Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Speciation Profile (%)] * [Organic PM (tons/yr)]

Specieation Profiles from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-15 and 11.1-16

Abbreviations

PM = Particulate Matter
HAP = Hazardous Air Pollutant
POM = Polycyclic Organic Matter

Appendix A.1: Unlimited Emissions Calculations
Asphalt Load-Out, Silo Filling, and Yard Emissions (continued)

Organic Volatile-Based Compounds (Table 11.1-16)

					Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of TOC)**	**Silo Filling and Asphalt Storage Tank (% by weight of TOC)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
VOC		VOC	---	TOC	94%	100%	**6.85**	**21.35**	**1.81**	**30.01**
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	4.7E-01	5.6E-02	1.3E-01	0.654
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	3.4E-03	1.2E-02	8.9E-04	0.016
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	5.2E-02	2.3E-01	1.4E-02	0.300
Total non-VOC/non-HAPS					7.30%	1.40%	**0.532**	**0.299**	**0.141**	**0.97**
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	3.8E-03	6.8E-03	1.0E-03	1.2E-02
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	7.0E-04	1.0E-03	1.9E-04	1.9E-03
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	3.6E-03	8.3E-03	9.4E-04	1.3E-02
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	9.5E-04	3.4E-03	2.5E-04	4.6E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	1.5E-05	8.5E-04	4.0E-06	8.7E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	1.1E-03	4.9E-03	2.9E-04	6.3E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	8.0E-03	0	2.1E-03	1.0E-02
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	2.0E-02	8.1E-03	5.4E-03	0.034
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	6.4E-03	1.5E-01	1.7E-03	0.155
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	1.1E-02	2.1E-02	2.9E-03	0.035
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	1.3E-04	6.6E-05	3.5E-05	2.3E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	5.8E-05	0	5.8E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	5.3E-04	1.2E-03	1.4E-04	1.8E-03
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	5.6E-04	0	1.5E-04	7.1E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	1.5E-02	1.3E-02	4.0E-03	0.033
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	0	9.5E-05	0	2.5E-05	1.2E-04
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	3.0E-02	4.3E-02	7.9E-03	0.080
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	5.8E-03	1.2E-02	1.5E-03	2.0E-02
Total volatile organic HAPs					1.50%	1.30%	**0.109**	**0.278**	**0.029**	**0.416**

Methodology
Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Speciation Profile (%)] * [TOC (tons/yr)]
Specieation Profiles from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-15 and 11.1-16

Abbreviations
TOC = Total Organic Compounds
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound
MTBE = Methyl tert butyl ether

Appendix A.1: Unlimited Emissions Calculations
Material Storage Piles

Company Name: **MAC Construction and Excavating Inc.**
Source Address: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

The following calculations determine the amount of emissions created by wind erosion of storage stockpiles, based on 8,760 hours of use and USEPA's AP-42 (Pre 1983 Edition), Section 11.2.3.

Ef = 1.7*(s/1.5)*(365-p)/235*(f/15)
where Ef = emission factor (lb/acre/day)
s = silt content (wt %)
p = 125 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10/PM2.5 (tons/yr)
Sand	2.6	3.01	0.00	0.000	0.000
Virg Aggregate	7.1	8.22	0.30	0.450	0.157
RAP	7.1	8.22	0.10	0.150	0.052
Gravel	1.6	1.85	0.00	0.000	0.000
Slag	3.8	4.40	0.03	0.024	0.008
			Totals	**0.62**	**0.22**

Methodology
PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) * (Maximum Pile Size (acres)) * (ton/2000 lbs) * (8760 hours/yr)
PTE of PM10/PM2.5 (tons/yr) = (Potential PM Emissions (tons/yr)) * 35%
*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)
**Maximum anticipated pile size (acres) provided by the source.
RAP - recycled asphalt pavement
Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PM2.5 = PM10
PTE = Potential to Emit

Appendix A.1: Unlimited Emissions Calculations
Material Processing, Handling, Crushing, Screening, and Conveying

Company Name: **MAC Construction and Excavating Inc.**
Source Address: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

Batch or Continuous Drop Operations (AP-42 Section 13.2.4)

To estimate potential fugitive dust emissions from processing and hangling of raw materials (batch or continuous drop operations), AP-42 emission factors for Aggregate Handling, Section 13.2.4 (fifth edition, 1/95) are utilized.

Ef = k*(0.0032)*[(U/5)^1.3 / (M/2)^1.4]

where: Ef =	Emission factor	(lb/ton)
k (PM) =	0.74	= particle size multiplier (0.74 assumed for aerodynamic diameter <=100 um)
k (PM10) =	0.35	= particle size multiplier (0.35 assumed for aerodynamic diameter <=10 um)
k (PM2.5) =	0.053	= particle size multiplier (0.053 assumed for aerodynamic diameter <=2.5 um)
U =	12	= worst case annual mean wind speed (Source: NOAA, 2006*)
M =	4.5	= material % moisture content of aggregate (Source: AP-42 Section 11.1.1.1)
Ef (PM) =	2.37E-03	lb PM/ton of material handled
Ef (PM10) =	1.12E-03	lb PM10/ton of material handled
Ef (PM2.5) =	1.70E-04	lb PM2.5/ton of material handled

Maximum Annual Asphalt Production =	3,504,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	3,328,800	tons/yr

Type of Activity	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)	Unlimited/Uncontrolled PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	3.95	1.87	0.28
Front-end loader dumping of materials into feeder bins	3.95	1.87	0.28
Conveyor dropping material into dryer/mixer or batch tower	3.95	1.87	0.28
Total (tons/yr)	**11.86**	**5.61**	**0.85**

Methodology

The percent asphalt cement/binder provided by the source.
Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Unlimited Potential to Emit (tons/yr) = (Maximum Material Handling Throughput (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Raw materials may include limestone, sand, recycled asphalt pavement (RAP), gravel, slag, and other additivies
*Worst case annual mean wind speed (Indianapolis, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2006

Material Screening and Conveying (AP-42 Section 11.19.2)

To estimate potential fugitive dust emissions from raw material crushing, screening, and conveying, AP-42 emission factors for Crushed Stone Processing Operations, Section 11.19.2 (dated 8/04) are utilized.

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10/PM2.5 (tons/yr)**
Crushing	0.0054	0.0024	8.99	3.99
Screening	0.025	0.0087	41.61	14.48
Conveying	0.003	0.0011	4.99	1.83
Unlimited Potential to Emit (tons/yr) =			**55.59**	**20.31**

Methodology

Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Unlimited Potential to Emit (tons/yr) = [Maximum Material Handling Throughput (tons/yr)] * [Emission Factor (lb/ton)] * [ton/2000 lbs]
Raw materials may include stone/gravel, slag, and recycled asphalt pavement (RAP)
Emission Factors from AP-42 Chapter 11.19.2 (dated 8/04), Table 11.19.2-2
*Uncontrolled emissions factors for PM/PM10 represent tertiary crushing of stone with moisture content ranging from 0.21 to 1.3 percent by weight (Table 11.19.2-2). The bulk moisture content of aggregate in the storage piles at a hot mix asphalt production plant typically stabilizes between 3 to 5 percent by weight (Source: AP-42 Section 11.1.1.1).
**Assumes PM10 = PM2.5

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate matter (< 2.5 um)
PTE = Potential to Emit

Appendix A.1: Unlimited Emissions Calculations
Unpaved Roads

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Unpaved Roads at Industrial Site

The following calculations determine the amount of emissions created by unpaved roads, based on 8,760 hours of use and AP-42, Ch 13.2.2 (12/2003).

Maximum Annual Asphalt Production =	3,504,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	3,328,800	tons/yr
Maximum Asphalt Cement/Binder Throughput =	175,200	tons/yr
Maximum No. 2 Fuel Oil Usage =	0	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.4	1.5E+05	5.9E+06	300	0.057	8443.6
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	1.5E+05	2.5E+06	300	0.057	8443.6
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	4.9E+03	2.3E+05	300	0.057	276.5
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	4.9E+03	5.8E+04	300	0.057	276.5
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	0.0E+00	0.0E+00	300	0.057	0.0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	0.0E+00	0.0E+00	300	0.057	0.0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	7.9E+05	1.5E+07	300	0.057	45032.5
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	7.9E+05	1.2E+07	300	0.057	45032.5
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	1.5E+05	6.0E+06	300	0.057	8295.5
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	1.5E+05	2.5E+06	300	0.057	8295.5
	Total				**2.2E+06**	**4.4E+07**			**1.2E+05**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.057	miles/trip

Unmitigated Emission Factor, Ef = k*[(s/12)^a]*[(W/3)^b] (Equation 1a from AP-42 13.2.2)

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [(365 - P)/365]
Mitigated Emission Factor, Eext = E * [(365 - P)/365]
where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	6.09	1.55	0.16	lb/mile
Mitigated Emission Factor, Eext =	4.01	1.02	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	25.73	6.56	0.66	16.92	4.31	0.43	8.46	2.16	0.22
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	25.73	6.56	0.66	16.92	4.31	0.43	8.46	2.16	0.22
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.843	0.215	0.02	0.554	0.141	0.01	0.277	0.071	0.01
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.843	0.215	0.02	0.554	0.141	0.01	0.277	0.071	0.01
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.000	0.000	0.00	0.000	0.000	0.00	0.000	0.000	0.00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.000	0.000	0.00	0.000	0.000	0.00	0.000	0.000	0.00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	137.22	34.97	3.50	90.22	22.99	2.30	45.11	11.50	1.15
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	137.22	34.97	3.50	90.22	22.99	2.30	45.11	11.50	1.15
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	25.28	6.44	0.64	16.62	4.24	0.42	8.31	2.12	0.21
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	25.28	6.44	0.64	16.62	4.24	0.42	8.31	2.12	0.21
	Totals	**378.13**	**96.37**	**9.64**	**248.63**	**63.37**	**6.34**	**124.32**	**31.68**	**3.17**

Methodology
Maximum Material Handling Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Maximum Asphalt Cement/Binder Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [Percent Asphalt Cement/Binder (weight %)]
Maximum Weight of Vehicle and Load (tons/trip) = [Maximum Weight of Vehicle (tons/trip)] + [Maximum Weight of Load (tons/trip)]
Maximum trips per year (trip/yr) = [Throughput (tons/yr)] / [Maximum Weight of Load (tons/trip)]
Total Weight driven per year (ton/yr) = [Maximum Weight of Vehicle and Load (tons/trip)] * [Maximum trips per year (trip/yr)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/yr) = [Maximum trips per year (trip/yr)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per year (ton/yr)] / SUM[Maximum trips per year (trip/yr)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/yr)] / SUM[Maximum trips per year (trip/yr)]
Unmitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) * (Unmitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Mitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) * (Mitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) * (1 - Dust Control Efficiency)

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PM2.5 = PM10
PTE = Potential to Emit

Appendix A: Unlimited Emissions Calculations
Paved Roads

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Maximum Annual Asphalt Production =	3,504,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	3,328,800	tons/yr
Maximum Asphalt Cement/Binder Throughput =	175,200	tons/yr
Maximum No. 2 Fuel Oil Usage =	0	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.40	1.5E+05	5.9E+06	300	0.057	8443.6
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	17	34.00	1.5E+05	5.1E+06	300	0.057	8443.6
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	4.9E+03	2.3E+05	300	0.057	276.5
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	12	24.00	4.9E+03	1.2E+05	300	0.057	276.5
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	0.0E+00	0.0E+00	300	0.057	0.0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	12	24.00	0.0E+00	0.0E+00	300	0.057	0.0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	7.9E+05	1.5E+07	300	0.057	45032.5
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	15	30.00	7.9E+05	2.4E+07	300	0.057	45032.5
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	1.5E+05	6.0E+06	300	0.057	8295.5
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	17	34.00	1.5E+05	5.0E+06	300	0.057	8295.5
	Total				**2.2E+06**	**6.1E+07**			**1.2E+05**

Average Vehicle Weight Per Trip =	28.0	tons/trip
Average Miles Per Trip =	0.057	miles/trip

Unmitigated Emission Factor, Ef = [k * (sL/2)^0.65 * (W/3)^1.5 - C] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.082	0.016	0.0024	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	24.0	24.0	24.0	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	0.00036	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	0.6	0.6	0.6	g/m^2 = Ubitiguous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)]
Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]

where p =	125	days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N =	365	days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.85	0.17	0.02	lb/mile
Mitigated Emission Factor, Eext =	0.78	0.15	0.02	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	3.58	0.70	0.10	3.27	0.64	0.09	1.64	0.32	0.05
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	3.58	0.70	0.10	3.27	0.64	0.09	1.64	0.32	0.05
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.117	0.023	3.4E-03	0.107	0.021	3.1E-03	0.054	1.0E-02	1.5E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.117	0.023	3.4E-03	0.107	0.021	3.1E-03	0.054	1.0E-02	1.5E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	19.09	3.72	0.55	17.46	3.40	0.50	8.73	1.70	0.25
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	19.09	3.72	0.55	17.46	3.40	0.50	8.73	1.70	0.25
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	3.52	0.68	0.10	3.22	0.63	0.09	1.61	0.31	0.05
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	3.52	0.68	0.10	3.22	0.63	0.09	1.61	0.31	0.05
	Totals	**52.61**	**10.24**	**1.52**	**48.11**	**9.36**	**1.39**	**24.05**	**4.68**	**0.69**

Methodology
Maximum Material Handling Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Maximum Asphalt Cement/Binder Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [Percent Asphalt Cement/Binder (weight %)]
Maximum Weight of Vehicle and Load (tons/trip) = [Maximum Weight of Vehicle (tons/trip)] + [Maximum Weight of Load (tons/trip)]
Maximum trips per year (trip/yr) = [Throughput (tons/yr)] / [Maximum Weight of Load (tons/trip)]
Total Weight driven per year (ton/yr) = [Maximum Weight of Vehicle and Load (tons/trip)] * [Maximum trips per year (trip/yr)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/yr) = [Maximum trips per year (trip/yr)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per year (ton/yr)] / SUM[Maximum trips per year (trip/yr)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/yr)] / SUM[Maximum trips per year (trip/yr)]
Unmitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) * (Unmitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Mitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) * (Mitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) * (1 - Dust Control Efficiency)

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PM2.5 = PM10
PTE = Potential to Emit

Appendix A.1: Unlimited Emissions Calculations
Cold Mix Asphalt Production and Stockpiles

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

The following calculations determine the amount of VOC and HAP emissions created from volatilization of solvent used as diluent in the liquid binder for cold mix asphalt production

Maximum Annual Asphalt Production =	3,504,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	0.0%	
Maximum Asphalt Cement/Binder Throughput =	0	tons/yr

If source does not produce cold mix asphalt enter a value of 0%.

Volatile Organic Compounds

	Maximum weight % of VOC solvent in binder*	Weight % VOC solvent in binder that evaporates	Maximum VOC Solvent Usage (tons/yr)	PTE of VOC (tons/yr)
Cut back asphalt rapid cure (assuming gasoline or naphtha solvent)	25.3%	95.0%	0.0	0.0
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	0.0	0.0
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	0.0	0.0
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	0.0	0.0
Other asphalt with solvent binder	25.9%	2.5%	0.0	0.0
			Worst Case PTE of VOC =	**0.0**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
PTE of Total HAPs (tons/yr) =	**0.00**	
PTE of Single HAP (tons/yr) =	**0.00**	**Xylenes**

Hazardous Air Pollutant (HAP) Content (% by weight) For Various Petroleum Solvents*

		Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Solvents				
Volatile Organic HAP	CAS#	Gasoline	Kerosene	Diesel (#2) Fuel Oil	No. 2 Fuel Oil	No. 6 Fuel Oil
1,3-Butadiene	106-99-0	3.70E-5%				
2,2,4-Trimethylpentane	540-84-1	2.40%				
Acenaphthene	83-32-9		4.70E-5%		1.80E-4%	
Acenaphthylene	208-96-8		4.50E-5%		6.00E-5%	
Anthracene	120-12-7		1.20E-6%	5.80E-5%	2.80E-5%	5.00E-5%
Benzene	71-43-2	1.90%		2.90E-4%		
Benzo(a)anthracene	56-55-3			9.60E-7%	4.50E-7%	5.50E-4%
Benzo(a)pyrene	50-32-8			2.20E-6%	2.10E-7%	4.40E-5%
Benzo(g,h,i)perylene	191-24-2			1.20E-7%	5.70E-8%	
Biphenyl	92-52-4			6.30E-4%	7.20E-5%	
Chrysene	218-01-9			4.50E-7%	1.40E-6%	6.90E-4%
Ethylbenzene	100-41-4	1.70%		0.07%	3.40E-4%	
Fluoranthene	206-44-0		7.10E-6%	5.90E-5%	1.40E-5%	2.40E-4%
Fluorene	86-73-7		4.20E-5%	8.60E-4%	1.90E-4%	
Indeno(1,2,3-cd)pyrene	193-39-5			1.60E-7%		1.00E-4%
Methyl-tert-butylether	1634-04-4	0.33%				
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%	4.20E-5%
n-Hexane	110-54-3	2.40%				
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%	2.10E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-5%	2.30E-5%
Toluene	108-88-3	8.10%		0.18%	6.20E-4%	
Total Xylenes	1330-20-7	9.00%		0.50%	0.23%	
Total Organic HAPs		**26.08%**	**0.33%**	**1.29%**	**0.68%**	**0.19%**
Worst Single HAP		**9.00% Xylenes**	**0.31% Naphthalene**	**0.50% Xylenes**	**0.23% Xylenes**	**0.07% Chrysene**

Methodology
Maximum Asphalt Cement/Binder Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [Percent Asphalt Cement/Binder (weight %)]
Maximum VOC Solvent Usage (tons/yr) = [Maximum Asphalt Cement/Binder Throughput (tons/yr)] * [Maximum Weight % of VOC Solvent in Binder]
PTE of VOC (tons/yr) = [Weight % VOC solvent in binder that evaporates] * [Maximum VOC Solvent Usage (tons/yr)]
PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: http://www.aehs.com/publications/catalog/contents/tph.htm

Abbreviations
VOC = Volatile Organic Compounds
PTE = Potential to Emit

Appendix A.1: Unlimited Emissions Calculations
Gasoline Fuel Transfer and Dispensing Operation

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling emission factors from AP-42 Table 5.2-7 were used. The total potential emission of VOC is as follows:

Gasoline Throughput =	0	gallons/day
=	0.0	kgal/yr

Volatile Organic Compounds

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.00
Tank breathing and emptying	1.0	0.00
Vehicle refueling (displaced losses - controlled)	1.1	0.00
Spillage	0.7	0.00
Total		**0.00**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**0.00**	
Limited PTE of Single HAP (tons/yr) =	**0.00**	**Xylenes**

Methodology
The gasoline throughput was provided by the source.
Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]
PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]
PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: http://www.aehs.com/publications/catalog/contents/tph.htm

Abbreviations
VOC = Volatile Organic Compounds
PTE = Potential to Emit

Appendix A.2: Revision Emissions Summary

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Before Revision

	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP	
Dryer/Mixer Slag Processing	0.00	0.00	0.00	1.34	0.00	0.00	0.00	0.00	0.00	
s Limited/Controlled Emissions	**249.00**	**99.00**	**99.00**	**99.00**	**61.14**	**23.61**	**64.21**	**6.75**	**5.80**	(HCl)

Revision of Changing Slag from Blast Furnace Slag to Steel Slag

	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP	
Dryer/Mixer Slag Processing	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	
Dryer/Mixer Combustion				96.38						
s Limited/Controlled Emissions	**249.00**	**99.00**	**99.00**	**99.00**	**61.14**	**23.61**	**64.21**	**6.75**	**5.80**	(HCl)

After Revision

	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP	
Dryer/Mixer Slag Processing	0.00	0.00	0.00	-1.27	0.00	0.00	0.00	0.00	0.00	
Dryer/Mixer Combustion				1.27						
s Limited/Controlled Emissions	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	(HCl)

Appendix A.2: Limited Emissions Summary
Entire Source

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Asphalt Plant Limitations

Maximum Hourly Asphalt Production =	400	ton/hr								
Annual Asphalt Production Limitation =	960,000	ton/yr								
Slag Usage Limitation =	100,000	ton/yr	0.33	% sulfur						
Natural Gas Limitation =	0.00	MMCF/yr								
No. 2 Fuel Oil Limitation =	0	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	2,570,014	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Limitation =	2,455,427	gal/yr, and	0.50	% sulfur						
Propane Limitation =	0	gal/yr, and	0.00	gr/100 ft3 sulfur						
Butane Limitation =	0	gal/yr, and	0.00	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	2,789,854	gal/yr, and	0.47	% sulfur	0.50	% ash	0.114	% chlorine,	0.010	% lead

PM Dryer/Mixer Limitation =	0.407	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.172	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.191	lb/ton of asphalt production
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production
Slag SO2 Dryer/Mixer Limitation =	0.0014	lb/ton of slag processed
Cold Mix Asphalt VOC Usage Limitation =	0.0	tons/yr
HCl Limitation =	7.524	lb/kgal

Limited/Controlled Emissions

	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Dryer Fuel Combustion (worst case)	44.64	35.57	35.57	96.38	60.40	1.39	6.97	11.79	10.50	(hydrogen chloride)
Dryer/Mixer (Process)	195.38	82.42	91.48	27.84	26.40	15.36	62.40	5.12	1.49	(formaldehyde)
Dryer/Mixer Slag Processing	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	
Hot Oil Heater Fuel Combustion (worst case)	0.07	0.12	0.12	2.55	0.72	0.03	0.42	0.01	0.009	(hexane)
Worst Case Emissions*	**195.45**	**82.54**	**91.60**	**99.00**	**61.11**	**15.39**	**62.82**	**11.80**	**10.50**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	0.53	0.53	0.53	0	0	8.22	1.38	0.14	0.04	(formaldehyde)
Material Storage Piles	0.62	0.22	0.22	0	0	0	0	0	0	
Material Processing and Handling	3.10	1.47	0.22	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	15.23	5.56	5.56	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	34.06	8.68	0.87	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	0.00	0	0.00	0.00	(xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.00	0	0.00	0.00	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	negl	negl	
Total Fugitive Emissions	**53.55**	**16.46**	**7.40**	**0**	**0**	**8.22**	**1.38**	**0.14**	**0.00**	(xylenes)
Totals Limited/Controlled Emissions	**249.00**	**99.00**	**99.00**	**99.00**	**61.11**	**23.61**	**64.21**	**11.94**	**10.50**	(hydrogen chloride)

negl = negligible
Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.
*Worst Case Emissions (tons/yr) = Worst Case Emissions from Dryer Fuel Combustion and Dryer/Mixer + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion
Fuel component percentages provided by the source.

Appendix A.2: Limited Emissions Summary
Dryer/Mixer Fuel Combustion with Maximum Capacity > 100 MMBtu/hr

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

The following calculations determine the limited emissions created from the combustion of natural gas, fuel oil, propane, butane, or used/waste oil in the dryer/mixer and all other fuel combustion sources at the source.

Production and Fuel Limitations

Maximum Hourly Asphalt Production =	400	ton/hr								
Annual Asphalt Production Limitation =	960,000	ton/yr								
Natural Gas Limitation =	0	MMCF/yr								
No. 2 Fuel Oil Limitation =	0	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	2,570,014	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Limitation =	2,455,427	gal/yr, and	0.50	% sulfur						
Propane Limitation =	0	gal/yr, and	0.00	gr/100 ft3 sulfur						
Butane Limitation =	0	gal/yr, and	0.00	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	2,789,854	gal/yr, and	0.47	% sulfur	0.50	% ash	0.114	% chlorine,	0.010	% lead

Limited Emissions

	Emission Factor (units)							Limited Potential to Emit (tons/yr)							
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil* (lb/kgal)	Residual (No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Residual (No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2	7	7.815	0.5	0.6	32	0.00	0.00	9.00	9.59	0.000	0.000	44.64	**44.64**
PM10	7.6	3.3	8.3	9.315	0.5	0.6	25.5	0.00	0.00	10.67	11.44	0.000	0.000	35.57	**35.57**
SO2	0.6	71.0	75.0	78.5	0.000	0.000	69.1	0.00	0.00	96.38	96.38	0.000	0.000	96.38	**96.38**
NOx	190	24.0	47.0	47.0	13.0	15.0	19.0	0.00	0.00	60.40	57.70	0.00	0.00	26.50	**60.40**
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	0.00	0.00	0.26	0.34	0.00	0.00	1.39	**1.39**
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	0.00	0.00	6.43	6.14	0.00	0.00	6.97	**6.97**
Hazardous Air Pollutant															
HCl							7.5							10.50	**10.50**
Antimony			5.25E-03	5.25E-03			negl			6.75E-03	6.45E-03			negl	**6.7E-03**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	0.0E+00	0.00E+00	1.70E-03	1.62E-03			1.53E-01	**1.5E-01**
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	0.0E+00	0.00E+00	3.57E-05	3.41E-05			negl	**3.6E-05**
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	0.0E+00	0.00E+00	5.11E-04	4.89E-04			1.30E-02	**1.3E-02**
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	0.0E+00	0.00E+00	1.09E-03	1.04E-03			2.79E-02	**2.8E-02**
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04	0.0E+00		7.74E-03	7.39E-03			2.93E-04	**7.7E-03**
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55	0.0E+00	0.00E+00	1.94E-03	1.85E-03			7.7E-01	**0.77**
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	0.0E+00	0.00E+00	3.86E-03	3.68E-03			9.49E-02	**0.09**
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				0.0E+00	0.00E+00	1.45E-04	1.39E-04				**1.5E-04**
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	0.0E+00	0.00E+00	1.09E-01	1.04E-01			1.53E-02	**0.109**
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl	0.0E+00	0.00E+00	8.78E-04	8.39E-04			negl	**8.8E-04**
1.1.1-Trichloroethane			2.36E-04	2.36E-04						3.03E-04	2.90E-04				**3.0E-04**
1,3-Butadiene															**0.0E+00**
Acetaldehyde															**0.0E+00**
Acrolein															**0.0E+00**
Benzene	2.1E-03		2.14E-04	2.14E-04				0.0E+00		2.75E-04	2.63E-04				**2.7E-04**
Bis(2-ethylhexyl)phthalate							2.2E-03							3.07E-03	**3.1E-03**
Dichlorobenzene	1.2E-03						8.0E-07	0.0E+00						1.12E-06	**1.1E-06**
Ethylbenzene			6.36E-05	6.36E-05						8.17E-05	7.81E-05				**8.2E-05**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				0.0E+00	0.00E+00	4.24E-02	4.05E-02				**0.042**
Hexane	1.8E+00							0.00							**0.000**
Phenol							2.4E-03							3.35E-03	**3.3E-03**
Toluene	3.4E-03		6.20E-03	6.20E-03				0.0E+00		7.97E-03	7.61E-03				**8.0E-03**
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		1.45E-03	1.39E-03			5.45E-02	**5.5E-02**
Polycyclic Organic Matter		3.30E-03							0.00E+00						**0.0E+00**
Xylene			1.09E-04	1.09E-04						1.40E-04	1.34E-04				**1.4E-04**
							Total HAPs	**0.00**	**0.00**	**0.19**	**0.18**	**0**	**0**	**11.63**	**11.79**

Methodology

Natural Gas: Limited Potential to Emit (tons/yr) = (Natural Gas Limitation (MMCF/yr)) * (Emission Factor (lb/MMCF)) * (ton/2000 lbs)
All Other Fuels: Limited Potential to Emit (tons/yr) = (Fuel Limitation (gals/yr)) * (Emission Factor (lb/kgal)) * (kgal/1000 gal) * (ton/2000 lbs)
Sources of AP-42 Emission Factors for fuel combustion:

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
Propane and Butane: AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)
Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5

*Since there are no specific AP-42 HAP emission factors for combustion of No. 4 fuel oil, it was assumed that HAP emissions from combustion of No. 4 fuel oil were equal to combustion of residual or No. 6 fuel oil.

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide
HAP = Hazardous Air Pollutant
HCl = Hydrogen Chloride
PAH = Polyaromatic Hydrocarbon

Appendix A.2: Limited Emissions Summary
Dryer/Mixer

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

The following calculations determine the limited emissions from the aggregate drying/mixing

Maximum Hourly Asphalt Production =	400	ton/hr
Annual Asphalt Production Limitation =	960,000	ton/yr
PM Dryer/Mixer Limitation =	0.407	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.172	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.191	lb/ton of asphalt production
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production

	Emission Factor or Limitation (lb/ton) Drum-Mix Plant (dryer/mixer, controlled by fabric filter)			Limited/Controlled Potential to Emit (tons/yr) Drum-Mix Plant (dryer/mixer, controlled by fabric filter)			
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	**Worse Case PTE**
PM*	0.407	0.407	0.407	195.4	195.4	195.4	**195.4**
PM10*	0.172	0.172	0.172	82.4	82.4	82.4	**82.4**
PM2.5*	0.191	0.191	0.191	91.5	91.5	91.5	**91.5**
SO2**	0.003	0.011	0.058	1.6	5.3	27.8	**27.8**
NOx**	0.026	0.055	0.055	12.5	26.4	26.4	**26.4**
VOC**	0.032	0.032	0.032	15.4	15.4	15.4	**15.4**
CO***	0.130	0.130	0.130	62.4	62.4	62.4	**62.4**
Hazardous Air Pollutant							
HCl			2.10E-04			0.10	**0.10**
Antimony	1.80E-07	1.80E-07	1.80E-07	8.64E-05	8.64E-05	8.64E-05	**8.64E-05**
Arsenic	5.60E-07	5.60E-07	5.60E-07	2.69E-04	2.69E-04	2.69E-04	**2.69E-04**
Beryllium	negl	negl	negl	negl	negl	negl	**0.00E+00**
Cadmium	4.10E-07	4.10E-07	4.10E-07	1.97E-04	1.97E-04	1.97E-04	**1.97E-04**
Chromium	5.50E-06	5.50E-06	5.50E-06	2.64E-03	2.64E-03	2.64E-03	**2.64E-03**
Cobalt	2.60E-08	2.60E-08	2.60E-08	1.25E-05	1.25E-05	1.25E-05	**1.25E-05**
Lead	6.20E-07	1.50E-05	1.50E-05	2.98E-04	7.20E-03	7.20E-03	**7.20E-03**
Manganese	7.70E-06	7.70E-06	7.70E-06	3.70E-03	3.70E-03	3.70E-03	**3.70E-03**
Mercury	2.40E-07	2.60E-06	2.60E-06	1.15E-04	1.25E-03	1.25E-03	**1.25E-03**
Nickel	6.30E-05	6.30E-05	6.30E-05	3.02E-02	3.02E-02	3.02E-02	**3.02E-02**
Selenium	3.50E-07	3.50E-07	3.50E-07	1.68E-04	1.68E-04	1.68E-04	**1.68E-04**
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	1.92E-02	1.92E-02	1.92E-02	**1.92E-02**
Acetaldehyde			1.30E-03			0.62	**0.62**
Acrolein			2.60E-05			1.25E-02	**1.25E-02**
Benzene	3.90E-04	3.90E-04	3.90E-04	0.19	0.19	0.19	**0.19**
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.12	0.12	0.12	**0.12**
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	1.49	1.49	1.49	**1.49**
Hexane	9.20E-04	9.20E-04	9.20E-04	0.44	0.44	0.44	**0.44**
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.02	0.02	0.02	**0.02**
MEK			2.00E-05			0.01	**0.01**
Propionaldehyde			1.30E-04			0.06	**0.06**
Quinone			1.60E-04			0.08	**0.08**
Toluene	1.50E-04	2.90E-03	2.90E-03	0.07	1.39	1.39	**1.39**
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.09	0.42	0.42	**0.42**
Xylene	2.00E-04	2.00E-04	2.00E-04	0.10	0.10	0.10	**0.10**
						Total HAPs	**5.12**
						Worst Single HAP	**1.488 (formaldehyde)**

Methodology
Limited/Controlled Potential to Emit (tons/yr) = (Annual Asphalt Production Limitation (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-3, 11.1-4, 11.1-7, 11.1-8, 11.1-10, and 11.1-12
Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

* PM, PM10, and PM2.5 AP-42 emission factors based on drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. According to AP-42 fuel type does not significantly effect PM, PM10, and PM2.5 emissions.
** SO2, NOx, and VOC AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.
*** CO AP-42 emission factor determined by combining data from drum mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

Abbreviations
VOC - Volatile Organic Compounds
HCl = Hydrogen Chloride
SO2 = Sulfur Dioxide
HAP = Hazardous Air Pollutant
PAH = Polyaromatic Hydrocarbon

Appendix A.2: Limited Emissions Summary
Dryer/Mixer Slag Processing

Company Name: **MAC Construction and Excavating Inc.**
Source Address: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

The following calculations determine the limited emissions from the processing of slag in the aggregate drying/mixing

Slag Usage Limitation =	100,000	ton/yr		
SO2 Slag Limitation =	0.001	lb/ton of slag processed	0.33	% sulfur

Criteria Pollutant	Emission Factor or Limitation (lb/ton)* Slag Processing	Limited Potential to Emit (tons/yr) Slag Processing
SO2	0.0014	0.070

Methodology

** Testing results for steel slag, obtained June, 2009 from similar operations at E&B Paving, Inc. facility located in Huntington, IN , produced an Emission Factor o 0.0007 lb/ton from steel slag containing 0.33%. However, the source has elected to use a safety factor and has requested to use an emission factor of 0.0014 lb/ton of steel slag used.
Limited Potential to Emit SO2 from Slag (tons/yr) = (Slag Usage Limitation (ton/yr)] * [Limited Emission Factor (lb/ton)] * [ton/2000 lbs]
Abbreviations
SO2 = Sulfur Dioxide

Appendix A.2: Limited Emissions Summary
Hot Oil Heater
Fuel Combustion with Maximum Capacity < 100 MMBtu/hr

Company Name: **MAC Construction and Excavating Inc.**
Source Location: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

Maximum Hot Oil Heater Fuel Input Rate =	1.2	MMBtu/hr		
Natural Gas Usage =	10	MMCF/yr		
No. 2 Fuel Oil Usage =	71,957	gal/yr, and	0.50	% sulfur

Unlimited/Uncontrolled Emissions

	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		
	Hot Oil Heater		Hot Oil Heater		
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	0.010	0.072	**0.07**
PM10/PM2.5	7.6	3.3	0.038	0.119	**0.12**
SO2	0.6	71.0	0.003	2.554	**2.55**
NOx	100	20.0	0.504	0.720	**0.72**
VOC	5.5	0.20	0.028	0.007	**0.03**
CO	84	5.0	0.423	0.180	**0.42**
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	1.0E-06	2.01E-05	**2.0E-05**
Beryllium	1.2E-05	4.2E-04	6.0E-08	1.51E-05	**1.5E-05**
Cadmium	1.1E-03	4.2E-04	5.5E-06	1.51E-05	**1.5E-05**
Chromium	1.4E-03	4.2E-04	7.1E-06	1.51E-05	**1.5E-05**
Cobalt	8.4E-05		4.2E-07		**4.2E-07**
Lead	5.0E-04	1.3E-03	2.5E-06	4.53E-05	**4.5E-05**
Manganese	3.8E-04	8.4E-04	1.9E-06	3.02E-05	**3.0E-05**
Mercury	2.6E-04	4.2E-04	1.3E-06	1.51E-05	**1.5E-05**
Nickel	2.1E-03	4.2E-04	1.1E-05	1.51E-05	**1.5E-05**
Selenium	2.4E-05	2.1E-03	1.2E-07	7.56E-05	**7.6E-05**
Benzene	2.1E-03		1.1E-05		**1.1E-05**
Dichlorobenzene	1.2E-03		6.0E-06		**6.0E-06**
Ethylbenzene					**0**
Formaldehyde	7.5E-02	6.10E-02	3.8E-04	2.19E-03	**0.002**
Hexane	1.8E+00		0.01		**0.009**
Phenol					**0**
Toluene	3.4E-03		1.7E-05		**1.7E-05**
Total PAH Haps	negl		negl		**0**
Polycyclic Organic Matter		3.30E-03		1.19E-04	**1.2E-04**
		Total HAPs =	**9.5E-03**	**2.6E-03**	**0.012**

Methodology
Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]
Sources of AP-42 Emission Factors for fuel combustion:
Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide
HAP = Hazardous Air Pollutant
HCl = Hydrogen Chloride
PAH = Polyaromatic Hydrocarbon

Appendix A.2: Limited Emissions Summary
Asphalt Load-Out, Silo Filling, and Yard Emissions

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

The following calculations determine the limited fugitive emissions from hot asphalt mix load-out, silo filling, and on-site yard for a drum mix hot mix asphalt plant

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Annual Asphalt Production Limitation =	960,000	tons/yr

	Emission Factor (lb/ton asphalt)			Limited Potential to Emit (tons/yr)			
Pollutant	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Total**
Total PM*	5.2E-04	5.9E-04	NA	0.25	0.28	NA	**0.53**
Organic PM	3.4E-04	2.5E-04	NA	0.16	0.122	NA	**0.29**
TOC	0.004	0.012	0.001	2.00	5.85	0.528	**8.4**
CO	0.001	0.001	3.5E-04	0.65	0.566	0.169	**1.38**

NA = Not Applicable (no AP-42 Emission Factor)

PM/HAPs	**0.012**	**0.014**	**0**	**0.026**
VOC/HAPs	**0.029**	**0.074**	**0.008**	**0.112**
non-VOC/HAPs	**1.5E-04**	**1.6E-05**	**4.1E-05**	**2.1E-04**
non-VOC/non-HAPs	**0.14**	**0.08**	**0.04**	**0.27**

Total VOCs	**1.88**	**5.85**	**0.5**	**8.2**
Total HAPs	**0.04**	**0.09**	**0.008**	**0.14**
			Worst Single HAP	**0.043 (formaldehyde)**

Methodology
The asphalt temperature and volatility factor were provided by the source.
Limited Potential to Emit (tons/yr) = (Annual Asphalt Production Limitation (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16
Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::
Total PM/PM10 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)
Silo Filling Emission Factor Equations (AP-42 Table 11.1-14):
PM/PM10 Ef = 0.000332 + 0.00105(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00105(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0504(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00488(-V)e^((0.0251)(T+460)-20.43)
On Site Yard CO emissions estimated by multiplying the TOC emissions by 0.32
*No emission factors available for PM10 or PM2.5, therefore IDEM assumes PM10 and PM2.5 are equivalent to Total PM.

Abbreviations
TOC = Total Organic Compounds
CO = Carbon Monoxide
PM = Particulate
Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound

Appendix A.2: Limited Emissions Summary
Asphalt Load-Out, Silo Filling, and Yard Emissions (continued)

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Organic Particulate-Based Compounds (Table 11.1-15)

					Speciation Profile		Limited Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of Total Organic PM)**	**Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
PAH HAPs										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	4.3E-04	5.7E-04	NA	1.0E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	4.6E-05	1.7E-05	NA	6.3E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	1.1E-04	1.6E-04	NA	2.7E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	3.1E-05	6.8E-05	NA	9.9E-05
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	1.2E-05	0	NA	1.2E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	3.6E-06	0	NA	3.6E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	3.1E-06	0	NA	3.1E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	3.8E-06	0	NA	3.8E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	1.3E-05	1.2E-05	NA	2.4E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	1.7E-04	2.6E-04	NA	4.2E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	6.1E-07	0	NA	6.1E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	8.2E-05	1.8E-04	NA	2.6E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	1.3E-03	1.2E-03	NA	2.5E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	7.7E-07	0	NA	7.7E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	3.9E-03	6.4E-03	NA	0.010
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	2.0E-03	2.2E-03	NA	4.3E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	3.6E-05	3.7E-05	NA	7.3E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	1.3E-03	2.2E-03	NA	3.5E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	2.5E-04	5.4E-04	NA	7.8E-04
Total PAH HAPs							**0.010**	**0.014**	**NA**	**0.024**
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	1.9E-03	0	0	1.9E-03

NA = Not Applicable (no AP-42 Emission Factor)

Methodology
Limited Potential to Emit (tons/yr) = [Speciation Profile (%)] * [Organic PM (tons/yr)]
Speciation Profiles from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-15 and 11.1-16

Abbreviations
PM = Particulate Matter
HAP = Hazardous Air Pollutant
POM = Polycyclic Organic Matter

Appendix A.2: Limited Emissions Summary
Asphalt Load-Out, Silo Filling, and Yard Emissions (continued)
Limited Emissions

Organic Volatile-Based Compounds (Table 11.1-16)

					Speciation Profile		Limited Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of TOC)**	**Silo Filling and Asphalt Storage Tank (% by weight of TOC)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
VOC		VOC	---	TOC	94%	100%	**1.88**	**5.85**	**0.50**	**8.22**
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	1.3E-01	1.5E-02	3.4E-02	0.179
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	9.2E-04	3.2E-03	2.4E-04	0.004
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	1.4E-02	6.4E-02	3.7E-03	0.082
Total non-VOC/non-HAPS					7.30%	1.40%	**0.146**	**0.082**	**0.039**	**0.27**
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	1.0E-03	1.9E-03	2.7E-04	3.2E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	1.9E-04	2.9E-04	5.1E-05	5.3E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	9.8E-04	2.3E-03	2.6E-04	3.5E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	2.6E-04	9.4E-04	6.9E-05	1.3E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	4.2E-06	2.3E-04	1.1E-06	2.4E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	3.0E-04	1.3E-03	7.9E-05	1.7E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	2.2E-03	0	5.8E-04	2.8E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	5.6E-03	2.2E-03	1.5E-03	0.009
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	1.8E-03	4.0E-02	4.6E-04	0.043
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	3.0E-03	5.8E-03	7.9E-04	0.010
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	3.6E-05	1.8E-05	9.5E-06	6.4E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	1.6E-05	0	1.6E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	1.5E-04	3.2E-04	3.9E-05	5.0E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	1.5E-04	0	4.1E-05	1.9E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	4.2E-03	3.6E-03	1.1E-03	0.009
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	0	2.6E-05	0	6.9E-06	3.3E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	8.2E-03	1.2E-02	2.2E-03	0.022
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	1.6E-03	3.3E-03	4.2E-04	5.4E-03
Total volatile organic HAPs					1.50%	1.30%	**0.030**	**0.076**	**0.008**	**0.114**

Methodology
Limited Potential to Emit (tons/yr) = [Speciation Profile (%)] * [TOC (tons/yr)]
Speciation Profiles from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-15 and 11.1-16

Abbreviations
TOC = Total Organic Compounds
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound
MTBE = Methyl tert butyl ether

Appendix A.2: Limited Emissions Summary
Material Storage Piles

Company Name: **MAC Construction and Excavating Inc.**
Source Address: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

Note: Since the emissions from the storage piles are minimal, the limited emissions are equal to the unlimited emissions.

The following calculations determine the amount of emissions created by wind erosion of storage stockpiles, based on 8,760 hours of use and USEPA's AP-42 (Pre 1983 Edition), Section 11.2.3.

Ef = 1.7*(s/1.5)*(365-p)/235*(f/15)
where Ef = emission factor (lb/acre/day)
s = silt content (wt %)
p = 125 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10/PM2.5 (tons/yr)
Sand	2.6	3.01	0.00	0.000	0.000
Virg. Aggregate	7.1	8.22	0.30	0.450	0.157
RAP	7.1	8.22	0.10	0.150	0.052
Gravel	1.6	1.85	0.00	0.000	0.000
Slag	3.8	4.40	0.03	0.024	0.008
			Totals	**0.62**	**0.22**

Methodology
PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) * (Maximum Pile Size (acres)) * (ton/2000 lbs) * (8760 hours/yr)
PTE of PM10/PM2.5 (tons/yr) = (Potential PM Emissions (tons/yr)) * 35%
*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)
**Maximum anticipated pile size (acres) provided by the source.

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PM2.5 = PM10
PTE = Potential to Emit

Appendix A.2: Limited Emissions Summary
Material Processing, Handling, Crushing, Screening, and Conveying

Company Name: **MAC Construction and Excavating Inc.**
Source Address: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

Batch or Continuous Drop Operations (AP-42 Section 13.2.4)

To estimate potential fugitive dust emissions from processing and hangling of raw materials (batch or continuous drop operations), AP-42 emission factors for Aggregate Handling, Section 13.2.4 (fifth edition, 1/95) are utilized.

Ef = k*(0.0032)*[(U/5)^1.3 / (M/2)^1.4]

where: Ef =	Emission factor	(lb/ton)
k (PM) =	0.74	= particle size multiplier (0.74 assumed for aerodynamic diameter <=100 um)
k (PM10) =	0.35	= particle size multiplier (0.35 assumed for aerodynamic diameter <=10 um)
k (PM2.5) =	0.053	= particle size multiplier (0.053 assumed for aerodynamic diameter <=2.5 um)
U =	10.2	= worst case annual mean wind speed (Source: NOAA, 2006*)
M =	4.0	= material % moisture content of aggregate (Source: AP-42 Section 11.1.1.1)
Ef (PM) =	2.27E-03	lb PM/ton of material handled
Ef (PM10) =	1.07E-03	lb PM10/ton of material handled
Ef (PM2.5) =	1.62E-04	lb PM2.5/ton of material handled

Annual Asphalt Production Limitation =	960,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	912,000	tons/yr

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)	Limited PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	1.03	0.49	0.07
Front-end loader dumping of materials into feeder bins	1.03	0.49	0.07
Conveyor dropping material into dryer/mixer or batch towe	1.03	0.49	0.07
Total (tons/yr)	**3.10**	**1.47**	**0.22**

Methodology
The percent asphalt cement/binder provided by the source.
Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Limited Potential to Emit (tons/yr) = (Maximum Material Handling Throughput (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Raw materials may include limestone, sand, recycled asphalt pavement (RAP), gravel, slag, and other additivies
*Worst case annual mean wind speed (Indianapolis, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2006

Material Screening and Conveying (AP-42 Section 19.2.2)
To estimate potential fugitive dust emissions from raw material crushing, screening, and conveying, AP-42 emission factors for Crushed Stone Processing Operations, Section 19.2.2 (dated 8/04) are utilized.

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Limited PTE of PM (tons/yr)	Limited PTE of PM10/PM2.5 (tons/yr)**
Crushing	0.0054	0.0024	2.46	1.09
Screening	0.025	0.0087	11.40	3.97
Conveying	0.003	0.0011	1.37	0.50
Limited Potential to Emit (tons/yr) =			**15.23**	**5.56**

Methodology
Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Limited Potential to Emit (tons/yr) = [Maximum Material Handling Throughput (tons/yr)] * [Emission Factor (lb/ton)] * [ton/2000 lbs]
Raw materials may include stone/gravel, slag, and recycled asphalt pavement (RAP)
Emission Factors from AP-42 Chapter 11.19.2 (dated 8/04), Table 11.19.2-2
*Uncontrolled emissions factors for PM/PM10 represent tertiary crushing of stone with moisture content ranging from 0.21 to 1.3 percent by weight (Table 11.19.2-2). The bulk moisture content of aggregate in the storage piles at a hot mix asphalt production plant typically stabilizes between 3 to 5 percent by weight (Source: AP-42 Section 11.1.1.1).
**Assumes PM10 = PM2.5

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PTE = Potential to Emit

Appendix A.2: Limited Emissions Summary
Unpaved Roads

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Unpaved Roads at Industrial Site

The following calculations determine the amount of emissions created by unpaved roads, based on 8,760 hours of use and AP-42, Ch 13.2.2 (12/2003).

Annual Asphalt Production Limitation =	960,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	912,000	tons/yr
Maximum Asphalt Cement/Binder Throughput =	48,000	tons/yr
No. 2 Fuel Oil Limitation =	0	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.4	4.1E+04	1.6E+06	300	0.057	2313.3
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	4.1E+04	6.9E+05	300	0.057	2313.3
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	1.3E+03	6.4E+04	300	0.057	75.8
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.3E+03	1.6E+04	300	0.057	75.8
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	0.0E+00	0.0E+00	300	0.057	0.0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	0.0E+00	0.0E+00	300	0.057	0.0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	2.2E+05	4.2E+06	300	0.057	12337.7
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	2.2E+05	3.3E+06	300	0.057	12337.7
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	4.0E+04	1.6E+06	300	0.057	2272.7
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	4.0E+04	6.8E+05	300	0.057	2272.7
	Total				**6.0E+05**	**1.2E+07**			**3.4E+04**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.057	miles/trip

Unmitigated Emission Factor, Ef = k*[(s/12)^a]*[(W/3)^b] (Equation 1a from AP-42 13.2.2)

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [(365 - P)/365]
Mitigated Emission Factor, Eext = E * [(365 - P)/365]
where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	6.09	1.55	0.16	lb/mile
Mitigated Emission Factor, Eext =	4.01	1.02	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	7.05	1.80	0.18	4.63	1.18	0.12	2.32	0.59	0.06
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	7.05	1.80	0.18	4.63	1.18	0.12	2.32	0.59	0.06
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.231	0.059	0.01	0.152	0.039	3.9E-03	0.076	0.019	1.9E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.231	0.059	0.01	0.152	0.039	3.9E-03	0.076	0.019	1.9E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.000	0.000	0.0E+00	0.000	0.000	0.0E+00	0.000	0.000	0.0E+00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.000	0.000	0.0E+00	0.000	0.000	0.0E+00	0.000	0.000	0.0E+00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	37.59	9.58	0.96	24.72	6.30	0.63	12.36	3.15	0.31
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	37.59	9.58	0.96	24.72	6.30	0.63	12.36	3.15	0.31
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	6.93	1.76	0.18	4.55	1.16	0.12	2.28	0.58	0.06
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	6.93	1.76	0.18	4.55	1.16	0.12	2.28	0.58	0.06
	Totals	**103.60**	**26.40**	**2.64**	**68.12**	**17.36**	**1.74**	**34.06**	**8.68**	**0.87**

Methodology

Maximum Material Handling Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Maximum Asphalt Cement/Binder Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [Percent Asphalt Cement/Binder (weight %)]
Maximum Weight of Vehicle and Load (tons/trip) = [Maximum Weight of Vehicle (tons/trip)] + [Maximum Weight of Load (tons/trip)]
Maximum trips per year (trip/yr) = [Throughput (tons/yr)] / [Maximum Weight of Load (tons/trip)]
Total Weight driven per year (ton/yr) = [Maximum Weight of Vehicle and Load (tons/trip)] * [Maximum trips per year (trip/yr)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/yr) = [Maximum trips per year (trip/yr)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per year (ton/yr)] / SUM[Maximum trips per year (trip/yr)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/yr)] / SUM[Maximum trips per year (trip/yr)]
Unmitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) * (Unmitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Mitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) * (Mitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) * (1 - Dust Control Efficiency)

Abbreviations

PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PM2.5 = PM10
PTE = Potential to Emit

Appendix A.2: Limited Emissions Summary
Paved Roads
Limited Emissions

Company Name: MAC Construction and Excavating Inc.
Source Address: 1417 Quarry Road, Jeffersonville, Indiana 47130
Permit Number: 019-30146-05282
Reviewer: Jack Harmon

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Annual Asphalt Production Limitation =	960,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	912,000	tons/yr
Maximum Asphalt Cement/Binder Throughput =	48,000	tons/yr
No. 2 Fuel Oil Limitation =	0	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.40	4.1E+04	1.6E+06	300	0.057	2313.3
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	4.1E+04	6.9E+05	300	0.057	2313.3
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	1.3E+03	6.4E+04	300	0.057	75.8
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.3E+03	1.6E+04	300	0.057	75.8
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	0.0E+00	0.0E+00	300	0.057	0.0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	0.0E+00	0.0E+00	300	0.057	0.0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	2.2E+05	4.2E+06	300	0.057	12337.7
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	2.2E+05	3.3E+06	300	0.057	12337.7
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	4.0E+04	1.6E+06	300	0.057	2272.7
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	4.0E+04	6.8E+05	300	0.057	2272.7
	Total				**6.0E+05**	**1.2E+07**			**3.4E+04**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.057	miles/trip

Unmitigated Emission Factor, Ef = [k * (sL/2)^0.65 * (W/3)^1.5 - C] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.082	0.016	0.0024	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	0.00036	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	0.6	0.6	0.6	g/m^2 = Ubitiguous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)]
Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]

where p =	125	days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N =	365	days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.66	0.13	0.02	lb/mile
Mitigated Emission Factor, Eext =	0.60	0.12	0.02	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	0.76	0.15	0.02	0.70	0.14	0.02	0.35	0.07	0.01
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.76	0.15	0.02	0.70	0.14	0.02	0.35	0.07	0.01
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.025	0.005	7.2E-04	0.023	0.004	6.5E-04	0.011	2.2E-03	3.3E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.025	0.005	7.2E-04	0.023	0.004	6.5E-04	0.011	2.2E-03	3.3E-04
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	4.06	0.79	0.12	3.71	0.72	0.11	1.85	0.36	0.05
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	4.06	0.79	0.12	3.71	0.72	0.11	1.85	0.36	0.05
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.75	0.15	0.02	0.68	0.13	0.02	0.34	0.07	0.01
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.75	0.15	0.02	0.68	0.13	0.02	0.34	0.07	0.01
	Totals	**11.18**	**2.17**	**0.32**	**10.22**	**1.99**	**0.29**	**5.11**	**0.99**	**0.15**

Methodology
Maximum Material Handling Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Maximum Asphalt Cement/Binder Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [Percent Asphalt Cement/Binder (weight %)]
Maximum Weight of Vehicle and Load (tons/trip) = [Maximum Weight of Vehicle (tons/trip)] + [Maximum Weight of Load (tons/trip)]
Maximum trips per year (trip/yr) = [Throughput (tons/yr)] / [Maximum Weight of Load (tons/trip)]
Total Weight driven per year (ton/yr) = [Maximum Weight of Vehicle and Load (tons/trip)] * [Maximum trips per year (trip/yr)]
Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip) / [5280 ft/mile]
Maximum one-way miles (miles/yr) = [Maximum trips per year (trip/yr)] * [Maximum one-way distance (mi/trip)]
Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per year (ton/yr)] / SUM[Maximum trips per year (trip/yr)]
Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/yr)] / SUM[Maximum trips per year (trip/yr)]
Unmitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) * (Unmitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Mitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) * (Mitigated Emission Factor (lb/mile)) * (ton/2000 lbs)
Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) * (1 - Dust Control Efficiency)

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PM2.5 = PM10
PTE = Potential to Emit

Appendix A.2: Limited Emissions Summary
Cold Mix Asphalt Production and Stockpiles

Company Name: **MAC Construction and Excavating Inc.**
Source Address: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

The following calculations determine the amount of VOC and HAP emissions created from volatilization of solvent used as diluent in the liquid binder for cold mix asphalt production

Cold Mix Asphalt VOC Usage Limitation = 0.0 tons/yr

Volatile Organic Compounds

	Maximum weight % of VOC solvent in binder	Weight % VOC solvent in binder that evaporates	VOC Solvent Usage Limitation (tons/yr)	Limited PTE of VOC (tons/yr)	Liquid Binder Adjustment Ratio
Cut back asphalt rapid cure (assuming gasoline or naphtha solvent)	25.3%	95.0%	0.0	0.0	#DIV/0!
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	0.0	0.0	#DIV/0!
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	0.0	0.0	#DIV/0!
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	0.0	0.0	#DIV/0!
Other asphalt with solvent binder	25.9%	2.5%	0.0	0.0	#DIV/0!
Worst Case Limited PTE of VOC =				**0.0**	

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**0.00**	
Limited PTE of Single HAP (tons/yr) =	**0.00**	**Xylenes**

Hazardous Air Pollutant (HAP) Content (% by weight) For Various Petroleum Solvents*

		Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Solvents				
Volatile Organic HAP	CAS#	Gasoline	Kerosene	Diesel (#2) Fuel Oil	No. 2 Fuel Oil	No. 6 Fuel Oil
1,3-Butadiene	106-99-0	3.70E-5%				
2,2,4-Trimethylpentane	540-84-1	2.40%				
Acenaphthene	83-32-9		4.70E-5%		1.80E-4%	
Acenaphthylene	208-96-8		4.50E-5%		6.00E-5%	
Anthracene	120-12-7		1.20E-6%	5.80E-5%	2.80E-5%	5.00E-5%
Benzene	71-43-2	1.90%		2.90E-4%		
Benzo(a)anthracene	56-55-3			9.60E-7%	4.50E-7%	5.50E-4%
Benzo(a)pyrene	50-32-8			2.20E-6%	2.10E-7%	4.40E-5%
Benzo(g,h,i)perylene	191-24-2			1.20E-7%	5.70E-8%	
Biphenyl	92-52-4			6.30E-4%	7.20E-5%	
Chrysene	218-01-9			4.50E-7%	1.40E-6%	6.90E-4%
Ethylbenzene	100-41-4	1.70%		0.07%	3.40E-4%	
Fluoranthene	206-44-0		7.10E-6%	5.90E-5%	1.40E-5%	2.40E-4%
Fluorene	86-73-7		4.20E-5%	8.60E-4%	1.90E-4%	
Indeno(1,2,3-cd)pyrene	193-39-5			1.60E-7%		1.00E-4%
Methyl-tert-butylether	1634-04-4	0.33%				
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%	4.20E-5%
n-Hexane	110-54-3	2.40%				
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%	2.10E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-5%	2.30E-5%
Toluene	108-88-3	8.10%		0.18%	6.20E-4%	
Total Xylenes	1330-20-7	9.00%		0.50%	0.23%	
Total Organic HAPs		**26.08%**	**0.33%**	**1.29%**	**0.68%**	**0.19%**
Worst Single HAP		**9.00% Xylenes**	**0.31% Naphthalene**	**0.50% Xylenes**	**0.23% Xylenes**	**0.07% Chrysene**

Methodology
Limited PTE of VOC (tons/yr) = [Weight % VOC solvent in binder that evaporates] * [VOC Solvent Usage Limitation (tons/yr)]
Limited PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
Limited PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: http://www.aehs.com/publications/catalog/contents/tph.htm

Abbreviations
VOC = Volatile Organic Compounds
PTE = Potential to Emit

Appendix A.2: Limited Emissions Summary
Gasoline Fuel Transfer and Dispensing Operation

Company Name: **MAC Construction and Excavating Inc.**
Source Address: **1417 Quarry Road, Jeffersonville, Indiana 47130**
Permit Number: **019-30146-05282**
Reviewer: **Jack Harmon**

Note: Since the emissions from the gasoline fuel transfer and dispensing operation are minimal, the limited emissions are equal to the unlimited emissions.

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling emission factors from AP-42 Table 5.2-7 were used. The total potential emission of VOC is as follows:

Gasoline Throughput =	0	gallons/day
=	0.0	kgal/yr

Volatile Organic Compounds

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.00
Tank breathing and emptying	1.0	0.00
Vehicle refueling (displaced losses - controlled)	1.1	0.00
Spillage	0.7	0.00
Total		**0.00**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**0.00**	
Limited PTE of Single HAP (tons/yr) =	**0.00**	**Xylenes**

Methodology
The gasoline throughput was provided by the source.
Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]
PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]
PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: http://www.aehs.com/publications/catalog/contents/tph.htm

Abbreviations
VOC = Volatile Organic Compounds
PTE = Potential to Emit

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Richard Downs
MAC Construction & Excavating, Inc.
PO Box 6787
New Albany IN 47151

DATE: April 28, 2011

FROM: Matt Stuckey, Branch Chief
Permits Branch
Office of Air Quality

SUBJECT: Final Decision
Significant Permit Revision
019-30146-05282

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
Chad M. Unruh President MAC Construction & Excavating, Inc.
Jennifer Tripplett Environmental Compliance Source
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

Final Applicant Cover letter.dot 11/30/07

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Toll Free (800) 451-6027
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April 28, 2011

TO: Jeffersonville Twp. Public

From: Matthew Stuckey, Branch Chief
Permits Branch
Office of Air Quality

Subject: **Important Information for Display Regarding a Final Determination**

Applicant Name: MAC Construction & Excavating, Inc.
Permit Number: 019-30146-05282

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures
Final Library.dot 11/30/07

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2		Chad M Unruh President MAC Construction & Excavating, Inc PO Box 6787 New Albany IN 47151 *(RO CAATS)*									
3		Ms. Rhonda England 17213 Persimmon Run Rd Borden IN 47106-8604 *(Affected Party)*									
4		Ms. Betty Hislip 602 Dartmouth Drive, Apt 8 Clarksville IN 47129 *(Affected Party)*									
5		Mrs. Sandy Banet 514 Haddox Rd Henryville IN 47126 *(Affected Party)*									
6		Jeffersonville City Council and Mayors Office 500 Quarter Master Jeffersonville IN 47130 *(Local Official)*									
7		Jeffersonville Twp Public 211 E Court Ave, P.O. Box 1548 Jeffersonville IN 47131-1548 *(Library)*									
8		Mr. Robert Bottom Paddlewheel Alliance P.O. Box 35531 Louisville KY 40232-5531 *(Affected Party)*									
9		Clark County Board of Commissioners 501 E. Court Avenue Jeffersonville IN 47130 *(Local Official)*									
10		James Davin 4259 Sunrise Drive Sellersburg IN 47172 *(Affected Party)*									
11		Lucy Klingsmith 5143 South State Road 203 Nabb IN 47147 *(Affected Party)*									
12		Clark County Health Department 1320 Duncan Avenue Jeffersonville IN 47130-3723 *(Health Department)*									
13		Jennifer Tripplett Environmental Compliance Source PO Box 6849 New Albany IN 47151 (Consultant)									
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