



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: November 28, 2012

RE: Duracap Asphalt Paving / 031-32126-00031

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



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Federally Enforceable State Operating Permit Renewal OFFICE OF AIR QUALITY

**Duracap Asphalt Paving
1112 E Tiwaba Way
Westport, Indiana 47283**

(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.: F 031-32126 -00031

Issued by:

Iryn Calilung, Section Chief
Permits Branch
Office of Air Quality

Issuance Date: November 28, 2012

Expiration Date: November 28, 2022

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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 drum hot-mix asphalt plant.

Source Address:	1112 E Tiwaba Way, Westport, Indiana 47283
General Source Phone Number:	(812) 591-2797
SIC Code:	2951 (Asphalt Paving Mixtures and Blocks)
County Location:	Decatur
Source Location Status:	Attainment for all 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) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), constructed in 2008, and approved for modification to use asbestos-free shingles in 2012, identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) dryer burner fueled primarily by No. 4 distillate fuel oil and using natural gas as backup, with a maximum rated capacity of 75 MMBTU per hour, and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A. This plant does not produce cold mix. This plant does not use slag in its aggregates.
- (b) Material Handling and conveying operations, constructed in 2008, consisting of the following:
 - (1) Three (3) feeder conveyors;
 - (2) One (1) screen deck;
 - (3) One (1) Cold Feed system consisting of seven (7) compartments, each holding thirty (30) tons, for a total aggregate holding capacity of 210 tons;
 - (4) One (1) Recycled Asphalt Pavement (RAP) system, identified as RC-1, consisting of a RAP Bin, Shaker, and Conveyor;
 - (5) One (1) Hot Asphalt Bucket Elevator;
 - (6) One (1) Transfer Drag Slat to silo;
 - (7) Two (2) Hot Mix Asphalt storage silos, including:
 - (A) One (1) silo with a maximum capacity of 100 tons; and
 - (B) One (1) silo with a maximum capacity of 70 tons capacity;

- (8) One (1) enclosed Aggregate Storage Area, consisting of sand, gravel, limestone, recycled asphalt pavement, and certified asbestos-free shingles, with a maximum storage capacity of 35,000 tons;
- (9) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons and a maximum true vapor pressures of less than 15.0 kPa, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil primarily and using natural gas as back-up, exhausting to stack SV-B.

Under NSPS subpart I, the above units are considered an affected hot-mix asphalt plant.

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) One (1) No. 4 Fuel Oil storage tank, identified as WO #1, constructed in 2008, with a maximum storage capacity of 30,000 gallons and a maximum true vapor pressures of less than 15.0 kPa.
- (b) One (1) No. 2 Fuel Oil storage tank, identified as FO#1, constructed in 2008, with a maximum storage capacity of 5,000 gallons, and exhausting to stack SV-B.
- (c) Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
- (d) Paved roads with limited public access.

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, F 031-32126-00031, 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:

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

- (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 F 031-32126 -00031 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) and (c) 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)(1) and (c). 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)(1) and (c).

- (b) Emission Trades [326 IAC 2-8-15(b)]
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(b).
- (c) Alternative Operating Scenarios [326 IAC 2-8-15(c)]
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 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2(e)(2), particulate emissions from any process not exempt under 326 IAC 6-3-1(b) or (c) which has a maximum process weight rate less than 100 pounds per hour and the methods in 326 IAC 6-3-2(b) through (d) do not apply shall not exceed 0.551 pounds per hour.

C.2 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) and greenhouse gases (GHGs), 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.
- (4) The potential to emit greenhouse gases (GHGs) from the entire source shall be limited to less than one hundred thousand (100,000) tons of CO₂ equivalent emissions (CO₂e) 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.3 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 forty percent (40%) 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.4 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.5 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.6 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.7 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.8 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.9 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.10 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.11 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.12 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.13 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.14 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.15 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.16 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.17 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. Support information includes the following:
- (AA) All calibration and maintenance records.
 - (BB) All original strip chart recordings for continuous monitoring instrumentation.
 - (CC) Copies of all reports required by the FESOP.

Records of required monitoring information include the following:

- (AA) The date, place, as defined in this permit, and time of sampling or measurements.
- (BB) The dates analyses were performed.
- (CC) The company or entity that performed the analyses.
- (DD) The analytical techniques or methods used.
- (EE) The results of such analyses.
- (FF) The operating conditions as existing at the time of sampling or measurement.

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.18 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. Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of this paragraph. 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.19 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) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), constructed in 2008, and approved for modification to use asbestos-free shingles in 2012, identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) dryer burner fueled primarily by No. 4 distillate fuel oil and using natural gas as backup, with a maximum rated capacity of 75 MMBTU per hour, and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A. This plant does not produce cold mix. This plant does not use slag in its aggregates.
- (b) Material Handling and conveying operations, constructed in 2008, consisting of the following:
 - (1) Three (3) feeder conveyors;
 - (2) One (1) screen deck;
 - (3) One (1) Cold Feed system consisting of seven (7) compartments, each holding thirty (30) tons, for a total aggregate holding capacity of 210 tons;
 - (4) One (1) Recycled Asphalt Pavement (RAP) system, identified as RC-1, consisting of a RAP Bin, Shaker, and Conveyor;
 - (5) One (1) Hot Asphalt Bucket Elevator;
 - (6) One (1) Transfer Drag Slat to silo;
 - (7) Two (2) Hot Mix Asphalt storage silos, including;
 - (A) One (1) silo with a maximum capacity of 100 tons; and
 - (B) One (1) silo with a maximum capacity of 70 tons capacity;
 - (8) One (1) enclosed Aggregate Storage Area, consisting of sand, gravel, limestone, recycled asphalt pavement, and certified asbestos-free shingles, with a maximum storage capacity of 35,000 tons;
 - (9) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil primarily and using natural gas as back-up, exhausting to stack SV-B.

Under NSPS subpart I, the above units are considered an affected hot-mix asphalt plant.

(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 2-2]

In order to render 326 IAC 2-2 not applicable, the Permittee shall comply with the following:

- (a) The asphalt production rate shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM emissions from the dryer/mixer shall not exceed 0.459 pounds of PM per ton of asphalt produced.

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

D.1.2 FESOP Limits [326 IAC 2-8-4][326 IAC 2-2]

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

- (a) The asphalt production rate shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM10 emissions from the dryer/mixer shall not exceed 0.183 pounds of PM10 per ton of asphalt produced.
- (c) PM2.5 emissions from the dryer/mixer shall not exceed 0.186 pounds of PM2.5 per ton of asphalt produced.
- (d) CO emissions from the dryer/mixer shall not exceed 0.13 pounds of CO per ton of asphalt produced.

Compliance with these limits, combined with the limited potential to emit PM10, PM2.5, and CO from all other emission units at this source, shall limit the source-wide total potential to emit of PM10, PM2.5, and CO to less than 100 tons per 12 consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permit Program) and 326 IAC 2-2 (PSD) not applicable.

D.1.3 Asphalt Shingle Usage Limitation [326 IAC 2-8-4][326 IAC 2-2]

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAPs)) not applicable, the Permittee shall not grind recycled asphalt shingles on-site and shall only use certified asbestos-free recycled shingles, post consumer waste and/or factory seconds, as an additive in its aggregate mix.

D.1.4 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

In order to render 326 IAC 8-1-6 not applicable to the dryer/mixer:

- (a) The asphalt production rate shall not exceed 1,000,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (2) VOC emissions from the dryer/mixer shall not exceed 0.032 pounds of VOC per ton of asphalt processed.

D.1.5 Fuel Limitations [326 IAC 2-8-4]

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

- (a) The sulfur content of the No. 4 fuel oil shall not exceed 0.5 percent by weight.
- (b) No. 4 fuel oil usage in the dryer/mixer burner shall not exceed 2,580,766 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limits, combined with the limited potential to emit SO₂, from all other emission units at this source, shall limit the source-wide total potential to emit of SO₂ to less than 100 tons per 12 consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), not applicable.

D.1.6 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1][326 IAC 7-2-1]

Pursuant to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations), the Permittee shall comply with the following:

- (a) The sulfur dioxide (SO₂) emissions from the dryer/mixer burner shall not exceed 0.5 pounds per MMBtu when using distillate oil.

Note: No. 4 fuel oil is considered distillate oil.

- (b) Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a calendar month average.

D.1.7 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan is required for these facilities and any control devices. 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 Conditions D.1.1(b), D.1.2(b), and D.1.2(c), the Permittee shall perform PM, PM₁₀, and PM_{2.5} testing of the dryer/mixer, not later than five (5) years from the most recent valid compliance demonstration, utilizing methods approved by the Commissioner. This testing shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. 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 Particulate Control

- (a) In order to comply with Conditions D.1.1(b), D.1.2(b), and D.1.2(c) the baghouse for particulate control shall be in operation and control emissions from the dryer/mixer at all times when the 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 Shingle Asbestos Content

Pursuant to 326 IAC 2-8-4, compliance with Condition D.1.3 shall be determined utilizing one of the following options:

- (1) Providing shingle supplier certification that the factory second shingles and/or post consumer waste shingles do not contain asbestos; or
- (2) Analyzing a sample of the factory second shingles and/or post consumer waste shingles delivery to determine the asbestos content of the factory second shingles and/or post consumer waste shingles, 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 above shall not be refuted by evidence of compliance pursuant to the other method.

D.1.11 Sulfur Dioxide Emissions and Sulfur Content

(a) Pursuant to 326 IAC 2-8-4 and 326 IAC 3-7-4, compliance with Conditions D.1.5(a) and D.1.6(a), shall be demonstrated utilizing one of the following options:

- (1) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification; or
- (2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
 - (i) Oil samples may be collected from the fuel 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.
- (3) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the dryer/mixer, 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 above shall not be refuted by evidence of compliance pursuant to the other method.

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

D.1.12 Visible Emissions Notations

- (a) Visible emission notations of the conveyors, screens, material transfer points, and dryer/mixer stack (SV-A) exhaust shall be performed once per day during normal daylight operations. 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 emissions are observed, the Permittee shall take reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

D.1.13 Parametric Monitoring

The Permittee shall record the pressure drop across the baghouse used in conjunction with the dryer/mixer, at least once per day when the dryer/mixer is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range, the Permittee shall take reasonable response. The normal range for this unit is a pressure drop between 3.0 and 6.0 inches of water unless a different upper-bound or lower-bound value for this range is determined during the latest stack test. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above-mentioned range is not a deviation from this permit. Failure to take response steps 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 or replaced at least once every six (6) months.

D.1.14 Broken or Failed Bag Detection

In the event that bag failure has been observed:

- (a) For a single compartment baghouses 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 emissions 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 baghouse's 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 Requirements [326 IAC 2-8-4(3)]

D.1.15 Record Keeping Requirements

- (a) To document the compliance status with Conditions D.1.1(a), 1.2(a) and D.1.4(a) the Permittee shall keep monthly records of the amount of asphalt processed through the dryer/mixer.
- (b) To document the compliance status with Conditions D.1.3, D.1.5 and D.1.6(a), the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) below shall be taken monthly and shall be complete and sufficient to establish compliance with the limits established in Conditions D.1.3, D.1.5

and D.1.6(a).

- (1) Calendar dates covered in the compliance determination period;
 - (2) Actual fuel usage, sulfur content, heat content, and equivalent sulfur dioxide and for each fuel used at the source since the last compliance determination period;
 - (3) 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
 - (4) If the fuel supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:
 - (i) Fuel supplier certifications;
 - (ii) The name of the fuel supplier; and
 - (iii) A statement from the fuel supplier that certifies the sulfur content of the No. 4 fuel oil.
 - (5) A certification, signed by the owner or operator, that the records of the shingle supplier certifications represent all of the shingles used during the period; and
 - (6) If the shingle supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:
 - (i) Shingle supplier certifications;
 - (ii) The name of the shingle supplier(s); and
 - (iii) A statement from the shingle supplier(s) that certifies the asbestos content of the shingles from their company.
- (c) To document the compliance status with Condition D.1.12, the Permittee shall maintain records of the visible emission notations once per day. 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 process did not operate that day).
- (d) To document the compliance status with Condition D.1.13, the Permittee shall maintain records once per day of the pressure drop during normal operation. The Permittee shall include in its daily record when the pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).
- (e) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.

D.1.16 Reporting Requirements

A quarterly summary of the information to document the compliance status with Conditions D.1.1(a), D.1.2(a), D.1.4(a), and D.1.5(b) shall be submitted not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meet the requirements of 326 IAC 2-8-5(a)(1) by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

SECTION E.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description [326 IAC 2-8-4(10)]:

- (a) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), constructed in 2008, and approved for modification to use asbestos-free shingles in 2012, identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) dryer burner fueled primarily by No. 4 distillate fuel oil and using natural gas as backup, with a maximum rated capacity of 75 MMBTU per hour, and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A. This plant does not produce cold mix. This plant does not use slag in its aggregates.
- (b) Material Handling and conveying operations, constructed in 2008, consisting of the following:
- (1) Three (3) feeder conveyors;
 - (2) One (1) screen deck;
 - (3) One (1) Cold Feed system consisting of seven (7) compartments, each holding 30 (thirty) tons, for a total aggregate holding capacity of 210 tons;
 - (4) One (1) Recycled Asphalt Pavement (RAP) system, identified as RC-1, consisting of a RAP Bin, Shaker, and Conveyor;
 - (5) One (1) Hot Asphalt Bucket Elevator;
 - (6) One (1) Transfer Drag Slat to silo;
 - (7) Two (2) Hot Mix Asphalt storage silos, including;
 - (A) One (1) silo with a maximum capacity of 100 tons; and
 - (B) One (1) silo with a maximum capacity of 70 tons capacity;
 - (8) One (1) enclosed Aggregate Storage Area, consisting of sand, gravel, limestone, recycled asphalt pavement, certified asbestos-free shingles, with a maximum storage capacity of 35,000 tons;
 - (9) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil primarily and using natural gas as back-up, exhausting to stack SV-B.

Under NSPS subpart I, the above units are considered an affected hot-mix asphalt plant.

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

New Source Performance Standards (NSPS) Requirements [326 IAC 12]

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

- (a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, except as otherwise specified in 40 CFR 60, Subpart I.
- (b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports 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

E.1.2 New Source Performance Standards (NSPS) for Hot Mix Asphalt Facilities [40 CFR Part 60, Subpart I] [326 IAC 12]

The Permittee shall comply with the following provisions of 40 CFR Part 60, Subpart I (included as Attachment B of this permit), which are incorporated by reference as 326 IAC 12, except as otherwise specified in 40 CFR Part 60, Subpart I:

- (a) 40 CFR 60.90
- (b) 40 CFR 60.91
- (c) 40 CFR 60.92
- (d) 40 CFR 60.93

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

In order to demonstrate compliance with Condition E.1.2, the Permittee shall perform the stack testing required under NSPS 40 CFR 60, Subpart I not later than five (5) years from the most recent valid compliance demonstration. This testing shall be conducted utilizing methods as approved by the Commissioner and shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. 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.

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

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
CERTIFICATION**

Source Name: Duracap Asphalt Paving
Source Address: 1112 E Tiwaba Way, Westport, Indiana 47283
FESOP Permit No.: F 031-32126 -00031

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: Duracap Asphalt Paving
Source Address: 1112 E Tiwaba Way, Westport, Indiana 47283
FESOP Permit No.: F 031-32126 -00031

This form consists of 2 pages

Page 1 of 2

- | |
|--|
| <p><input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12)</p> <ul style="list-style-type: none">• 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: Duracap Asphalt Paving
Source Address: 1112 E Tiwaba Way, Westport, Indiana 47283
FESOP Permit No.: F 031-32126-00031
Facility: Drum dryer/mixer
Parameter: Hot mix asphalt production
Limit: The asphalt production rate shall not exceed 1,000,000 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: Duracap Asphalt Paving
Source Address: 1112 E Tiwaba Way, Westport, Indiana 47283
FESOP Permit No.: F 031-32126 -00031
Facility: Facility: Drum dryer/mixer burner
Parameter: Fuel Usage Limit
Limit: No. 4 fuel oil usage in the dryer/mixer burner shall not exceed 2,580,766 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
	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
 FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
 QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Duracap Asphalt Paving
 Source Address: 1112 E Tiwaba Way, Westport, Indiana 47283
 FESOP Permit No.: F 031-32126 -00031

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

<p>This report shall be submitted quarterly based on a calendar year. Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C- General Reporting. 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 "No deviations occurred this reporting period".</p>	
<input type="checkbox"/> NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
<input type="checkbox"/> 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: _____

Indiana Department of Environmental Management
Office of Air Quality

Federally Enforceable State Operating Permit Renewal

ATTACHMENT A

Duracap Asphalt Paving

ASPHALT PLANT SITE FUGITIVE DUST CONTROL PLAN

F031-32126 -00031

ASPHALT PLANT SITE FUGITIVE DUST CONTROL PLAN

1. Fugitive particulate matter (dust) emissions from paved roads, unpaved roads, and parking lots shall be controlled by one or more of the following measures:
 - A. Paved roads and parking lots:
 - (1) Cleaning by vacuum sweeping on an as-needed basis (monthly at a minimum).
 - (2) Power brooming while wet either from rain or application of water.
 - B. Unpaved roads and parking lots:
 - (1) Paving with asphalt
 - (2) Treating with water on an as-needed basis.
2. Fugitive particulate matter (dust) emissions from aggregate stockpiles shall be controlled by one or more of the following measures:
 - A. Maintain minimum size and number of stock piles of aggregate.
 - B. Treating around the stockpile area with water on an as-needed basis.
 - C. Treating the stockpiles with water on an as-needed basis.
3. Fugitive particulate matter (dust) emission from outdoor conveying of aggregates shall be controlled by the following measures:
 - A. Apply water at the feed and the intermediate points on an as-needed basis.
4. Fugitive particulate matter (dust) emissions resulting from the transferring of aggregates shall be controlled by one or more of the following measures:
 - A. Minimize the vehicular distance between the transfer points.
 - B. Enclose the transfer points.
 - C. Apply water on transfer points on an as-needed basis.
5. Fugitive particulate matter (dust) emissions from the transportation of aggregate by truck, front end loader, etc. shall be controlled by one or more of the following measures:
 - A. Tarping the aggregate hauling vehicles.
 - B. Maintain vehicle bodies in a condition to prevent leakage.
 - C. Spray the aggregates with water.
 - D. Maintain a 10-mph speed limit in the yard.
6. Fugitive particulate matter (dust) emissions from the loading and unloading of aggregates shall be controlled by one or more of the following measures:

- A. Reduce free fall distance to a minimum.
- B. Reduce the rate of discharge of the aggregate.
- C. Spray the aggregate with water on an as-needed basis.

DEFINITIONS:

“An as-needed basis” means the frequency or quantity of application necessary to minimize visible particulate matter emissions.

**Indiana Department of Environmental Management
Office of Air Quality**

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT RENEWAL

Duracap Asphalt Paving

Title 40: Protection of Environment Environment

[PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES](#)

Subpart I—Standards of Performance for Hot Mix Asphalt Facilities

Attachment B

F 031-32126-00031

Title 40: Protection of Environment
Subpart I—Standards of Performance for Hot Mix Asphalt Facilities

§ 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.

[42 FR 37936, July 25, 1977, as amended at 51 FR 12325, Apr. 10, 1986]

§ 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 90 mg/dscm (0.04 gr/dscf).
 - (2) Exhibit 20 percent opacity, or greater.

[39 FR 9314, Mar. 8, 1974, as amended at 40 FR 46259, Oct. 6, 1975]

§ 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.

[54 FR 6667, Feb. 14, 1989]

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Federally Enforceable State Operating Permit
Renewal

Source Background and Description
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Source Name:	Duracap Asphalt Paving
Source Location:	1112 East Tiwaba Way, Westport, IN 47283
County:	Decatur
SIC Code:	2951 (Asphalt Paving Mixtures and blocks)
Permit Renewal No.:	F 031-32126-00031
Permit Reviewer:	Renee Traivaranon

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Duracap Asphalt Paving relating to the operation of a drum hot-mix asphalt plant. On July 18, 2012, Duracap Asphalt Paving submitted an application to the OAQ requesting to renew its operating permit and to add asbestos-free shingles to the aggregate mix. Duracap Asphalt Paving was issued a first FESOP No. F 031-25789-00031 on April 21, 2008. This asphalt plant does not use slag in its aggregates. This plant does not produce cold mix.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units:

- (a) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), constructed in 2008, and approved for modification to use asbestos-free shingles in 2012, identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) dryer burner fueled primarily by No. 4 distillate fuel oil and using natural gas as backup, with a maximum rated capacity of 75 MMBTU per hour, and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A. This plant does not produce cold mix. This plant does not use slag in its aggregates.
- (b) Material Handling and conveying operations, constructed in 2008, consisting of the following:
 - (1) Three (3) feeder conveyors;
 - (2) One (1) screen deck;
 - (3) One (1) Cold Feed system consisting of seven (7) compartments, each holding thirty (30) tons, for a total aggregate holding capacity of 210 tons;
 - (4) One (1) Recycled Asphalt Pavement (RAP) system, identified as RC-1, consisting of a RAP Bin, Shaker, and Conveyor;
 - (5) One (1) Hot Asphalt Bucket Elevator;
 - (6) One (1) Transfer Drag Slat to silo;
 - (7) Two (2) Hot Mix Asphalt storage silos, including:
 - (A) One (1) silo with a maximum capacity of 100 tons; and

- (B) One (1) silo with a maximum capacity of 70 tons capacity;
- (8) One (1) enclosed Aggregate Storage Area, consisting of sand, gravel, limestone, recycled asphalt pavement, and certified asbestos-free shingles, with a maximum storage capacity of 35,000 tons;
- (9) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil primarily and using natural gas as back-up, exhausting to stack SV-B.

Under NSPS subpart I, the above units are considered an affected hot-mix asphalt plant.

Emission Units and Pollution Control Equipment Constructed and/or Operated without a Permit

There are no emissions units without a permit during this reviewal period.

Emission Units and Pollution Control Equipment Removed From the Source

There are no emissions units removed from a permit during this renewal period.

Insignificant Activities

The source also consists of the following insignificant activities:

- (a) One (1) No. 4 Fuel Oil storage tank, identified as WO #1, constructed in 2008, with a maximum storage capacity of 30,000 gallons and a maximum true vapor pressures of less than 15.0 kPa.
- (b) One (1) No. 2 Fuel Oil storage tank, identified as FO#1, constructed in 2008, with a maximum storage capacity of 5,000 gallons, and exhausting to stack SV-B.
- (c) Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.
- (d) Paved roads with limited public access.

Existing Approvals

Since the issuance of the new source construction and FESOP No. F 031-25789-00031 on April 21, 2008, the source has been operating under an Administrative Amendment No. F 031-32126 - 00031 issued on February 1, 2012.

All terms and conditions of previous permits issued pursuant to permitting programs approved into the State Implementation Plan have been either incorporated as originally stated, revised, or deleted by this permit. All previous registrations and permits are superseded by this permit.

Enforcement Issue

There are no enforcement actions pending for this application.

Emission Calculations

See Appendix A.1 and Appendix A.2 of this document for detailed emission calculations.

County Attainment Status

The source is located in Decatur County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Unclassifiable or attainment effective June 15, 2004, 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 Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005. Unclassifiable or attainment effective 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. Decatur 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}**
 Decatur County has been classified as attainment for PM_{2.5}. On May 8, 2008, U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM_{2.5} emissions. These rules became effective on July 15, 2008. On May 4, 2011 the air pollution control board issued an emergency rule establishing the direct PM_{2.5} significant level at ten (10) tons per year. This rule became effective, June 28, 2011. Therefore, direct PM_{2.5} and SO₂ emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.

- (c) **Other Criteria Pollutants**
 Decatur County has been classified as attainment or unclassifiable in Indiana for all other pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

Fugitive Emissions

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

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Unrestricted Potential Emissions	
Pollutant	Tons/year
PM	30,701.74
PM ₁₀	7,133.39
PM _{2.5}	1,655.09
SO ₂	178.20
VOC	53.82
CO	145.87
NO _x	60.85
GHGs as CO ₂ e	57,738.44
Single HAP	3.39 (formaldehyde)
Total HAP	12.0

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM₁₀, PM_{2.5}, SO₂, and CO, each is greater than 100 tons per year. However, the Permittee has agreed to continue limiting the source's PM₁₀, PM_{2.5}, SO₂, CO, to less than Title V levels; therefore, the Permittee will be issued a FESOP Renewal.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all other criteria pollutants are less than 100 tons per year.
- (c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of GHGs is less than one hundred thousand (100,000) tons of CO₂ equivalent emissions (CO₂e) per year.
- (d) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year.

Potential to Emit After Issuance

The source has opted to remain a FESOP source. The table below summarizes the potential to emit, reflecting all limits of the emission units. Any control equipment is considered enforceable only after issuance of this FESOP and only to the extent that the effect of the control equipment is made practically enforceable in the permit.

Process/ Emission Unit	Potential To Emit of the Entire Source after Issuance of the Renewal (tons/year)									
	PM	PM ₁₀ ¹	PM _{2.5}	SO ₂ ²	NO _x	VOC	CO	GHGs as CO _{2e}	Total HAPs	Worst Single HAP ³
Ducted/Ductable Emissions										
Dryer Fuel Combustion (worst case)	9.03	10.71	10.71	96.78	32.85	1.81	27.59	39,714.40	0.78	0.59 Hexane
Dryer/Mixer (Process)	229.26	91.46	92.97	29.00	27.50	16.0	65.0	16,626	5.33	1.55 Formaldehyde
Hot Oil Heaters Fuel Combustion (worst case)	0.06	0.10	0.10	0	0.63	0.02	0.37	876.0	0.01	0.008 Hexane
Dryer/Mixer Processing	0	0	0	0	0	0	0	0	0	0
Diesel-Fired Generator < 600 HP	0	0	0	0	0	0	0	0	0	0
Diesel-Fired Generator > 600 HP	0	0	0	0	0	0	0	0	0	0
Worst Case Emissions³	229.32	91.57	93.07	99.0	33.48	16.02	65.37	40,590.40	5.34	1.55 Formaldehyde
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, and On-Site Yard	0.55	0.55	0.55	0	0	8.57	1.44	0	0.14	0.002 Naphthalene
Material Storage Piles	1.19	0.42	0.42	0	0	0	0	0	0	0
Material Processing and Handling	3.23	1.53	0.23	0	0	0	0	0	0	0
Material Screening, and Conveying	13.30	4.66	4.66	0	0	0	0	0	0	0
Paved Roads (worst case)	1.40	0.28	0.07	0	0	0	0	0	0	0
Cold Mix Asphalt Production	0	0	0	0	0	0	0	0	0	0
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0	0	0	0	0
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl.	0	0	negl.	negl.
Total Fugitive Emissions	19.68	7.43	5.93	0	0	8.57	1.44	0	0.14	0.002 Naphthalene
Total PTE of Entire Source	249.0	99.0	99.0	99.0	33.48	24.59	66.81	40,590.40	5.48	1.55 Formaldehyde
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100,000	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000	N/A	N/A
negl. = negligible										
¹ 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".										
² The source will limit the combined SO2 emissions from the dryer mixer burner, hot oil heater, such that the SO2 emissions do not exceed 99.0 tons per year, each. Compliance with these limits will be demonstrated using equations.										
³ Worst Case PM, PM10, PM2.5, VOC, CO, CO2e, and Total HAPs Emissions (tons/yr) = Worst Case Emissions from Dryer/Mixer + Worst Case Emissions from Hot Oil Heater.										

(a) FESOP Status

This existing source is not a Title V major stationary source, because the potential to emit criteria pollutants from the entire source will be limited to less than the Title V major source threshold levels.

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

- (1) The asphalt production shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is an existing requirement for the source.*
- (2) PM10 emissions from the dryer/mixer shall not exceed 0.183 pounds of PM10 per ton of asphalt processed. *This is a change from 0.180 pounds per ton of asphalt processed. This is a Title I change.*
- (3) PM2.5 emissions from the dryer/mixer shall not exceed 0.186 pounds of PM2.5 per ton of asphalt processed. *This is a new requirement for the source.*
- (4) CO emissions from the dryer/mixer shall not exceed 0.13 pounds of CO per ton of asphalt processed. *This is a change from 0.195 pounds per ton of asphalt processed. This is a Title I change.*
- (5) The sulfur content of the No. 4 fuel oil shall not exceed 0.5 percent by weight. *This is an existing requirement for the source.*
- (6) Fuel Usage Limits:
The usage of fuels (either single or multiple fuel usages) shall be limited as follows:
 - (a) Natural gas usage in the dryer/mixer burner will not exceed 657.0 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month. This is the maximum usage without any limitations.

This is a change from 1,975 million cubic feet per twelve (12) consecutive month period. This is a Title I change.

(Note: the existing usage of 1,975 million cubic feet was calculated from the fuel equivalent usage of fuel No.4. However, greenhouse gases (GHGs) emissions are subject to regulation since July 1, 2011 with the threshold of 100,000 tons of CO₂e. The 1,975 million cubic feet results in the total CO₂e emissions of 120,261 tons per year for the source, which exceeds the major source threshold. Since, the maximum usage for this operation is expected not to exceed 657.0 million cubic feet per year, the usage limit of this Natural gas of 1,975 million cubic feet per year has been removed.)
 - (b) No. 4 fuel oil usage in the dryer/mixer burner shall not exceed 2,580,766 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from 2,635,000 gallons per twelve (12) consecutive month period. This is a Title I change.*

Note: The existing NO_x limit has not been carried over to the renewal because the unlimited PTE of NO_x is less than 100 tons per year. In addition, compliance determination for SO₂ emissions for multiple fuel usage is not carried over, since the SO₂ emissions are not exceeded 100 tons per year when the fuel No. 4 usage is not exceeded this above limit. Therefore, fuel No. 4 usage report will replace the SO_x and NO_x emissions for multiple fuel report.

Compliance with these limits, combined with the potential to emit PM10, PM2.5, SO₂, and CO, from all other emission units at this source, shall limit the source-wide total potential to emit of PM10, PM2.5, SO₂, and CO to less than 100 tons per 12 consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), not applicable.

(b) PSD Minor Source

This source is not a major stationary source, under PSD (326 IAC 2-2), because the potential to emit PM, PM10, and PM2.5 is limited to less than 250 tons per year, the potential to emit all other attainment regulated criteria pollutants are less than 250 tons per year, the potential to emit greenhouse gases (GHGs) is less than the PSD subject to regulation threshold of one hundred thousand (100,000) tons of CO₂ equivalent emissions (CO₂e) per year, and this source is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(ff)(1). Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

In order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the source shall comply with the following:

- (1) The asphalt production rate shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is an existing requirement for the source.*
- (2) PM emissions from the dryer/mixer shall not exceed 0.459 pounds of PM per ton of asphalt processed. *This is a change from 0.445 pounds per ton of asphalt processed. This is a Title I change.*

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.

Federal Rule Applicability

New Source Performance Standards (NSPS)

- (a) This source is subject to the New Source Performance Standard for Hot Mix Asphalt Facilities, (40 CFR 60, Subpart I) (326 IAC 12) because it is a hot-mix asphalt plant (constructed in 2008), and constructed after June 11, 1973.

The units subject to this rule include the following:

- (1) Dryers
- (2) Systems for screening, handling, storing, and weighing hot aggregate
- (3) Systems for loading, transferring, and storing mineral filler
- (4) Systems for mixing hot mix asphalt
- (5) The loading, transfer, and storage systems associated with emission control systems

Applicable portions of the NSPS are the following:

- (1) 40 CFR 60.90
- (2) 40 CFR 60.91
- (3) 40 CFR 60.92
- (4) 40 CFR 60.93

The requirements of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the source except as otherwise specified in 40 CFR 60, Subpart I.

- (b) The requirements of the New Source Performance Standard for Asphalt Processing and Asphalt Roofing Manufacture, 40 CFR 60, Subpart UU (326 IAC 12), are not included in the permit, because this stationary drum hot-mix asphalt plant is not an asphalt roofing plant and does not process asphalt for roofing materials.

- (c) The requirements of the New Source Performance Standard for Nonmetallic Mineral Processing Plants (40 CFR 60, Subpart OOO) (326 IAC 12), are not included in the permit, since the Recycled Asphalt Pavement (RAP) system does not contain a crusher or grinding mill. The source will be receiving pre-crushed/pre-sized RAP materials.
- (d) The requirements of the New Source Performance Standard for Calciners and Dryers in Mineral Industries, 40 CFR 60, Subpart UUU (326 IAC 12), are not included in the permit, since stationary drum hot-mix asphalt plant is not a mineral processing plant, meaning that it does not process or produce any of the following minerals, their concentrates or any mixture of which the majority (>50 percent) is any of the following minerals or a combination of these minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite.
- (e) The requirements of New Source Performance Standard for Volatile Organic Liquid Storage Vessels (40 CFR Part 60, Subpart Kb) (326 IAC 12), are not included in this permit for following reasons:
 - (1) Although tank B and tank WO#1, each has a capacity between 19,813 gallons and 39,890 gallons (30,000 gallons for tank B and 30,000 gallons for tank WO#1), each tank has a maximum true vapor pressures of less than 15.0 kPa.
 - (2) Although tank FO#1 (5,000 gallons tank) constructed after July 23, 1984, it has a maximum capacity less than 75 m³ (19,813 gallons).
- (f) There are no other New Source Performance Standards (NSPS)(40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (a) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart LLLLL (326 IAC 20), are not included in the permit, since the stationary drum hot-mix asphalt plant is not a major source of HAPs, and does not engage in the preparation of asphalt flux or asphalt roofing materials.
- (b) The requirements of National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63, Subpart JJJJJJ are not included in this permit, since the hot oil heater does not meet the definition of an Industrial, Commercial, and Institutional Boiler as defined in 40 CFR 63.11237.
- (c) The requirements of National Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart AAAAAAA are not included in this permit, since this source does not engage in the preparation of asphalt flux or asphalt roofing materials.
- (d) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

Compliance Assurance Monitoring (CAM)

- (a) 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 - Entire Source

- (a) 326 IAC 2-2 (Prevention of Significant Deterioration(PSD))
PSD applicability is discussed under the PTE of the Entire Source after Issuance of the FESOP section above.
- (b) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The unlimited potential to emit of HAPs from the stationary drum hot-mix asphalt plant is less than ten (10) tons per year for any single HAP and/or less than twenty-five (25) tons per year of a combination of HAPs. In addition, only certified asbestos-free shingles are used in aggregate mix; therefore, 326 IAC 2-4.1 does not apply to this source.
- (c) 326 IAC 2-6 (Emission Reporting)
This source is not subject to 326 IAC 2-6 (Emission Reporting) because it is not required to have an operating permit pursuant to 326 IAC 2-7 (Part 70); it is not located in Lake, Porter, or LaPorte County, and its potential to emit lead is less than 5 tons per year. Therefore, this rule does not apply.
- (d) 326 IAC 2-8-4 (FESOP)
FESOP applicability is discussed under the PTE of the Entire Source after Issuance of the FESOP section above.
- (e) 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 forty percent (40%) 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)
The source is subject to the requirements of 326 IAC 6-4, because the Asphalt Load-Out and On-Site Yard, Hot Oil and Asphalt Heaters, Material Screening, and Conveying, Material Processing and Handling, Material Storage Piles, and Paved Roads each have the potential to emit fugitive particulate emissions. 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. [Note: This requirement is specified in Section C of the permit.]
- (h) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is subject to the requirements of 326 IAC 6-5, because the source has 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. [Note: This requirement is specified in Section C of the permit.]

- (i) 326 IAC 6.5 PM Limitations Except Lake County
This source is not subject to 326 IAC 6.5 because it is not located in one of the following counties: Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo or Wayne.
- (j) 326 IAC 8-5-2 (Asphalt paving rules)
This source does not produce cutback or emulsified asphalt. Therefore, the requirements of 326 IAC 8-5-2 do not apply to this source.
- (k) 326 IAC 10-3 (Nitrogen Oxide Reduction Program for Specific Source Category)
This source does not operate a Portland cement kiln or a blast furnace gas boiler with a heat input greater than two hundred fifty million (250,000,000) British thermal units per hour. Therefore, 326 IAC 10-3 does not apply.
- (l) 326 IAC 12 (New Source Performance Standards)
See Federal Rule Applicability Section of this TSD.
- (m) 326 IAC 20 (Hazardous Air Pollutants)
See Federal Rule Applicability Section of this TSD.

State Rule Applicability – Individual Facilities

Asphalt Plant:

- (a) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
The unlimited VOC potential emissions from the dryer/mixer are greater than twenty-five (25) tons per year. However, the source shall limit the VOC potential emissions from the dryer/mixer as follows:
 - (1) The asphalt production rate shall not exceed 1,000,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
 - (2) VOC emissions from the dryer/mixer shall not exceed 0.032 pounds of VOC per ton of asphalt processed. *This is a change from 0.042 pounds per ton of asphalt processed. This is a Title I change.*

Compliance with these limits shall limit the potential to emit VOC from the dryer/mixer to less than twenty-five (25) tons per twelve (12) consecutive month period and shall render 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities) not applicable.
- (b) 326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)
The dryer/mixer burner, identified as emission unit No. 2, is subject to 326 IAC 7-1.1 because it has potential SO₂ emissions of greater than 25 tons per year. Pursuant to this rule, sulfur dioxide emissions from the dryer/mixer burner shall be limited to five-tenths (0.5) pounds per million Btu for distillate oil combustion (No. 4 fuel oil is considered distillate oil).
- (c) 326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements)
Pursuant to this rule, the source shall submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate (pounds SO₂ per MMBtu), to the OAQ upon request.

Storage Tanks

- (a) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
 Each liquid asphalt storage tank, and fuel oil storage tank is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each tank is less than twenty-five (25) tons per year.
- (b) 326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)
 Tanks B, WO#1 and FO#1 are not Petroleum Liquid Storage vessels and each have maximum capacities less than 39,000 gallons, therefore, 326 IAC 8-4-3 does not apply.
- (c) 326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)
 This rule applies to stationary vessels with a capacity of less than thirty-nine thousand (39,000) gallons, used to store volatile organic liquid (VOL) that are located in Clark, Floyd, Lake, or Porter County. This source is located in Decatur County; therefore, 326 IAC 8-9 does not apply.
- (d) There are no other 326 IAC 8 Rules that are applicable to the storages tanks.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-8-4. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

Emission Unit	Control Device	Parameter	Frequency	Range	Excursions and Exceedances
Dryer/Mixer	Baghouse	Visible Emissions	Daily	Normal-Abnormal	Response Steps
		Water Pressure Drop		3 to 6 inches	

- (b) The testing requirements applicable to this source are as follows:

Emission Unit	Control Device	Pollutant	Frequency of Testing
Dryer/Mixer	Baghouse	PM, PM10, and PM2.5	Once every five (5) years

IDEM records indicated that the last valid compliance testing was on 9/26/2008.

Recommendation

The staff recommends to the Commissioner that the FESOP Renewal be approved. This recommendation is based on the following facts and conditions:

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 July 18, 2012. Additional information was received on July 30, 2012.

Conclusion

The operation of this Duracap Asphalt Paving shall be subject to the conditions of the attached FESOP Renewal No. 031-32126-00031.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Ms. Renee Traivaranon 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) (234-56155615) or toll free at 1-800-451-6027 extension 4-5615.
- (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.idem.in.gov

**Appendix A.1: Unlimited Emissions Calculations
Entire Source - Drum mix**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Asphalt Plant Maximum Capacity - Drum Mix

Maximum Hourly Asphalt Production =	250	ton/hr								
Maximum Annual Asphalt Production =	2,190,000	ton/yr								
Maximum Annual Blast Furnace Slag Usage =	0	ton/yr	1.5	% sulfur						
Maximum Annual Steel Slag Usage =	0	ton/yr	0.66	% sulfur						
Maximum Dryer Fuel Input Rate =	75.0	MMBtu/hr								
Natural Gas Usage =	657	MMCF/yr								
No. 2 Fuel Oil Usage =	0	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Usage =	4,692,857	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage =	0	gal/yr, and	0.50	% sulfur						
Propane Usage =	0	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Usage =	0	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	0	gal/yr, and	1.00	% sulfur	0.50	% ash	0.200	% chlorine,	0.010	% lead
Diesel Fuel Usage - Generator < 600 HP =	0	gal/yr, and								
Diesel Fuel Usage - Generator > 600 HP =	0	gal/yr	0.50	% sulfur						
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 Blast Furnace Slag SO2 Dryer/Mixer Emission Factor =	0.74	lb/ton of slag processed								
Unlimited Steel Slag SO2 Dryer/Mixer Emission Factor =	0.0014	lb/ton of slag processed								

Unlimited/Uncontrolled Emissions

Process Description	Unlimited/Uncontrolled Potential to Emit (tons/year)									
	Criteria Pollutants							Greenhouse Gas Pollutants	Hazardous Air Pollutants	
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	CO ₂ e	Total HAPs	Worst Case HAP
Ducted Emissions										
Dryer Fuel Combustion (worst case)	16.43	19.48	19.48	175.98	46.93	1.81	27.59	56,862.44	0.93	0.59 (hydrogen chloride)
Dryer/Mixer (Process)	30,660.00	7,117.50	1,642.50	63.51	60.23	35.04	142.35	36,410.94	11.67	3.39 (formaldehyde)
Dryer/Mixer Slag Processing (worst case)	0	0	0	0.00	0	0	0	0.00	0	0
Hot Oil Heater Fuel Combustion/Process (worst case)	0.06	0.10	0.10	2.22	0.63	0.02	0.37	876.00	0.010	0.008 (hexane)
Diesel-Fired Generator < 600 HP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000 (formaldehyde)
Diesel-Fired Generator > 600 HP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000 (benzene)
Worst Case Emissions*	30,660.06	7,117.60	1,642.60	178.20	60.85	35.06	142.72	57,738.44	11.68	3.39 (formaldehyde)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	1.21	1.21	1.21	0	0	18.76	3.15	0	0.31	0.10 (formaldehyde)
Material Storage Piles	1.19	0.42	0.42	0	0	0	0	0	0	0
Material Processing and Handling	7.07	3.35	0.51	0	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	29.13	10.19	10.19	0	0	0	0	0	0	0
Unpaved and Paved Roads (worst case)	3.07	0.61	0.15	0	0	0	0	0	0	0
Cold Mix Asphalt Production	0	0	0	0	0	0.00	0	0	0.00	0.00 (xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.00	0	0	0.00	0.00 (xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	0	negl	0
Total Fugitive Emissions	41.68	15.79	12.48	0	0.00	18.76	3.15	0.00	0.31	0.00 (xylenes)
Totals Unlimited/Uncontrolled PTE	30,701.74	7,133.39	1,655.09	178.20	60.85	53.82	145.87	57,738.44	12.00	3.39 (formaldehyde)

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 + Worst Case Emissions From Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion and Hot Oil Heating System + Diesel-Fired Generator < 600 HP + Diesel-Fired Generator > 600 HP
 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: Duracap Asphalt Paving
 Source Address: 1112 East Tiwaba Way, Westport, IN 47283
 Permit Number: F 031-32126-00031
 Reviewer: Renee Traivaranon

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 Fuel Input Rate =	75	MMBtu/hr
Natural Gas Usage =	657	MMCF/yr
No. 2 Fuel Oil Usage =	0	gal/yr, and
No. 4 Fuel Oil Usage =	4,692,857	gal/yr, and
Residual (No. 5 or No. 6) Fuel Oil Usage =	0	gal/yr, and
Propane Usage =	0	gal/yr, and
Butane Usage =	0	gal/yr, and
Used/Waste Oil Usage =	0	gal/yr, and
	0.50	% sulfur
	0.50	% sulfur
	0.50	% sulfur
	0.20	gr/100 t13 sulfur
	0.22	gr/100 t13 sulfur
	1.00	% sulfur
	0.50	% ash
	0.200	% chlorine
	0.010	% lead

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)							Unlimited/Uncontrolled Potential to Emit (tons/yr)							Worse Case Fuel (tons/yr)
	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)	
PM	1.9	2.0	7.0	7.815	0.5	0.6	32.0	0.62	0.00	16.43	0.00	0.000	0.000	0.00	16.43
PM10/PM2.5	7.6	3.3	8.3	9.315	0.5	0.6	25.5	2.50	0.00	19.48	0.00	0.000	0.000	0.00	19.48
SO2	0.6	71.0	75.0	78.5	0.020	0.020	147.0	0.20	0.00	175.98	0.00	0.000	0.000	0.00	175.98
NOx	100	20.0	20.0	55.0	13.0	15.0	19.0	32.85	0.00	46.93	0.00	0.00	0.00	0.00	46.93
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	1.81	0.00	0.47	0.00	0.00	0.00	0.00	1.81
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	27.594	0.00	11.73	0.00	0.00	0.00	0.00	27.59
Hazardous Air Pollutant															
HCl							13.2							0.00	0.00
Antimony			5.25E-03	5.25E-03			negl			1.23E-02	0.00E+00			negl	1.2E-02
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	6.6E-05	0.00E+00	3.10E-03	0.00E+00			0.00E+00	3.1E-03
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	3.9E-06	0.00E+00	6.52E-05	0.00E+00			negl	6.5E-05
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	3.6E-04	0.00E+00	9.34E-04	0.00E+00			0.00E+00	9.3E-04
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	4.6E-04	0.00E+00	1.98E-03	0.00E+00			0.00E+00	2.0E-03
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04	2.8E-05		1.41E-02	0.00E+00			0.00E+00	1.4E-02
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55	1.6E-04	0.00E+00	3.54E-03	0.00E+00			0.0E+00	0.00
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	1.2E-04	0.00E+00	7.04E-03	0.00E+00			0.00E+00	0.01
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				8.5E-05	0.00E+00	2.65E-04	0.00E+00				2.7E-04
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	6.9E-04	0.00E+00	1.98E-01	0.00E+00			0.00E+00	0.198
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04				7.9E-06	0.00E+00	1.60E-03	0.00E+00			negl	1.6E-03
1,1,1-Trichloroethane			2.36E-04	2.36E-04						5.54E-04	0.00E+00				5.5E-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				6.9E-04		5.02E-04	0.00E+00				6.9E-04
Bis(2-ethylhexyl)phthalate							2.2E-03							0.00E+00	0.0E+00
Dichlorobenzene	1.2E-03						8.0E-07	3.9E-04						0.00E+00	3.9E-04
Ethylbenzene			6.36E-05	6.36E-05						1.49E-04	0.00E+00				1.5E-04
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				2.5E-02	0.00E+00	7.74E-02	0.00E+00				0.077
Hexane	1.8E+00							0.59							0.591
Phenol							2.4E-03							0.00E+00	0.0E+00
Toluene	3.4E-03		6.20E-03	6.20E-03				1.1E-03		1.45E-02	0.00E+00				1.5E-02
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		2.65E-03	0.00E+00			0.00E+00	2.7E-03
Polycyclic Organic Matter		3.30E-03							0.00E+00						0.0E+00
Xylene			1.09E-04	1.09E-04						2.56E-04	0.00E+00				2.6E-04
							Total HAPs	0.62	0.00	0.34	0.00	0	0	0.00	0.93

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 5/10), 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

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

*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.

**Appendix A.1: Unlimited Emissions Calculations
Greenhouse Gas (CO₂e) Emissions from the
Dryer/Mixer Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

**Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon**

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 Fuel Input Rate =	75	MMBtu/hr								
Natural Gas Usage =	657	MMCF/yr								
No. 2 Fuel Oil Usage =	0	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Usage =	4,692,857	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage =	0	gal/yr, and	0.50	% sulfur						
Propane Usage =	0	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Usage =	0	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	0	gal/yr, and	1.00	% sulfur	0.50	% ash	0.200	% chlorine,	0.010	% lead

Unlimited/Uncontrolled Emissions

CO ₂ e Fraction	Emission Factor (units)							Global Warming Potentials (GWP)		
	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)	Name	Chemical Formula	Global warming potential
CO ₂	120,161.84	22,501.41	24,153.46	24,835.04	12,500.00	14,506.73	22,024.15	Carbon dioxide	CO ₂	1
CH ₄	2.49	0.91	0.97	1.00	0.60	0.67	0.89	Methane	CH ₄	21
N ₂ O	2.2	0.26	0.19	0.53	0.9	0.9	0.18	Nitrous oxide	N ₂ O	310

CO ₂ e Fraction	Unlimited/Uncontrolled Potential to Emit (tons/yr)						
	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)
CO ₂	39,473.17	0.00	56674.38	0.00	0.00	0.00	0.00
CH ₄	0.82	0.00	2.27	0.00	0.00	0.00	0.00
N ₂ O	0.72	0.00	0.45	0.00	0.00	0.00	0.00
Total	39,474.71	0.00	56,677.10	0.00	0.00	0.00	0.00

CO₂e for Worst Case Fuel* (tons/yr)
56,862.44

CO ₂ e Equivalent Emissions (tons/yr)	39,714.40	0.00	56,862.44	0.00	0.00	0.00	0.00
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Methodology

Fuel Usage from TSD Appendix A.1, page 1 of 14.
 Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
 Fuel 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/0.0915 MMBtu]
 Butane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.102 MMBtu]
 Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Abbreviations

PTE = Potential to Emit
 CO₂ = Carbon Dioxide
 CH₄ = Methane
 N₂O = Nitrogen Dioxide

Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

- Natural Gas: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N₂O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2
- No. 2, No. 4, and Residual (No. 5 or No. 6) Fuel Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.3 (dated 5/10), Table 1.3-8
- Propane: Emission Factor for CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, has been converted from kg/mmBtu to lb/kgal. Emission Factors for CO₂ and N₂O from AP-42 Chapter 1.5 (dated 7/08), Table 1.5-1
- Butane: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.5 (dated 7/08), Table 1.5-1
- Waste Oil: Emission Factors for CO₂, CH₄, and N₂O from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal.

Emission Factor (EF) Conversions

Natural Gas: EF (lb/MMCF) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of Natural Gas (MMBtu/scf) * Conversion Factor (1,000,000 scf/MMCF)]
 Fuel Oils: EF (lb/kgal) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of the Fuel Oil (MMBtu/gal) * Conversion Factor (1000 gal/kgal)]

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]

Unlimited Potential to Emit CO₂e (tons/yr) = Unlimited Potential to Emit CO₂ of "worst case" fuel (ton/yr) x CO₂ GWP (1) + Unlimited Potential to Emit CH₄ of "worst case" fuel (ton/yr) x CH₄ GWP (21) + Unlimited Potential to Emit N₂O of "worst case" fuel (ton/yr) x N₂O GWP (310).

**Appendix A.1: Unlimited Emissions Calculations
Dryer/Mixer Process Emissions**

**Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon**

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

Maximum Hourly Asphalt Production = ton/hr
Maximum Annual Asphalt Production = ton/yr

Criteria Pollutant	Uncontrolled Emission Factors (lb/ton)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			Worse Case PTE
	Drum-Mix Plant (dryer/mixer)			Drum-Mix Plant (dryer/mixer)			
	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	
PM*	28	28	28	30660	30660	30660	30660
PM10*	6.5	6.5	6.5	7117.5	7117.5	7117.5	7117.5
PM2.5*	1.5	1.5	1.5	1642.5	1642.5	1642.5	1643
SO2**	0.0034	0.011	0.058	3.7	12.0	63.5	63.5
NOx**	0.026	0.055	0.055	28.5	60.2	60.2	60.2
VOC**	0.032	0.032	0.032	35.0	35.0	35.0	35.0
CO***	0.13	0.13	0.13	142.4	142.4	142.4	142.4
Hazardous Air Pollutant							
HCl			2.10E-04			2.30E-01	0.23
Antimony	1.80E-07	1.80E-07	1.80E-07	1.97E-04	1.97E-04	1.97E-04	1.97E-04
Arsenic	5.60E-07	5.60E-07	5.60E-07	6.13E-04	6.13E-04	6.13E-04	6.13E-04
Beryllium	negl	negl	negl	negl	negl	negl	0.00E+00
Cadmium	4.10E-07	4.10E-07	4.10E-07	4.49E-04	4.49E-04	4.49E-04	4.49E-04
Chromium	5.50E-06	5.50E-06	5.50E-06	6.02E-03	6.02E-03	6.02E-03	6.02E-03
Cobalt	2.60E-08	2.60E-08	2.60E-08	2.85E-05	2.85E-05	2.85E-05	2.85E-05
Lead	6.20E-07	1.50E-05	1.50E-05	6.79E-04	1.64E-02	1.64E-02	1.64E-02
Manganese	7.70E-06	7.70E-06	7.70E-06	8.43E-03	8.43E-03	8.43E-03	8.43E-03
Mercury	2.40E-07	2.60E-06	2.60E-06	2.63E-04	2.85E-03	2.85E-03	2.85E-03
Nickel	6.30E-05	6.30E-05	6.30E-05	0.07	0.07	0.07	0.07
Selenium	3.50E-07	3.50E-07	3.50E-07	3.83E-04	3.83E-04	3.83E-04	3.83E-04
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	0.04	0.04	0.04	0.04
Acetaldehyde			1.30E-03			1.42	1.42
Acrolein			2.60E-05			2.85E-02	2.85E-02
Benzene	3.90E-04	3.90E-04	3.90E-04	0.43	0.43	0.43	0.43
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.26	0.26	0.26	0.26
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	3.39	3.39	3.39	3.39
Hexane	9.20E-04	9.20E-04	9.20E-04	1.01	1.01	1.01	1.01
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.05	0.05	0.05	0.05
MEK			2.00E-05			0.02	0.02
Propionaldehyde			1.30E-04			0.14	0.14
Quinone			1.60E-04			0.18	0.18
Toluene	1.50E-04	2.90E-03	2.90E-03	0.16	3.18	3.18	3.18
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.21	0.96	0.96	0.96
Xylene	2.00E-04	2.00E-04	2.00E-04	0.22	0.22	0.22	0.22
Total HAPs							11.67
Worst Single HAP							3.39 (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, 11.1-4, 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

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

**Appendix A.1: Unlimited Emissions Calculations
Greenhouse Gas (CO2e) Emissions from the
Drum-Mix Plant (Dryer/Mixer) Process Emissions**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

Maximum Hourly Asphalt Production = ton/hr
 Maximum Annual Asphalt Production = ton/yr

Criteria Pollutant	Emission Factor (lb/ton) Drum-Mix Plant (dryer/mixer)			Global Warming Potentials (GWP)	Unlimited/Uncontrolled Potential to Emit (tons/yr) Drum-Mix Plant (dryer/mixer)			CO2e for Worst Case Fuel (tons/yr)
	Natural Gas	No. 2 Fuel Oil	Waste Oil		Natural Gas	No. 2 Fuel Oil	Waste Oil	
CO2	33	33	33	1	36,135.00	36,135.00	0.00	36,410.94
CH4	0.0120	0.0120	0.0120	21	13.14	13.14	0.00	
N2O				310	0	0	0	
Total					36,148.14	36,148.14	0.00	
CO2e Equivalent Emissions (tons/yr)					36,410.94	36,410.94	0.00	

Methodology

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.

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-7 and 11.1-8

There are no emission factors for N2O available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N2O emission anticipated from this process.

Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)

Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CO2 of "worst case" fuel (ton/yr) x CO2 GWP (1) + Unlimited Potential to Emit CH4 of "worst case" fuel (ton/yr) x CH4 GWP (21) + Unlimited Potential to Emit N2O of "worst case" fuel (ton/yr) x N2O GWP (310).

Abbreviations

CO2 = Carbon Dioxide

CH4 = Methane

N2O = Nitrogen Dioxide

PTE = Potential to Emit

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

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

Maximum Annual Blast Furnace Slag Usage = ton/yr % sulfur
 Maximum Annual Steel Slag Usage = ton/yr % sulfur

Type of Slag	SO2 Emission Factor (lb/ton)	Unlimited Potential to Emit SO2 (tons/yr)
Blast Furnace Slag*	0.74	0.0
Steel Slag**	0.0014	0.00

Methodology

The maximum annual slag usage was provided by the source.

* Testing results for blast furnace slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from blast furnace slag containing 1.10% sulfur content. The source has requested a safety factor of 0.20 lb/ton be added to the tested value for use at this location to allow for a sulfur content up to 1.5%.

** Testing results for steel slag, obtained June 2009 from E & B Paving, Inc. facility located in Huntington, IN. The testing results showed a steel slag emission factor of 0.0007 lb/ton from slag containing 0.33% sulfur content.

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: Duracap Asphalt Paving
Source Location: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Maximum Hot Oil Heater Fuel Input Rate = 1.00 MMBtu/hr
 Natural Gas Usage = 9 MMCF/yr
 No. 2 Fuel Oil Usage = 62,571 gal/yr, and 0.50 % sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		Worse Case Fuel (tons/yr)
	Hot Oil Heater		Hot Oil Heater		
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	
PM	1.9	2.0	0.008	0.063	0.06
PM10/PM2.5	7.6	3.3	0.033	0.103	0.10
SO2	0.6	71.0	0.003	2.221	2.22
NOx	100	20.0	0.438	0.626	0.63
VOC	5.5	0.20	0.024	0.006	0.02
CO	84	5.0	0.368	0.156	0.37
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	8.8E-07	1.75E-05	1.8E-05
Beryllium	1.2E-05	4.2E-04	5.3E-08	1.31E-05	1.3E-05
Cadmium	1.1E-03	4.2E-04	4.8E-06	1.31E-05	1.3E-05
Chromium	1.4E-03	4.2E-04	6.1E-06	1.31E-05	1.3E-05
Cobalt	8.4E-05		3.7E-07		3.7E-07
Lead	5.0E-04	1.3E-03	2.2E-06	3.94E-05	3.9E-05
Manganese	3.8E-04	8.4E-04	1.7E-06	2.63E-05	2.6E-05
Mercury	2.6E-04	4.2E-04	1.1E-06	1.31E-05	1.3E-05
Nickel	2.1E-03	4.2E-04	9.2E-06	1.31E-05	1.3E-05
Selenium	2.4E-05	2.1E-03	1.1E-07	6.57E-05	6.6E-05
Benzene	2.1E-03		9.2E-06		9.2E-06
Dichlorobenzene	1.2E-03		5.3E-06		5.3E-06
Ethylbenzene					0.0E+00
Formaldehyde	7.5E-02	6.10E-02	3.3E-04	1.91E-03	1.9E-03
Hexane	1.8E+00		7.9E-03		7.9E-03
Phenol					0.0E+00
Toluene	3.4E-03		1.5E-05		1.5E-05
Total PAH Haps	negl		negl		0.0E+00
Polycyclic Organic Matter		3.30E-03		1.03E-04	1.0E-04
Total HAPs =			8.3E-03	2.2E-03	0.010
Worst Single HAP =			7.9E-03	1.9E-03	7.9E-03
			(Hexane)	(Formaldehyde)	(Hexane)

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)] * [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 5/10), 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)
 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
Greenhouse Gas (CO₂e) Emissions from
Hot Oil Heater Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Maximum Hot Oil Heater Fuel Input Rate = 1.00 MMBtu/hr
 Natural Gas Usage = 8.76 MMCF/yr
 No. 2 Fuel Oil Usage = 62,571.43 gal/yr, 0.50 % sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)		Global Warming Potentials (GWP)	Unlimited/Uncontrolled Potential to Emit (tons/yr)	
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)		Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)
CO ₂	120,161.84	22,501.41	1	526.31	703.97
CH ₄	2.49	0.91	21	0.01	0.03
N ₂ O	2.2	0.26	310	0.01	0.01
				526.33	704.01

Worse Case CO₂e Emissions (tons/yr)
707.09

CO ₂ e Equivalent Emissions (tons/yr)	529.53	707.09
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Methodology

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

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]

Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

Natural Gas: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N₂O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2

No. 2 Fuel Oil: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.3 (dated 5/10), Table 1.3-8

Emission Factor (EF) Conversions

Natural Gas: EF (lb/MMCF) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of Natural Gas (MMBtu/scf) * Conversion Factor (1,000,000 scf/MMCF)]

Fuel Oils: EF (lb/kgal) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of the Fuel Oil (MMBtu/gal) * Conversion Factor (1000 gal/kgal)]

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]

Unlimited Potential to Emit CO₂e (tons/yr) = Unlimited Potential to Emit CO₂ of "worst case" fuel (ton/yr) x CO₂ GWP (1) + Unlimited Potential to Emit CH₄ of "worst case" fuel (ton/yr) x CH₄ GWP (21) + Unlimited Potential to Emit N₂O of "worst case" fuel (ton/yr) x N₂O GWP (310).

Abbreviations

CO₂ = Carbon Dioxide
 CH₄ = Methane

N₂O = Nitrogen Dioxide
 PTE = Potential to Emit

**Appendix A.1: Unlimited Emissions Calculations
Hot Oil Heating System - Process Emissions**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

The following calculations determine the unlimited/uncontrolled emissions from the combustion of natural gas and No. 2 fuel oil in the hot oil heating system, which is used to heat a specially designed transfer oil. The hot transfer oil is then pumped through a piping system that passes through the asphalt cement storage tanks, in order to keep the asphalt cement at the correct temperature.

Maximum Fuel Input Rate To Hot Oil Heater = 1.00 MMBtu/hr
 Natural Gas Usage = 8.76 MMCF/yr, and
 No. 2 Fuel Oil Usage = 62,571.43 gal/yr

Criteria Pollutant	Emission Factors		Unlimited/Uncontrolled Potential to Emit (tons/yr)		Worse Case PTE
	Natural Gas (lb/ft3)	No. 2 Fuel Oil (lb/gal)	Natural Gas	No. 2 Fuel Oil	
VOC	2.60E-08	2.65E-05	1.14E-04	0.001	0.001
CO	8.90E-06	0.0012	0.039	0.038	0.039
Greenhouse Gas as CO2e*					
CO2	0.20	28.00	876.00	876.00	876.00
Hazardous Air Pollutant					
Formaldehyde	2.60E-08	3.50E-06	1.14E-04	1.10E-04	1.14E-04
Acenaphthene		5.30E-07		1.66E-05	1.66E-05
Acenaphthylene		2.00E-07		6.26E-06	6.26E-06
Anthracene		1.80E-07		5.63E-06	5.63E-06
Benzo(b)fluoranthene		1.00E-07		3.13E-06	3.13E-06
Fluoranthene		4.40E-08		1.38E-06	1.38E-06
Fluorene		3.20E-08		1.00E-06	1.00E-06
Naphthalene		1.70E-05		5.32E-04	5.32E-04
Phenanthrene		4.90E-06		1.53E-04	1.53E-04
Pyrene		3.20E-08		1.00E-06	1.00E-06

Total HAPs 8.34E-04
Worst Single HAP 5.32E-04 (Naphthalene)

Methodology

Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
 No. 2 Fuel Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
 Natural Gas: Potential to Emit (tons/yr) = (Natural Gas Usage (MMCF/yr)) * (Emission Factor (lb/CF)) * (1000000 CF/MMCF) * (ton/2000 lbs)
 No. 2 Fuel Oil: Potential to Emit (tons/yr) = (No. 2 Fuel Oil Usage (gals/yr)) * (Emission Factor (lb/gal)) * (ton/2000 lbs)
 Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CO2 (ton/yr) x CO2 GWP (1)
 1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu
 Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Table 11.1-13

*Note: There are no emission factors for CH4 and N2O available in either 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no CH4 and N2O emission anticipated from this process.

Abbreviations

CO = Carbon Monoxide VOC = Volatile Organic Compound CO2 = Carbon Dioxide

**Appendix A.1: Unlimited Emissions Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (<=600 HP)**

**Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon**

Output Horsepower Rating (hp)	0.0
Maximum Hours Operated per Year	8760
Potential Throughput (hp-hr/yr)	0
Maximum Diesel Fuel Usage (gal/yr)	0

	Pollutant						
	PM ^{2.5}	PM10 ²	direct PM2.5 ²	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Emission Factor in lb/kgal	43.07	43.07	43.07	40.13	606.85	49.22	130.77
Potential Emission in tons/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00

¹The AP-42 Chapter 3.3-1 emission factors in lb/hp-hr were converted to lb/kgal emission factors using an average brake specific fuel consumption of 7,000 Btu / hp-hr, diesel heating value of 19,300 Btu / lb, and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

²Emission factor (lb/kgal) = AP-42 EF (lb/hp-hr) * 1/7,000 (hp-hr/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

³PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs ³
Emission Factor in lb/MMBtu	9.33E-04	4.09E-04	2.85E-04	3.91E-05	1.18E-03	7.67E-04	9.25E-05	1.68E-04
Emission Factor in lb/kgal	1.28E-01	5.60E-02	3.91E-02	5.36E-03	1.62E-01	1.05E-01	1.27E-02	2.30E-02
Potential Emission in tons/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

³PAH = Polycyclic Aromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

⁴The AP-42 Chapter 3.3-1 emission factors in lb/MMBtu were converted to lb/kgal emission factors using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁵Emission factor (lb/kgal) = AP-42 EF (lb/MMBtu) * 1/10⁶ (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Potential Emission of Total HAPs (tons/yr)	0.00E+00
Potential Emission of Worst Case HAPs (tons/yr)	0.00E+00

Green House Gas Emissions (GHG)

	Pollutant		
	CO ₂ ⁵	CH ₄ ⁶	N ₂ O ⁶
Emission Factor in lb/hp-hr	1.15	NA	NA
Emission Factor in kg/MMBtu	NA	0.003	0.0006
Emission Factor in lb/kgal	22,512.07	0.91	0.18
Potential Emission in tons/yr	0.00	0.000	0.000

⁴The AP-42 Chapter 3.3-1 emission factor in lb/hp-hr was converted to lb/kgal emission factor using an average brake specific fuel consumption of 7,000 Btu / hp-hr, diesel heating value of 19,300 Btu / lb, and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁵Emission factor (lb/kgal) = AP-42 EF (lb/hp-hr) * 1/7,000 (hp-hr/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

⁶The 40 CFR 98 Subpart C emission factors in kg/MMBtu were converted to lb/kgal emission factors using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁷Emission factor (lb/kgal) = 40 CFR 98 EF (kg/MMBtu) * 2.20462 (lb/kg) * 1/10⁶ (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Summed Potential Emissions in tons/yr	0.00
CO ₂ e Total in tons/yr	0.00

Methodology

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Maximum Diesel Fuel Usage (gal/yr) = Potential Throughput (hp-hr/yr) * 7000 (Btu/hp-hr) * 1/19300 (lb/Btu) * 1/7.1 (gal/lb)

Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2 and have been converted to lb/kgal

CH₄ and N₂O Emission Factor from 40 CFR 98 Subpart C Table C-2 and have been converted to lb/kgal

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Potential Emissions (tons/yr) = [Maximum Diesel Fuel Usage (gal/yr) x Emission Factor (lb/kgal)] / (1,000 gal/kgal) / (2,000 lb/ton)

CO₂e (tons/yr) = CO₂ Potential Emission ton/yr x CO₂ GWP (1) + CH₄ Potential Emission ton/yr x CH₄ GWP (21) + N₂O Potential Emission ton/yr x N₂O GWP (310).

Appendix A.1: Unlimited Emissions Calculations
Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivanon

Output Horsepower Rating (hp)	0.0	Sulfur Content (S) of Fuel (% by weight)	0.50
Maximum Hours Operated per Year	8760		
Potential Throughput (hp-hr/yr)	0		
Maximum Diesel Fuel Usage (gal/yr)	0		

	Pollutant						
	PM	PM10 ²	direct PM2.5 ²	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	7.00E-04			4.05E-03 (.00809S)	2.40E-02	7.05E-04	5.50E-03
Emission Factor in lb/MMBtu		0.0573	0.0573				
Emission Factor in lb/kgal	13.70	7.85	7.85	79.18	469.82	13.80	107.67
Potential Emission in tons/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00

¹The AP-42 Chapter 3.4-1 emission factors in lb/hp-hr were converted to lb/kgal emission factors using an average brake specific fuel consumption of 7,000 Btu / hp-hr, diesel heating value of 19,300 Btu / lb, and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

²Emission factor (lb/kgal) = AP-42 EF (lb/hp-hr) * 1/7,000 (hp-hr/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

³Emission factors in lb/kgal were converted from the AP-42 Chapter 3.4-1 emission factors in lb/MMBtu using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁴Emission factor (lb/kgal) = AP-42 EF (lb/MMBtu) * 1/10⁶ (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Hazardous Air Pollutants (HAPs)

	Pollutant						Total PAH HAPs ²
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	
Emission Factor in lb/MMBtu	7.78E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Emission Factor in lb/kgal	1.06E-01	3.88E-02	2.64E-02	1.08E-02	3.45E-03	1.08E-03	2.91E-02
Potential Emission in tons/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

¹PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

²Emission factors in lb/kgal were converted from the AP-42 Chapter 3.4-1 emission factors in lb/MMBtu using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

³Emission factor (lb/kgal) = AP-42 EF (lb/MMBtu) * 1/10⁶ (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Potential Emission of Total HAPs (tons/yr)	0.00E+00
Potential Emission of Worst Case HAPs (tons/yr)	0.00E+00

Green House Gas Emissions (GHG)

	Pollutant		
	CO2 ⁵	CH4 ^{5,6}	N2O ⁷
Emission Factor in lb/hp-hr	1.16	6.35E-05	NA
Emission Factor in kg/MMBtu	NA	NA	0.0006
Emission Factor in lb/kgal	22,707.83	1.24	0.18
Potential Emission in tons/yr	0.00	0.00	0.00

⁵The AP-42 Chapter 3.4-1 emission factors in lb/hp-hr were converted to lb/kgal emission factors using an average brake specific fuel consumption of 7,000 Btu / hp-hr, diesel heating value of 19,300 Btu / lb, and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁶Emission factor (lb/kgal) = AP-42 EF (lb/hp-hr) * 1/7,000 (hp-hr/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

⁷According to AP-42, Table 3.4-1, TOC (as CH4) is 9% methane by weight. As a result, the lb/hp-hr emission factor for TOC (as CH4) in AP-42 has been multiplied by 9% to determine the portion that is emitted as methane.

⁸The 40 CFR 98 Subpart C emission factors in kg/MMBtu were converted to lb/kgal emission factors using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁹Emission factor (lb/kgal) = 40 CFR 98 EF (kg/MMBtu) * 2.20462 (lb/kg) * 1/10⁶ (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Summed Potential Emissions in tons/yr	0.00
CO2e Total in tons/yr	0.00

Methodology

Potential Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Maximum Hours Operated per Year]

Maximum Diesel Fuel Usage (gal/yr) = Potential Throughput (hp-hr/yr) * 7000 (Btu/hp-hr) * 1/19300 (lb/Btu) * 1/7.1 (gal/lb)

Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1, 3.4-2, 3.4-3, and 3.4-4 and have been converted to lb/kgal.

N2O Emission Factor from 40 CFR 98 Subpart C Table C-2 and have been converted to lb/kgal.

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Potential Emissions (tons/yr) = [Maximum Diesel Fuel Usage (gal/yr) x Emission Factor (lb/kgal)] / (1,000 gal/kgal) / (2,000 lb/ton)

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O

Potential Emission ton/yr x N2O GWP (310).

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

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

Asphalt Temperature, T =	325 F
Asphalt Volatility Factor, V =	-0.5
Maximum Annual Asphalt Production =	2,190,000 tons/yr

Pollutant	Emission Factor (lb/ton asphalt)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			
	Load-Out	Silo Filling	On-Site Yard	Load-Out	Silo Filling	On-Site Yard	Total
Total PM*	5.2E-04	5.9E-04	NA	0.57	0.64	NA	1.21
Organic PM	3.4E-04	2.5E-04	NA	0.37	0.278	NA	0.65
TOC	0.004	0.012	0.001	4.55	13.34	1.205	19.1
CO	0.001	0.001	3.5E-04	1.48	1.292	0.385	3.15

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

PM/HAPs	0.027	0.031	0	0.058
VOC/HAPs	0.067	0.170	0.018	0.255
non-VOC/HAPs	3.5E-04	3.6E-05	9.3E-05	4.8E-04
non-VOC/non-HAPs	0.33	0.19	0.09	0.61
Total VOCs	4.28	13.34	1.1	18.8
Total HAPs	0.09	0.20	0.018	0.31
		Worst Single HAP		0.097
				(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: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Organic Particulate-Based Compounds (Table 11.1-15)

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
					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%	9.7E-04	1.3E-03	NA	2.3E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	1.0E-04	3.9E-05	NA	1.4E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	2.6E-04	3.6E-04	NA	6.2E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	7.1E-05	1.6E-04	NA	2.3E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	2.8E-05	0	NA	2.8E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	8.2E-06	0	NA	8.2E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	7.1E-06	0	NA	7.1E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	8.6E-06	0	NA	8.6E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	2.9E-05	2.6E-05	NA	5.6E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	3.8E-04	5.8E-04	NA	9.7E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	1.4E-06	0	NA	1.4E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	1.9E-04		NA	1.9E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	2.9E-03	2.8E-03	NA	5.7E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	1.8E-06	0	NA	1.8E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	8.9E-03	1.5E-02	NA	0.024
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	4.7E-03	5.1E-03	NA	9.7E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	8.2E-05	8.3E-05	NA	1.7E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	3.0E-03	5.0E-03	NA	8.0E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	5.6E-04	1.2E-03	NA	1.8E-03
Total PAH HAPs							0.022	0.031	NA	0.053
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	4.4E-03	0	0	4.4E-03

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

Methodology

Unlimited/Uncontrolled 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.1: Unlimited Emissions Calculations
Asphalt Load-Out, Silo Filling, and Yard Emissions (continued)**

Organic Volatile-Based Compounds (Table 11.1-16)

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
					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%	4.28	13.34	1.13	18.76
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	3.0E-01	3.5E-02	7.8E-02	0.409
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	2.1E-03	7.3E-03	5.5E-04	0.010
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	3.2E-02	1.5E-01	8.6E-03	0.188
Total non-VOC/non-HAPS					7.30%	1.40%	0.332	0.187	0.088	0.61
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	2.4E-03	4.3E-03	6.3E-04	7.3E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	4.4E-04	6.5E-04	1.2E-04	1.2E-03
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	2.2E-03	5.2E-03	5.9E-04	8.0E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	5.9E-04	2.1E-03	1.6E-04	2.9E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	9.6E-06	5.3E-04	2.5E-06	5.5E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	6.8E-04	3.1E-03	1.8E-04	3.9E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	5.0E-03	0	1.3E-03	6.3E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	1.3E-02	5.1E-03	3.4E-03	0.021
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	4.0E-03	9.2E-02	1.1E-03	0.097
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	6.8E-03	1.3E-02	1.8E-03	0.022
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	8.2E-05	4.1E-05	2.2E-05	1.5E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	3.6E-05	0	3.6E-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%	3.3E-04	7.2E-04	8.8E-05	1.1E-03
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	3.5E-04	0	9.3E-05	4.4E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	9.6E-03	8.3E-03	2.5E-03	0.020
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	5.9E-05	0	1.6E-05	7.5E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	1.9E-02	2.7E-02	4.9E-03	0.050
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	3.6E-03	7.6E-03	9.6E-04	1.2E-02
Total volatile organic HAPs					1.50%	1.30%	0.068	0.173	0.018	0.260

Methodology

Unlimited/Uncontrolled 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.1: Unlimited Emissions Calculations
Material Storage Piles**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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.

$$E_f = 1.7 * (s/1.5) * (365-p) / 235 * (f/15)$$

where E_f = 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	0.86	0.472	0.165
Limestone	1.6	1.85	1.00	0.338	0.118
RAP	0.5	0.58	0.86	0.091	0.032
Gravel	1.6	1.85	0.86	0.291	0.102
Shingles	0.5	0.58	0.01	0.001	0.000
Slag	3.8	4.40	0.00	0.000	0.000
Totals				1.19	0.42

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.

PM2.5 = PM10

Abbreviations

RAP - recycled asphalt pavement

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
Material Processing, Handling, Crushing, Screening, and Conveying

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

To estimate potential fugitive dust emissions from processing and handling 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.

$$E_f = k \cdot (0.0032)^{U/5} \cdot (M/2)^{1.4}$$

where: E_f = 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

Maximum Annual Asphalt Production = 2,190,000 tons/yr
Percent Asphalt Cement/Binder (weight %) = 5.0%
Maximum Material Handling Throughput = 2,080,500 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	2.36	1.12	0.17
Front-end loader dumping of materials into feeder bins	2.36	1.12	0.17
Conveyor dropping material into dryer/mixer or batch tower	2.36	1.12	0.17
Total (tons/yr)	7.07	3.35	0.51

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 additives

*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	0.00	0.00
Screening	0.025	0.0087	26.01	9.05
Conveying	0.003	0.0011	3.12	1.14
Unlimited Potential to Emit (tons/yr) =			29.13	10.19

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: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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	2,190,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	5.0%	
Maximum Material Handling Throughput	2,080,500	tons/yr
Maximum Asphalt Cement/Binder Throughput	109,500	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)	12.5	22.5	35	9.2E+04	3.2E+06	300	0.057	5253.8
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	12.5	0	12.5	9.2E+04	1.2E+06	300	0.057	5253.8
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	15.0	25.0	40.0	4.4E+03	1.8E+05	300	0.057	248.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	15.0	0.0	15.0	4.4E+03	6.6E+04	300	0.057	248.9
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	15.0	25.0	40.0	0.0E+00	0.0E+00	300	0.057	0.0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	15.0	0.0	15.0	0.0E+00	0.0E+00	300	0.057	0.0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	20.0	4.0	24.0	5.2E+05	1.2E+07	300	0.057	29552.6
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	20.0	0	20.0	5.2E+05	1.0E+07	300	0.057	29552.6
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.5	22.5	35.0	9.7E+04	3.4E+06	300	0.057	5530.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.5	0.0	12.5	9.7E+04	1.2E+06	300	0.057	5530.3
Total					1.4E+06	3.2E+07			81E+04

Average Vehicle Weight Per Trip = $\frac{0.0}{0.057}$ tons/trip
 Average Miles Per Trip = $\frac{0.0}{0.057}$ miles/trip

Unmitigated Emission Factor, Ef = $k \cdot [(s/12)^a] \cdot [(W/3)^b]$ (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 =	0.0	0.0	0.0	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 = $E \cdot [(365 - P)/365]$
 Mitigated Emission Factor, Eext = $E \cdot [(365 - P)/365]$
 where P = $\frac{125}{365}$ 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 =	0.00	0.00	0.00	lb/mile
Mitigated Emission Factor, Eext =	0.00	0.00	0.00	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)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Cement/Binder 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
Asphalt Cement/Binder 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
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)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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) PTE = Potential to Emit

Appendix A.1: Unlimited Emissions Calculations
Paved Roads

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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	2,190,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	5.0%	
Maximum Material Handling Throughput	2,080,500	tons/yr
Maximum Asphalt Cement/Binder Throughput	109,500	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)	12.5	22.5	35.00	9.2E+04	3.2E+06	300	0.057	5253.8
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	12.5	0	12.50	9.2E+04	1.2E+06	300	0.057	5253.8
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	15.0	25.0	40.00	4.4E+03	1.8E+05	300	0.057	248.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	15.0	0.0	15.00	4.4E+03	6.6E+04	300	0.057	248.9
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	15.0	25.0	40.00	0.0E+00	0.0E+00	300	0.057	0.0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	15.0	0.0	15.00	0.0E+00	0.0E+00	300	0.057	0.0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	20.0	4.0	24.00	5.2E+05	1.2E+07	300	0.057	29552.6
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	20.0	0	20.00	5.2E+05	1.0E+07	300	0.057	29552.6
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.5	22.5	35.00	9.7E+04	3.4E+06	300	0.057	5530.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.5	0.0	12.50	9.7E+04	1.2E+06	300	0.057	5530.3
Total				1.4E+06	3.2E+07				8.1E+04

Average Vehicle Weight Per Trip = 22.5 tons/trip
 Average Miles Per Trip = 0.057 miles/trip

Unmitigated Emission Factor, $E_f = k \cdot (sL)^{0.91} \cdot (W)^{1.02}$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	lb/mi
where k =	0.011	0.0022	0.00054	tons = particle size multiplier (AP-42 Table 13.2.1-1)
W =	22.5	22.5	22.5	tons = average vehicle weight (provided by source)
sL =	0.6	0.6	0.6	g/m ² = Ubiquitous 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, $E_{ext} = E_f \cdot [1 - (p/4N)]$

Mitigated Emission Factor, $E_{ext} = E_f \cdot [1 - (p/4N)]$
 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	lb/mile
Unmitigated Emission Factor, E_f	0.17	0.03	0.01	lb/mile
Mitigated Emission Factor, E_{ext}	0.15	0.03	0.01	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)	0.43	0.09	0.02	0.40	0.08	0.02	0.20	0.04	0.01
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.43	0.09	0.02	0.40	0.08	0.02	0.20	0.04	0.01
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.021	0.004	1.0E-03	0.019	0.004	9.2E-04	0.009	1.9E-03	4.6E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.021	0.004	1.0E-03	0.019	0.004	9.2E-04	0.009	1.9E-03	4.6E-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)	2.44	0.49	0.12	2.24	0.45	0.11	1.12	0.22	0.05
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	2.44	0.49	0.12	2.24	0.45	0.11	1.12	0.22	0.05
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.46	0.09	0.02	0.42	0.08	0.02	0.21	0.04	0.01
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.46	0.09	0.02	0.42	0.08	0.02	0.21	0.04	0.01
Totals		6.72	1.34	0.33	6.14	1.23	0.30	3.07	0.61	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) PTE = Potential to Emit

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

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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	2,190,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	0.0%	
Maximum Asphalt Cement/Binder Throughput	0	tons/yr

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

Volatile Organic HAP	CAS#	Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Solvents			
		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%
Benzene	71-43-2	1.90%		2.90E-4%	
Benzo(a)anthracene	56-55-3			9.60E-7%	4.50E-7%
Benzo(a)pyrene	50-32-8			2.20E-6%	2.10E-7%
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%
Ethylbenzene	100-41-4	1.70%		0.07%	3.40E-4%
Fluoranthene	206-44-0		7.10E-6%	5.90E-5%	1.40E-5%
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%	
Methyl-tert-butylether	1634-04-4	0.33%			
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%
n-Hexane	110-54-3	2.40%			
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-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%
Worst Single HAP		9.00%	0.31%	0.50%	0.23%
		Xylenes	Naphthalene	Xylenes	Xylenes
				Xylenes	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.

Abbreviations

VOC = Volatile Organic Compounds
 PTE = Potential to Emit

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

**Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon**

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:

$$\begin{aligned} \text{Gasoline Throughput} &= \boxed{0} \text{ gallons/day} \\ &= \boxed{0.0} \text{ kgal/yr} \end{aligned}$$

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.

Abbreviations

VOC = Volatile Organic Compounds

PTE = Potential to Emit

Appendix A.2: Limited Emissions Summary
Entire Source - Drum Mix

Company Name: Duracap Asphalt Paving
 Source Address: 1112 East Tiwaba Way, Westport, IN 47283
 Permit Number: F 031-32126-00031
 Reviewer: Renee Traivaranon

Asphalt Plant Limitations - Drum Mix

Maximum Hourly Asphalt Production =	250	ton/hr									
Annual Asphalt Production Limitation =	1,000,000	ton/yr									
Blast Furnace Slag Usage Limitation =	0	ton/yr	1.50	% sulfur							
Steel Slag Usage Limitation =	0		0.66	% sulfur							
Maximum Dryer Fuel Input Rate =	75	MMBtu/hr									
Natural Gas Limitation =	657.0	MMCF/yr									
No. 2 Fuel Oil Limitation =	0	gal/yr, and	0.50	% sulfur							
No. 4 Fuel Oil Limitation =	2,580,766	gal/yr, and	0.50	% sulfur							
Residual (No. 5 or No. 6) Fuel Oil Limitation =	0	gal/yr, and	0.50	% sulfur							
Propane Limitation =	0	gal/yr, and	0.20	gr/100 ft3 sulfur							
Butane Limitation =	0	gal/yr, and	0.22	gr/100 ft3 sulfur							
Used/Waste Oil Limitation =	0	gal/yr, and	1.00	% sulfur	0.50	% ash	0.200	% chlorine,	0.010	% lead	
Diesel Fuel Limitation - Generator < 600 HP =	0	gal/yr, and									
Diesel Fuel Limitation - Generator > 600 HP =	0	gal/yr	0.50	% sulfur							
PM Dryer/Mixer Limitation =	0.459	lb/ton of asphalt production									
PM10 Dryer/Mixer Limitation =	0.183	lb/ton of asphalt production									
PM2.5 Dryer/Mixer Limitation =	0.186	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									
Blast Furnace Slag SO2 Dryer/Mixer Limitation =	0.000	lb/ton of slag processed									
Steel Slag SO2 Dryer/Mixer Limitation =	0.0000	lb/ton of slag processed									
Cold Mix Asphalt VOC Limitation =	0.0	tons/yr									
HCl Limitation =	0	lb/kgal									

Limited/Controlled Emissions

Process Description	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Greenhouse Gas	Hazardous Air Pollutants	
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	CO ₂ e	Total HAPs	Worst Case HAP
Ducted Emissions										
Dryer Fuel Combustion (worst case)	9.03	10.71	10.71	96.78	32.85	1.81	27.59	39,714.40	0.78	0.59 Hexane
Dryer/Mixer (Process)	229.26	91.46	92.97	29.00	27.50	16.00	65.00	16,626	5.33	1.55 (formaldehyde)
Dryer/Mixer Slag Processing	0	0	0	0.00	0	0	0	0	0	0
Hot Oil Heater Fuel Combustion/Process (worst case)	0.06	0.10	0.10	2,221	0.63	0.02	0.37	876.00	0.01	0.008 (hexane)
Diesel-Fired Generator < 600 HP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000
Diesel-Fired Generator > 600 HP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Worst Case Emissions*	229.32	91.57	93.07	99.00	33.48	16.02	65.37	40,590.40	5.34	1.55 (formaldehyde)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	0.55	0.55	0.55	0	0	8.57	1.44	0	0.14	0.002 Naphthalene
Material Storage Piles	1.19	0.42	0.42	0	0	0	0	0	0	0
Material Processing and Handling	3.23	1.53	0.23	0	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	13.30	4.66	4.66	0	0	0	0	0	0	0
Unpaved and Paved Roads (worst case)	1.40	0.28	0.07	0	0	0	0	0	0	0
Cold Mix Asphalt Production	0	0	0	0	0	0.00	0	0	0.00	0.00
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.00	0	0	0.00	0.00
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	0	negl	negl
Total Fugitive Emissions	19.68	7.43	5.93	0	0	8.57	1.44	0.00	0.14	0.002 Naphthalene
Totals Limited/Controlled Emissions	249.00	99.00	99.00	99.00	33.48	24.59	66.81	40,590.40	5.48	1.55 (formaldehyde)

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 and Hot Oil Heating System + Diesel-Fired Generator < 600 HP + Diesel-Fired Generator > 600 HP
 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: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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.

Fuel Limitations

Maximum Fuel Input Rate	75	MMBtu/hr																
Natural Gas Limitation	657	MMCF/yr																
No. 2 Fuel Oil Limitation	0	gal/yr, and	0.50	% sulfur														
No. 4 Fuel Oil Limitation	2,580,766	gal/yr, and	0.50	% sulfur														
Residual (No. 5 or No. 6) Fuel Oil Limitation	0	gal/yr, and	0.50	% sulfur														
Propane Limitation	0	gal/yr, and	0.20	gr/100 ft3 sulfur														
Butane Limitation	0	gal/yr, and	0.22	gr/100 ft3 sulfur														
Used/Waste Oil Limitation	0	gal/yr, and	1.00	% sulfur	0.50	% ash	0.200	% chlorine	0.010	% lead								

Limited Emissions

Criteria Pollutant	Emission Factor (units)								Limited Potential to Emit (tons/yr)							
	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	2.0	7.0	7.815	0.5	0.6	32.0	0.62	0.00	9.03	0.00	0.000	0.000	0.00	9.03	
PM10/PM2.5	7.6	3.3	8.3	9.315	0.5	0.6	25.5	2.50	0.00	10.71	0.00	0.000	0.000	0.00	10.71	
SO2	0.6	71.0	75.0	78.5	0.02	0.02	147.0	0.20	0.00	96.78	0.00	0.000	0.000	0.00	96.78	
NOx	100	20.0	20.0	55.0	13.0	15.0	19.0	32.85	0.00	25.81	0.00	0.00	0.00	0.00	32.85	
VOC	5.5	0.20	0.20	0.28	1.0	1.10	1.0	1.81	0.00	0.26	0.00	0.00	0.00	0.00	1.81	
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	27.59	0.00	6.45	0.00	0.00	0.00	0.00	27.59	
Hazardous Air Pollutant																
HCl							13.2							0.00	0.00	
Antimony			5.25E-03	5.25E-03			negl			6.77E-03	0.00E+00			negl	6.8E-03	
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	6.6E-05	0.00E+00	1.70E-03	0.00E+00			0.00E+00	1.7E-03	
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	3.9E-06	0.00E+00	3.59E-05	0.00E+00			negl	3.6E-05	
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	3.6E-04	0.00E+00	5.14E-04	0.00E+00			0.00E+00	5.1E-04	
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	4.6E-04	0.00E+00	1.09E-03	0.00E+00			0.00E+00	1.1E-03	
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04	2.8E-05		7.77E-03	0.00E+00			0.00E+00	7.8E-03	
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55	1.6E-04	0.00E+00	1.95E-03	0.00E+00			0.0E+00	0.00	
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	1.2E-04	0.00E+00	3.87E-03	0.00E+00			0.00E+00	0.00	
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				8.5E-05	0.00E+00	1.46E-04	0.00E+00			0.0E+00	1.5E-04	
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	6.9E-04	0.00E+00	1.09E-01	0.00E+00			0.00E+00	0.109	
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04				7.9E-06	0.00E+00	8.81E-04	0.00E+00			negl	8.8E-04	
1,1,1-Trichloroethane			2.36E-04	2.36E-04						3.05E-04	0.00E+00				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				6.9E-04		2.76E-04	0.00E+00				6.9E-04	
Bis(2-ethylhexyl)phthalate							2.2E-03							0.00E+00	0.0E+00	
Dichlorobenzene	1.2E-03						8.0E-07	3.9E-04						0.00E+00	3.9E-04	
Ethylbenzene			6.36E-05	6.36E-05						8.21E-05	0.00E+00				8.2E-05	
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				2.5E-02	0.00E+00	4.26E-02	0.00E+00				0.043	
Hexane	1.8E+00							0.59							0.591	
Phenol							2.4E-03							0.00E+00	0.0E+00	
Toluene	3.4E-03		6.20E-03	6.20E-03				1.1E-03		8.00E-03	0.00E+00				8.0E-03	
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		1.46E-03	0.00E+00			0.00E+00	1.5E-03	
Polycyclic Organic Matter		3.30E-03							0.00E+00						0.0E+00	
Xylene			1.09E-04	1.09E-04						1.41E-04	0.00E+00				1.4E-04	
Total HAPs							0.62	0.00	0.19	0.00	0.00	0	0	0.00	0.78	

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 5/10), 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

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

*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.

**Appendix A.2: Limited Emissions Summary
Greenhouse Gas (CO2e) Emissions from the
Dryer/Mixer Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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.

Fuel Limitations

Maximum Fuel Input Rate =	75	MMBtu/hr								
Natural Gas Limitation =	657	MMCF/yr								
No. 2 Fuel Oil Limitation =	0	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	2,580,766	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Limitation =	0	gal/yr, and	0.50	% sulfur						
Propane Limitation =	0	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Limitation =	0	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	0	gal/yr, and	1.00	% sulfur	0.50	% ash	0.200	% chlorine,	0.010	% lead

Limited Emissions

CO2e Fraction	Emission Factor (units)							Global Warming Potentials (GWP)		
	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)	Name	Chemical Formula	Global warming potential
CO2	120,161.84	22,501.41	24,153.46	24,835.04	12,500.00	14,506.73	22,024.15	Carbon dioxide	CO ₂	1
CH4	2.49	0.91	0.97	1.00	0.60	0.67	0.89	Methane	CH ₄	21
N2O	2.20	0.26	0.19	0.53	0.90	0.90	0.18	Nitrous oxide	N ₂ O	310

CO2e Fraction	Limited Potential to Emit (tons/yr)						
	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)
CO2	39,473.17	0.00	31,167.22	0.00	0.00	0.00	0.00
CH4	0.82	0.00	1.25	0.00	0.00	0.00	0.00
N2O	0.72	0.00	0.25	0.00	0.00	0.00	0.00
Total	39,474.71	0.00	31,168.71	0.00	0.00	0.00	0.00
CO2e Equivalent Emissions (tons/yr)	39,714.40	0.00	31,270.64	0.00	0.00	0.00	0.00

CO2e for Worst Case Fuel* (tons/yr)
39,714.40

Methodology

Fuel Limitations from TSD Appendix A.2, page 1 of 15.

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

Natural Gas: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N2O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2

No. 2, No. 4, and Residual (No. 5 or No. 6) Fuel Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 Oil: (dated 5/10), Table 1.3-8

Propane and Butane: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.5 (dated 7/08), Table 1.5-1

Waste Oil: Emission Factors for CO2, CH4, and N2O from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal.

Emission Factor (EF) Conversions

Natural Gas: EF (lb/MMCF) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of Natural Gas (MMBtu/scf) * Conversion Factor (1,000,000 scf/MMCF)]

Fuel Oils: EF (lb/kgal) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of the Fuel Oil (MMBtu/gal) * Conversion Factor (1000 gal/kgal)]

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)

Limited CO2e Emissions (tons/yr) = CO2 Potential Emission of "worst case" fuel (ton/yr) x CO2 GWP (1) + CH4 Potential Emission of "worst case" fuel (ton/yr) x CH4 GWP (21) + N2O Potential Emission of "worst case" fuel (ton/yr) x N2O GWP (310).

Abbreviations

CH4 = Methane

CO2 = Carbon Dioxide

N2O = Nitrogen Dioxide

PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary
Dryer/Mixer - Process Emissions**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

Maximum Hourly Asphalt Production =	250	ton/hr
Annual Asphalt Production Limitation =	1,000,000	ton/yr
PM Dryer/Mixer Limitation =	0.459	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.183	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.186	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

Criteria Pollutant	Emission Factor or Limitation (lb/ton)			Limited/Controlled Potential to Emit (tons/yr)			Worse Case PTE
	Drum-Mix Plant (dryer/mixer, controlled by fabric filter)			Drum-Mix Plant (dryer/mixer, controlled by fabric filter)			
	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	
PM*	0.459	0.459	0.459	229.3	229.3	229.3	229.3
PM10*	0.183	0.183	0.183	91.5	91.5	91.5	91.5
PM2.5*	0.186	0.186	0.186	93.0	93.0	93.0	93.0
SO2**	0.003	0.011	0.058	1.7	5.5	29.0	29.0
NOx**	0.026	0.055	0.055	13.0	27.5	27.5	27.5
VOC**	0.032	0.032	0.032	16.0	16.0	16.0	16.0
CO***	0.130	0.130	0.130	65.0	65.0	65.0	65.0
Hazardous Air Pollutant							
HCl			2.10E-04			0.11	0.11
Antimony	1.80E-07	1.80E-07	1.80E-07	9.00E-05	9.00E-05	9.00E-05	9.00E-05
Arsenic	5.60E-07	5.60E-07	5.60E-07	2.80E-04	2.80E-04	2.80E-04	2.80E-04
Beryllium	negl	negl	negl	negl	negl	negl	0.00E+00
Cadmium	4.10E-07	4.10E-07	4.10E-07	2.05E-04	2.05E-04	2.05E-04	2.05E-04
Chromium	5.50E-06	5.50E-06	5.50E-06	2.75E-03	2.75E-03	2.75E-03	2.75E-03
Cobalt	2.60E-08	2.60E-08	2.60E-08	1.30E-05	1.30E-05	1.30E-05	1.30E-05
Lead	6.20E-07	1.50E-05	1.50E-05	3.10E-04	7.50E-03	7.50E-03	7.50E-03
Manganese	7.70E-06	7.70E-06	7.70E-06	3.85E-03	3.85E-03	3.85E-03	3.85E-03
Mercury	2.40E-07	2.60E-06	2.60E-06	1.20E-04	1.30E-03	1.30E-03	1.30E-03
Nickel	6.30E-05	6.30E-05	6.30E-05	3.15E-02	3.15E-02	3.15E-02	3.15E-02
Selenium	3.50E-07	3.50E-07	3.50E-07	1.75E-04	1.75E-04	1.75E-04	1.75E-04
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Acetaldehyde			1.30E-03			0.65	0.65
Acrolein			2.60E-05			1.30E-02	1.30E-02
Benzene	3.90E-04	3.90E-04	3.90E-04	0.20	0.20	0.20	0.20
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	1.55	1.55	1.55	1.55
Hexane	9.20E-04	9.20E-04	9.20E-04	0.46	0.46	0.46	0.46
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			0.07	0.07
Quinone			1.60E-04			0.08	0.08
Toluene	1.50E-04	2.90E-03	2.90E-03	0.08	1.45	1.45	1.45
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.10	0.44	0.44	0.44
Xylene	2.00E-04	2.00E-04	2.00E-04	0.10	0.10	0.10	0.10
Total HAPs							5.33
Worst Single HAP							1.55 (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

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

**Appendix A.2: Limited Emissions Summary
Greenhouse Gas (CO₂e) Emissions from the
Drum-Mix Plant (Dryer/Mixer) Process Emissions**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

Maximum Hourly Asphalt Production = 250 ton/hr
 Annual Asphalt Production Limitation = 1,000,000 ton/yr

Criteria Pollutant	Emission Factor (lb/ton) Drum-Mix Plant (dryer/mixer)			Global Warming Potentials (GWP)	Limited Potential to Emit (tons/yr) Drum-Mix Plant (dryer/mixer)			CO ₂ e for Worst Case Fuel (tons/yr)
	Natural Gas	No. 2 Fuel Oil	Waste Oil		Natural Gas	No. 2 Fuel Oil	Waste Oil	
CO ₂	33	33	33	1	16,500.00	16,500.00	16,500.00	16,626.00
CH ₄	0.0120	0.0120	0.0120	21	6.00	6.00	6.00	
N ₂ O				310	0	0	0	
Total					16,506.00	16,506.00	16,506.00	
CO₂e Equivalent Emissions (tons/yr)					16,626.00	16,626.00	16,626.00	

Methodology

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-7 and 11.1-8

There are no emission factors for N₂O available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N₂O emission anticipated from this process.

Limited/Controlled Potential to Emit (tons/yr) = (Annual Asphalt Production Limitation (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)

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.

Limited CO₂e Emissions (tons/yr) = CO₂ Potential Emission of "worst case" fuel (ton/yr) x CO₂ GWP (1) + CH₄ Potential Emission of "worst case" fuel (ton/yr) x CH₄ GWP (21) + N₂O Potential Emission of "worst case" fuel (ton/yr) x N₂O GWP (310).

Abbreviations

CO₂ = Carbon Dioxide

CH₄ = Methane

N₂O = Nitrogen Dioxide

PTE = Potential to Emit

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

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

Limited Blast Furnace Slag Usage = ton/yr % sulfur
 Limited Annual Steel Slag Usage = ton/yr % sulfur

Type of Slag	SO2 Emission Factor (lb/ton)	Limited Potential to Emit SO2 (tons/yr)
Blast Furnace Slag*	0.0000	0.0
Steel Slag**	0.0000	0.00

Methodology

* Testing results for blast furnace slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from blast furnace slag containing 1.10% sulfur content. The source has requested a safety factor of 0.20 lb/ton be added to the tested value for use at this location to allow for a sulfur content up to 1.5%.

** Testing results for steel slag, obtained June 2009 from E & B Paving, Inc. facility located in Huntington, IN. The testing results showed a steel slag emission factor of 0.0007 lb/ton from slag containing 0.33% sulfur content.

Limited Potential to Emit SO2 from Slag (tons/yr) = [(Limited Slag Usage (ton/yr)) * [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: Duracap Asphalt Paving
Source Location: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Maximum Hot Oil Heater Fuel Input Rate = 1.00 MMBtu/hr
 Natural Gas Usage = 9 MMCF/yr
 No. 2 Fuel Oil Usage = 62,571 gal/yr, and 0.50 % sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		Worse Case Fuel (tons/yr)
	Hot Oil Heater		Hot Oil Heater		
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	
PM	1.9	2.0	0.008	0.063	0.06
PM10/PM2.5	7.6	3.3	0.033	0.103	0.10
SO2	0.6	71.0	0.003	2.221	2.22
NOx	100	20.0	0.438	0.626	0.63
VOC	5.5	0.20	0.024	0.006	0.02
CO	84	5.0	0.368	0.156	0.37
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	8.8E-07	1.75E-05	1.8E-05
Beryllium	1.2E-05	4.2E-04	5.3E-08	1.31E-05	1.3E-05
Cadmium	1.1E-03	4.2E-04	4.8E-06	1.31E-05	1.3E-05
Chromium	1.4E-03	4.2E-04	6.1E-06	1.31E-05	1.3E-05
Cobalt	8.4E-05		3.7E-07		3.7E-07
Lead	5.0E-04	1.3E-03	2.2E-06	3.94E-05	3.9E-05
Manganese	3.8E-04	8.4E-04	1.7E-06	2.63E-05	2.6E-05
Mercury	2.6E-04	4.2E-04	1.1E-06	1.31E-05	1.3E-05
Nickel	2.1E-03	4.2E-04	9.2E-06	1.31E-05	1.3E-05
Selenium	2.4E-05	2.1E-03	1.1E-07	6.57E-05	6.6E-05
Benzene	2.1E-03		9.2E-06		9.2E-06
Dichlorobenzene	1.2E-03		5.3E-06		5.3E-06
Ethylbenzene					0
Formaldehyde	7.5E-02	6.10E-02	3.3E-04	1.91E-03	0.002
Hexane	1.8E+00		0.01		0.008
Phenol					0
Toluene	3.4E-03		1.5E-05		1.5E-05
Total PAH Haps	negl		negl		0
Polycyclic Organic Matter		3.30E-03		1.03E-04	1.0E-04
Total HAPs =			8.3E-03	2.2E-03	0.010
Worst Single HAP =			7.9E-03	1.9E-03	7.9E-03

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)] * [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 5/10), 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)
 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.2: Limited Emissions Summary
Greenhouse Gas (CO2e) Emissions from
Hot Oil Heater Fuel Combustion with Maximum Capacity < 100 MMBtu/hr

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Maximum Hot Oil Heater Fuel Input Rate = 1.00 MMBtu/hr
 Natural Gas Usage = 8.76 MMCF/yr
 No. 2 Fuel Oil Usage = 62,571.43 gal/yr, 0.50 % sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)		Global Warming Potentials (GWP)	Unlimited/Uncontrolled Potential to Emit (tons/yr)	
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)		Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)
CO2	120,161.84	22,501.41	1	526.31	703.97
CH4	2.49	0.91	21	0.011	2.86E-02
N2O	2.20	0.26	310	0.010	8.13E-03
Total				526.33	704.01

Worse Case CO2e Emissions (tons/yr)
707.09

CO2e Equivalent Emissions (tons/yr)	529.53	707.09
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Methodology

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

Natural Gas : Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N2O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2

No. 2 Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 5/10), Table 1.3-8

Emission Factor (EF) Conversions

Natural Gas: EF (lb/MMCF) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of Natural Gas (MMBtu/scf) * Conversion Factor (1,000,000 scf/MMCF)]

Fuel Oils: EF (lb/kgal) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of the Fuel Oil (MMBtu/gal) * Conversion Factor (1000 gal/kgal)]

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]

Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CO2 of "worst case" fuel (ton/yr) x CO2 GWP (1) + Unlimited Potential to Emit CH4 of "worst case" fuel (ton/yr) x CH4 GWP (21) + Unlimited Potential to Emit N2O of "worst case" fuel (ton/yr) x N2O GWP (310).

Abbreviations

CH4 = Methane
 CO2 = Carbon Dioxide

N2O = Nitrogen Dioxide
 PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary
Hot Oil Heating System - Process Emissions**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

The following calculations determine the unlimited/uncontrolled emissions from the combustion of natural gas and No. 2 fuel oil in the hot oil heating system, which is used to heat a specially designed transfer oil. The hot transfer oil is then pumped through a piping system that passes through the asphalt cement storage tanks, in order to keep the asphalt cement at the correct temperature.

Maximum Fuel Input Rate To Hot Oil Heater = 1.00 MMBtu/hr
 Natural Gas Usage = 8.76 MMCF/yr, and
 No. 2 Fuel Oil Usage = 62,571.43 gal/yr

Criteria Pollutant	Emission Factors		Unlimited/Uncontrolled Potential to Emit (tons/yr)		Worse Case PTE
	Natural Gas (lb/ft3)	No. 2 Fuel Oil (lb/gal)	Natural Gas	No. 2 Fuel Oil	
VOC	2.60E-08	2.65E-05	1.14E-04	0.001	0.001
CO	8.90E-06	0.0012	0.039	0.038	0.039
Greenhouse Gas as CO2e*					
CO2	0.20	28.00	876.00	876.00	876.00
Hazardous Air Pollutant					
Formaldehyde	2.60E-08	3.50E-06	1.14E-04	1.10E-04	1.14E-04
Acenaphthene		5.30E-07		1.66E-05	1.66E-05
Acenaphthylene		2.00E-07		6.26E-06	6.26E-06
Anthracene		1.80E-07		5.63E-06	5.63E-06
Benzo(b)fluoranthene		1.00E-07		3.13E-06	3.13E-06
Fluoranthene		4.40E-08		1.38E-06	1.38E-06
Fluorene		3.20E-08		1.00E-06	1.00E-06
Naphthalene		1.70E-05		5.32E-04	5.32E-04
Phenanthrene		4.90E-06		1.53E-04	1.53E-04
Pyrene		3.20E-08		1.00E-06	1.00E-06

Total HAPs 8.34E-04
Worst Single HAP 5.32E-04 (Naphthalene)

Methodology

Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
 No. 2 Fuel Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
 Natural Gas: Potential to Emit (tons/yr) = (Natural Gas Usage (MMCF/yr)) * (Emission Factor (lb/CF)) * (1000000 CF/MMCF) * (ton/2000 lbs)
 No. 2 Fuel Oil: Potential to Emit (tons/yr) = (No. 2 Fuel Oil Usage (gals/yr)) * (Emission Factor (lb/gal)) * (ton/2000 lbs)
 Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CO2 (ton/yr) x CO2 GWP (1)
 1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu
 Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Table 11.1-13

*Note: There are no emission factors for CH4 and N2O available in either 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no CH4 and N2O emission anticipated from this process.

Abbreviations

CO = Carbon Monoxide VOC = Volatile Organic Compound CO2 = Carbon Dioxide

Appendix A.2: Limited Emissions Summary
Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (<=600 HP)

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Output Horsepower Rating (hp)	0.0
Limited Hours Operated per Year	2500
Limited Throughput (hp-hr/yr)	0
Limited Diesel Fuel Usage (gal/yr)	0

	Pollutant						
	PM ^{2.5}	PM10 ²	direct PM2.5 ²	SO ₂	NO _x	VOC	CO
Emission Factor in lb/hp-hr	0.0022	0.0022	0.0022	0.0021	0.0310	0.0025	0.0067
Emission Factor in lb/kgal	43.07	43.07	43.07	40.13	606.85	49.22	130.77
Limited Emission in tons/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00

¹ The AP-42 Chapter 3.3-1 emission factors in lb/hp-hr were converted to lb/kgal emission factors using an average brake specific fuel consumption of 7,000 Btu / hp-hr, diesel heating value of 19,300 Btu / lb, and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

² Emission factor (lb/kgal) = AP-42 EF (lb/hp-hr) * 1/7,000 (hp-hr/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

³ PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs ³
Emission Factor in lb/MMBtu	9.33E-04	4.09E-04	2.85E-04	3.91E-05	1.18E-03	7.67E-04	9.25E-05	1.68E-04
Emission Factor in lb/kgal	1.28E-01	5.60E-02	3.91E-02	5.36E-03	1.62E-01	1.05E-01	1.27E-02	2.30E-02
Limited Emission in tons/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

³ PAH = Polycyclic Aromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

⁴ The AP-42 Chapter 3.3-1 emission factors in lb/MMBtu were converted to lb/kgal emission factors using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁵ Emission factor (lb/kgal) = AP-42 EF (lb/MMBtu) * 1/10*6 (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Limited Emission of Total HAPs (tons/yr)	0.00E+00
Limited Emission of Worst Case HAPs (tons/yr)	0.00E+00

Green House Gas Emissions (GHG)

	Pollutant		
	CO ₂ ²	CH ₄ ²	N ₂ O ⁶
Emission Factor in lb/hp-hr	1.15	NA	NA
Emission Factor in kg/MMBtu	NA	0.003	0.0006
Emission Factor in lb/kgal	22,512.07	0.91	0.18
Limited Emission in tons/yr	0.00	0.000	0.000

² The AP-42 Chapter 3.3-1 emission factor in lb/hp-hr was converted to lb/kgal emission factor using an average brake specific fuel consumption of 7,000 Btu / hp-hr, diesel heating value of 19,300 Btu / lb, and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

³ Emission factor (lb/kgal) = AP-42 EF (lb/hp-hr) * 1/7,000 (hp-hr/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

⁴ The 40 CFR 98 Subpart C emission factors in kg/MMBtu were converted to lb/kgal emission factors using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁶ Emission factor (lb/kgal) = 40 CFR 98 EF (kg/MMBtu) * 2.20462 (lb/kg) * 1/10*6 (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Summed Limited Emissions in tons/yr	0.00
CO ₂ e Total in tons/yr	0.00

Methodology

Limited Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Limited Hours Operated per Year]

Limited Diesel Fuel Usage (gal/yr) = Limited Throughput (hp-hr/yr) * 7000 (Btu/hp-hr) * 1/19300 (lb/Btu) * 1/7.1 (gal/lb)

Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2 and have been converted to lb/kgal

CH₄ and N₂O Emission Factor from 40 CFR 98 Subpart C Table C-2 and have been converted to lb/kgal

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Limited Emissions (tons/yr) = [Limited Diesel Fuel Usage (gal/yr) x Emission Factor (lb/kgal)] / (1,000 gal/kgal) / (2,000 lb/ton)

CO₂e (tons/yr) = CO₂ Potential Emission ton/yr x CO₂ GWP (1) + CH₄ Potential Emission ton/yr x CH₄ GWP (21) + N₂O Potential Emission ton/yr x N₂O GWP (310).

Appendix A.2: Limited Emissions Summary
Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Output Horsepower Rating (hp)	0.0
Limited Hours Operated per Year	2500
Limited Throughput (hp-hr/yr)	0
Limited Diesel Fuel Usage (gal/yr)	0

Sulfur Content (S) of Fuel (% by weight)

	Pollutant						
	PM	PM10 ²	direct PM2.5 ²	SO2	NOx	VOC	CO
Emission Factor in lb/hp-hr	7.00E-04			4.05E-03 (.00809S)	2.40E-02	7.05E-04	5.50E-03
Emission Factor in lb/MMBtu		0.0573	0.0573				
Emission Factor in lb/kgal ¹	13.70	7.85	7.85	79.18	469.82	13.80	107.67
Limited Emission in tons/yr	0.00	0.00	0.00	0.00	0.00	0.00	0.00

¹ The AP-42 Chapter 3.4-1 emission factors in lb/hp-hr were converted to lb/kgal emission factors using an average brake specific fuel consumption of 7,000 Btu / hp-hr, diesel heating value of 19,300 Btu / lb, and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

² Emission factor (lb/kgal) = AP-42 EF (lb/hp-hr) * 1/7,000 (hp-hr/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

³ Emission factors in lb/kgal were converted from the AP-42 Chapter 3.4-1 emission factors in lb/MMBtu using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁴ Emission factor (lb/kgal) = AP-42 EF (lb/MMBtu) * 1/10⁶ (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Hazardous Air Pollutants (HAPs)

	Pollutant						Total PAH HAPs ⁵
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Emission Factor in lb/kgal ¹	1.06E-01	3.85E-02	2.64E-02	1.08E-02	3.45E-03	1.08E-03	2.91E-02
Limited Emission in tons/yr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

⁵ PAH = Polycyclic Aromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

⁶ Emission factors in lb/kgal were converted from the AP-42 Chapter 3.4-1 emission factors in lb/MMBtu using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁷ Emission factor (lb/kgal) = AP-42 EF (lb/MMBtu) * 1/10⁶ (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Limited Emission of Total HAPs (tons/yr)	0.00E+00
Limited Emission of Worst Case HAPs (tons/yr)	0.00E+00

Green House Gas Emissions (GHG)

	Pollutant		
	CO2 ⁸	CH4 ^{9,10}	N2O ⁷
Emission Factor in lb/hp-hr	1.16	6.35E-05	NA
Emission Factor in kg/MMBtu	NA	NA	0.0006
Emission Factor in lb/kgal	22,707.83	1.24	0.18
Limited Emission in tons/yr	0.00	0.00	0.00

⁸ The AP-42 Chapter 3.4-1 emission factors in lb/hp-hr were converted to lb/kgal emission factors using an average brake specific fuel consumption of 7,000 Btu / hp-hr, diesel heating value of 19,300 Btu / lb, and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁹ Emission factor (lb/kgal) = AP-42 EF (lb/hp-hr) * 1/7,000 (hp-hr/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

¹⁰ According to AP-42, Table 3.4-1, TOC (as CH4) is 9% methane by weight. As a result, the lb/hp-hr emission factor for TOC (as CH4) in AP-42 has been multiplied by 9% to determine the portion that is emitted as methane.

⁷ The 40 CFR 98 Subpart C emission factors in kg/MMBtu were converted to lb/kgal emission factors using an average diesel heating value of 19,300 Btu / lb and diesel fuel density of 7.1 lb / gal (AP-42 Tables 3.3-1 and 3.4.1) since the source will limit the emissions from this unit by limiting the fuel usage.

⁸ Emission factor (lb/kgal) = 40 CFR 98 EF (kg/MMBtu) * 2.20462 (lb/kg) * 1/10⁶ (MMBtu/Btu) * 19,300 (Btu/lb) * 7.1 (lb/gal) * 1,000 (gal/kgal)

Summed Potential Emissions in tons/yr	0.00
CO2e Total in tons/yr	0.00

Methodology

Limited Throughput (hp-hr/yr) = [Output Horsepower Rating (hp)] * [Limited Hours Operated per Year]

Limited Diesel Fuel Usage (gal/yr) = Limited Throughput (hp-hr/yr) * 7000 (Btu/hp-hr) * 1/19300 (lb/Btu) * 1/7.1 (gal/lb)

Emission Factors are from AP-42 (Supplement B 10/96) Tables 3.4-1, 3.4-2, 3.4-3, and 3.4-4 and have been converted to lb/kgal.

N2O Emission Factor from 40 CFR 98 Subpart C Table C-2 and have been converted to lb/kgal.

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Limited Emissions (tons/yr) = [Limited Diesel Fuel Usage (gal/yr) * Emission Factor (lb/kgal)] / (1,000 gal/kgal) / (2,000 lb/ton)

CO2e (tons/yr) = CO2 Potential Emission ton/yr x CO2 GWP (1) + CH4 Potential Emission ton/yr x CH4 GWP (21) + N2O

Potential Emission ton/yr x N2O GWP (310).

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

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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 =	1,000,000	tons/yr

Pollutant	Emission Factor (lb/ton asphalt)			Limited Potential to Emit (tons/yr)			
	Load-Out	Silo Filling	On-Site Yard	Load-Out	Silo Filling	On-Site Yard	Total
Total PM*	5.2E-04	5.9E-04	NA	0.26	0.29	NA	0.55
Organic PM	3.4E-04	2.5E-04	NA	0.17	0.127	NA	0.30
TOC	0.004	0.012	0.001	2.08	6.09	0.550	8.7
CO	0.001	0.001	3.5E-04	0.67	0.590	0.176	1.44

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

PM/HAPs	0.012	0.014	0	0.027
VOC/HAPs	0.031	0.077	0.008	0.116
non-VOC/HAPs	1.6E-04	1.6E-05	4.2E-05	2.2E-04
non-VOC/non-HAPs	0.15	0.09	0.04	0.28

Total VOCs	1.95	6.09	0.5	8.6
Total HAPs	0.04	0.09	0.008	0.14
			Worst Single HAP	0.044
				(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 = 0.00181 + 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: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

Organic Particulate-Based Compounds (Table 11.1-15)

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Limited Potential to Emit (tons/yr)			
					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%	4.4E-04	6.0E-04	NA	1.0E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	4.8E-05	1.8E-05	NA	6.6E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	1.2E-04	1.7E-04	NA	2.8E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	3.2E-05	7.1E-05	NA	1.0E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	1.3E-05	0	NA	1.3E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	3.8E-06	0	NA	3.8E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	3.2E-06	0	NA	3.2E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	3.9E-06	0	NA	3.9E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	1.3E-05	1.2E-05	NA	2.5E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	1.8E-04	2.7E-04	NA	4.4E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	6.3E-07	0	NA	6.3E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	8.5E-05	1.9E-04	NA	2.8E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	1.3E-03	1.3E-03	NA	2.6E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	8.0E-07	0	NA	8.0E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	4.1E-03	6.7E-03	NA	0.011
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	2.1E-03	2.3E-03	NA	4.4E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	3.8E-05	3.8E-05	NA	7.6E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	1.4E-03	2.3E-03	NA	3.7E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	2.6E-04	5.6E-04	NA	8.1E-04
Total PAH HAPs							0.010	0.014	NA	0.025
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	2.0E-03	0	0	2.0E-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)**

Organic Volatile-Based Compounds (Table 11.1-16)

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Limited Potential to Emit (tons/yr)			
					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%	1.95	6.09	0.52	8.57
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	1.4E-01	1.6E-02	3.6E-02	0.187
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	9.6E-04	3.4E-03	2.5E-04	0.005
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	1.5E-02	6.7E-02	3.9E-03	0.086
Total non-VOC/non-HAPS					7.30%	1.40%	0.152	0.085	0.040	0.28
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	1.1E-03	1.9E-03	2.9E-04	3.3E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	2.0E-04	3.0E-04	5.3E-05	5.5E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	1.0E-03	2.4E-03	2.7E-04	3.7E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	2.7E-04	9.7E-04	7.2E-05	1.3E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	4.4E-06	2.4E-04	1.2E-06	2.5E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	3.1E-04	1.4E-03	8.3E-05	1.8E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	2.3E-03	0	6.1E-04	2.9E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	5.8E-03	2.3E-03	1.5E-03	0.010
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	1.8E-03	4.2E-02	4.8E-04	0.044
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	3.1E-03	6.1E-03	8.3E-04	0.010
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	3.7E-05	1.9E-05	9.9E-06	6.6E-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	3.3E-04	4.0E-05	5.2E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	1.6E-04	0	4.2E-05	2.0E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	4.4E-03	3.8E-03	1.2E-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	2.7E-05	0	7.2E-06	3.4E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	8.5E-03	1.2E-02	2.3E-03	0.023
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	1.7E-03	3.5E-03	4.4E-04	5.6E-03
Total volatile organic HAPs					1.50%	1.30%	0.031	0.079	0.008	0.119

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: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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.

$E_f = 1.7 * (s/1.5) * (365 - p) / 235 * (f/15)$ <p>where E_f = 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</p>

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	0.86	0.472	0.165
Limestone	1.6	1.85	1.00	0.338	0.118
RAP	0.5	0.58	0.86	0.091	0.032
Gravel	1.6	1.85	0.86	0.291	0.102
Shingles	0.5	0.58	0.01	0.001	0.0004
Slag	3.8	4.40	0.00	0.000	0.000
Totals				1.19	0.42

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.

PM2.5 = PM10

Abbreviations

RAP = recycled asphalt pavement

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
Material Processing, Handling, Crushing, Screening, and Conveying

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

To estimate potential fugitive dust emissions from processing and handling 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.

$$Ef = k \cdot (0.0032)^{1.3} \cdot (U/5)^{1.3} / (M/2)^{1.4}$$

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 = 1,000,000 tons/yr
 Percent Asphalt Cement/Binder (weight %) = 5.0%
 Maximum Material Handling Throughput = 950,000 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	1.08	0.51	0.08
Front-end loader dumping of materials into feeder bins	1.08	0.51	0.08
Conveyor dropping material into dryer/mixer or batch tower	1.08	0.51	0.08
Total (tons/yr)	3.23	1.53	0.23

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 additives
 *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	0.00	0.00
Screening	0.025	0.0087	11.88	4.13
Conveying	0.003	0.0011	1.43	0.52
Limited Potential to Emit (tons/yr) =			13.30	4.66

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: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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	=	1,000,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	=	5.0%	
Maximum Material Handling Throughput	=	950,000	tons/yr
Maximum Asphalt Cement/Binder Throughput	=	50,000	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)	12.5	22.5	35	4.2E+04	1.5E+06	300	0.057	2399.0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	12.5	0	12.5	4.2E+04	5.3E+05	300	0.057	2399.0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	15.0	25.0	40.0	2.0E+03	8.0E+04	300	0.057	113.6
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	15.0	0.0	15.0	2.0E+03	3.0E+04	300	0.057	113.6
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	15.0	25.0	40.0	0.0E+00	0.0E+00	300	0.057	0.0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	15.0	0.0	15.0	0.0E+00	0.0E+00	300	0.057	0.0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	20.0	4.0	24.0	2.4E+05	5.7E+06	300	0.057	13494.3
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	20.0	0	20.0	2.4E+05	4.8E+06	300	0.057	13494.3
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.5	22.5	35.0	4.4E+04	1.6E+06	300	0.057	2525.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.5	0.0	12.5	4.4E+04	5.6E+05	300	0.057	2525.3
Total						6.5E+05	1.5E+07		3.7E+04

Average Vehicle Weight Per Trip = $\frac{0.0}{0.057}$ tons/trip
Average Miles Per Trip = $\frac{0.057}{0.057}$ miles/trip

Unmitigated Emission Factor, $Ef = k \cdot [(s/12)^a] \cdot [(W/3)^b]$ (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)
a =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
b =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	0.0	0.0	0.0	tons = average vehicle weight (provided by source)
	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, $E_{ext} = E \cdot [(365 - P)/365]$

Mitigated Emission Factor, $E_{ext} = E \cdot [(365 - P)/365]$
where P = $\frac{125}{125}$ 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	0.00	0.00	0.00	lb/mile
Mitigated Emission Factor, E_{ext}	0.00	0.00	0.00	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)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.000	0.000	0.000	0.000	0.000	0.0E+00	0.000	0.000	0.0E+00
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.000	0.000	0.000	0.000	0.000	0.0E+00	0.000	0.000	0.0E+00
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)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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 (miles/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) PTE = Potential to Emit

Appendix A.2: Limited Emissions Summary
Paved Roads

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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	=	1,000,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	=	5.0%	
Maximum Material Handling Throughput	=	850,000	tons/yr
Maximum Asphalt Cement/Binder Throughput	=	50,000	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)	12.5	22.5	35.00	4.2E+04	1.5E+06	300	0.057	2399.0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	12.5	0	12.50	4.2E+04	5.3E+05	300	0.057	2399.0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	15.0	25.0	40.00	2.0E+03	8.0E+04	300	0.057	113.6
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	15.0	0.0	15.00	2.0E+03	3.0E+04	300	0.057	113.6
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	15.0	25.0	40.00	0.0E+00	0.0E+00	300	0.057	0.0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	15.0	0.0	15.00	0.0E+00	0.0E+00	300	0.057	0.0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	20.0	4.0	24.00	2.4E+05	5.7E+06	300	0.057	13494.3
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	20.0	0	20.00	2.4E+05	4.8E+06	300	0.057	13494.3
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.5	22.5	35.00	4.4E+04	1.6E+06	300	0.057	2525.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.5	0.0	12.50	4.4E+04	5.6E+05	300	0.057	2525.3
Total					6.5E+05	1.5E+07			3.7E+04

Average Vehicle Weight Per Trip	=	22.5	tons/trip
Average Miles Per Trip	=	0.057	miles/trip

Unmitigated Emission Factor, $E_f = k * (sL)^{0.91} * (W)^{1.02}$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	22.5	22.5	22.5	tons = average vehicle weight (provided by source)
sL =	0.6	0.6	0.6	g/m ² = Ubiquitous 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, $E_{ext} = E * [1 - (p/4N)]$

Mitigated Emission Factor, $E_{ext} = E * [1 - (p/4N)]$	
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, E_f	0.17	0.03	0.01	lb/mile
Mitigated Emission Factor, E_{ext}	0.15	0.03	0.01	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)	0.20	0.04	0.01	0.18	0.04	0.01	0.09	0.02	0.00
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.20	0.04	0.01	0.18	0.04	0.01	0.09	0.02	0.00
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.009	0.002	4.6E-04	0.009	0.002	4.2E-04	0.004	8.6E-04	2.1E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.009	0.002	4.6E-04	0.009	0.002	4.2E-04	0.004	8.6E-04	2.1E-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)	1.12	0.22	0.05	1.02	0.20	0.05	0.51	0.10	0.03
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	1.12	0.22	0.05	1.02	0.20	0.05	0.51	0.10	0.03
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.21	0.04	0.01	0.19	0.04	0.01	0.10	0.02	0.00
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.21	0.04	0.01	0.19	0.04	0.01	0.10	0.02	0.00
Totals		3.07	0.61	0.15	2.80	0.56	0.14	1.40	0.28	0.07

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) PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary
Cold Mix Asphalt Production and Stockpiles**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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

Limited VOC Emissions from the Sum of the Liquid Binders = 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	0.000
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	0.0	0.0	0.000
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	0.0	0.0	0.000
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	0.0	0.0	0.000
Other asphalt with solvent binder	25.9%	2.5%	0.0	0.0	0.0
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*

	CAS#	Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Solvents				
		Gasoline	Kerosene	Diesel (#2) Fuel Oil	No. 2 Fuel Oil	No. 6 Fuel Oil
Volatile Organic HAP						
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-6%	
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%	0.31%	0.50%	0.23%	0.07%
		Xylenes	Naphthalene	Xylenes	Xylenes	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.

Abbreviations

VOC = Volatile Organic Compounds
 PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary
Gasoline Fuel Transfer and Dispensing Operation**

Company Name: Duracap Asphalt Paving
Source Address: 1112 East Tiwaba Way, Westport, IN 47283
Permit Number: F 031-32126-00031
Reviewer: Renee Traivaranon

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:

$$\begin{aligned} \text{Gasoline Throughput} &= 0 \text{ gallons/day} \\ &= 0.0 \text{ kgal/yr} \end{aligned}$$

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.

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: Mark Koors
Duracap Asphalt Paving Company, Inc.
1112 E Tiwaba Way
Westport, IN 47283

DATE: November 28, 2012

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

SUBJECT: Final Decision
FESOP Renewal
031-32126-00031

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:
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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November 22, 2012

TO: Westport Public Library

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

Subject: **Important Information for Display Regarding a Final Determination**

Applicant Name: Duracap Asphalt Paving
Permit Number: 031-32126-00031

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

Mail Code 61-53

IDEM Staff	GHOTOPP 11/28/2012 Duracap Asphalt Paving Company, Inc 031-32126-00031 final		AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING	
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: CERTIFICATE OF MAILING ONLY	

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee	Remarks
1		Mark Koors Duracap Asphalt Paving Company, Inc 1112 E Tiwaba Way Westport IN 47283 (Source CAATS) via confirmed delivery										
2		Decatur County Commissioners 150 Courthouse Square Greensburg IN 47240 (Local Official)										
3		Decatur County Health Department 801 N. Lincoln St Greensburg IN 47240-1397 (Health Department)										
4		Mr. Leonard Rohls 8504 North County Road 300 West Batesville IN 47006 (Affected Party)										
5		Melanie Brassell 606 Nelsons Parkway, P.O. Box 465 Wakarusa IN 46573 (Affected Party)										
6		Westport Town Council P. O. Box 579 Westport IN 47283 (Local Official)										
7		Westport Public Library 205 W Main Street Westport in 47283 (Library)										
8												
9												
10												
11												
12												
13												
14												
15												

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is \$50,000 per piece subject to a limit of \$50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is \$500. The maximum indemnity payable is \$25,000 for registered mail, sent with optional postal insurance. See Domestic Mail Manual R900, S913, and S921 for limitations of coverage on inured and COD mail. See International Mail Manual for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
6			