



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

100 N. Senate Avenue • Indianapolis, IN 46204  
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

**Michael R. Pence**  
Governor

**Thomas W. Easterly**  
Commissioner

TO: Interested Parties / Applicant  
DATE: March 24, 2014  
RE: Wabash Valley Asphalt / 133-33494-05321  
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.dot 6/13/13



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Federally Enforceable State Operating Permit
Renewal with New Source Review
OFFICE OF AIR QUALITY

Wabash Valley Asphalt
Portable

(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. This permit also addresses certain new source review requirements for existing equipment and is intended to fulfill the new source review procedures pursuant to 326 IAC 2-2 and 326 IAC 2-8-11.1, applicable to those conditions

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.: F133-33494-05321
Issued by: [Signature]
Jason R. Krawczyk, Section Chief
Permits Branch
Office of Air Quality
Issuance Date: March 24, 2014
Expiration Date: March 24, 2024



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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 portable hot drum mix asphalt plant.

|                              |  |
|------------------------------|--|
| Initial Source Address:      | 2000 E. CR 800 S, Cloverdale, Indiana 46120  |
| General Source Phone Number: | 812-232-6094   |
| SIC Code:                    | 2951 (Asphalt Paving Mixtures and Blocks)  |
| County Location:             | Putnam   |
| Source Location Status:      | Attainment for all criteria pollutants   |
| Source Status:               | Federally Enforceable State Operating Permit Program<br>Minor Source, under PSD and Emission Offset Rules<br>Minor Source, Section 112 of the Clean Air Act<br>Not 1 of 28 Source Categories |

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

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

- (a) One (1) Drum Mix Asphalt Plant, constructed in 2008, consisting of the following:
- (1) One (1) drum mixer, identified as EU-05, with a maximum capacity of 300 tons of asphalt per hour, processing blast furnace slag, steel slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) aggregate rotary dryer/burner, identified as emission unit EU-07; fueled primarily with re-refined waste-oil and using natural gas and No. 2 distillate fuel-oil as backup fuels, with a maximum rated capacity of 96 MMBtu per hour, and one (1) jet-pulse baghouse for particulate control, exhausting through stack S-1.

Under NSPS subpart I, this is considered an affected hot-mix asphalt facility.

- (b) Material Handling and conveying operations, constructed in 2008, consisting of the following:
- (1) Two (2) feeder conveyors;
  - (2) Two (2) asphalt storage silos with a maximum storage capacity of 200 tons and 120 tons per year;
  - (3) One (1) slat conveyor;
  - (4) Seven (7) cold feed bins, collectively identified as EU-04, with a combined material throughput rate of 2,600,000 tons per year;
  - (5) Two (2) Recycled Asphalt Pavement (RAP) feed bins, collectively identified as EU-06, with a combined material throughput rate of 526,000 tons per year; and
  - (6) One (1) aggregate storage area.

- (c) Three (3) liquid asphalt storage tanks, identified as EU-10, EU-11, and EU-13 with maximum storage capacities of 30,000, 20,000, and 20,000 gallons respectively
- (d) One (1) hot oil heater, burning natural gas or No. 2 fuel, nominally rated at 2.00 million British thermal units per hour (MMBtu/hr), exhausting through stack S-2.
- (e) One (1) fuel storage tank, identified as EU-12, with a maximum storage capacity of 20,000 gallons.

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

This portable source also includes the following insignificant activities:

- (a) Fuel-oil fired combustion sources with heat input equal to or less than two million (2,000,000) Btu per hour and firing fuel containing less than five-tenths percent (0.5%) sulfur by weight.
- (b) Combustion source flame safety purging on startup
- (c) A petroleum fuel, other than gasoline, dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less.
- (d) Degreasing operations that do not exceed one hundred forty-five (145) gallons per twelve (12) months, except if subject to 326 IAC 20-6.
- (e) Cleaners and solvents characterized as follows where the use of which, for all cleaners and solvents combined, does not exceed one hundred forty-five (145) gallons per twelve months:
  - (1) Having a vapor pressure equal to or less than two kilo Pascals (2.0 kPa) (fifteen millimeters of mercury (15mm Hg) or three-tenths pound per square inch (0.3 psi)) measured at thirty-eight degrees Centigrade (38°C) (one hundred degrees Fahrenheit (100°F)).
  - (2) Having a vapor pressure equal to or less than seven-tenths kilo Pascals (0.7 kPa) (five millimeters of mercury (5mm Hg) or one-tenth pound per square inch (0.1 psi)) measured at twenty degrees Centigrade (20°C) (sixty-eight degrees Fahrenheit (68°F)).
- (f) Closed loop heating and cooling systems
- (g) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
- (h) Paved and unpaved roads and parking lots with public access.
- (i) Emissions from a laboratory as defined in 2-7-1(21)(D).
- (k) One (1) fuel storage tank with a maximum storage capacity of 8,000 gallons.

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

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This portable 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]

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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)]

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- (a) This permit, F133-33494-05321, 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]

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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]

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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)]

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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)]

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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)]

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- (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)]

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- (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)]**

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- (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)]**

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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]**

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- (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 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

- (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 F133-33494-05321 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)]**

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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]**

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(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)]**

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(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(42). 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 IGCM 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]**

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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]**

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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]**

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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 CO<sub>2</sub> equivalent emissions (CO<sub>2</sub>e) 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]

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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]

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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]

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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]

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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]

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- (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]**

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- (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]**

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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)]**

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- (a) For new units:  
Unless otherwise specified in the approval for the new emission unit(s), compliance monitoring for new emission units shall be implemented on and after the date of initial start-up.
- (b) For existing units:  
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 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, 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).

#### **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. The analog instrument shall be capable of measuring values outside of the normal range.
- (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]**

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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]**

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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]**

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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, where applicable:
  - (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, where applicable:
  - (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.

### Portable Source Requirement

#### C.19 Relocation of Portable Sources [326 IAC 2-14-4]

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- (a) This permit is approved for operation in all areas of Indiana except in severe nonattainment areas for ozone (at the time of this permit's issuance these areas were Lake and Porter Counties). This determination is based on the requirements of Prevention of Significant Deterioration in 326 IAC 2-2, and Emission Offset requirements in 326 IAC 2-3. Prior to locating in any severe nonattainment area, the Permittee must submit a request and obtain a permit modification.
- (b) A request to relocate shall be submitted to IDEM, OAQ at least thirty (30) days prior to the intended date of relocation. This submittal shall include the following:
- (1) A list of governmental officials entitled to receive notice of application to relocate. IC 13-15-3-1
  - (2) A list of adjacent landowners that the Permittee will send written notice to not more than ten (10) days after submission of the request to relocate. IC 13-15-8
  - (3) The new location address of the portable source.
  - (4) Whether or not this portable source will be relocated to another source.
  - (5) If relocating to another source:
    - (A) Name, location address, and permit number of the source this portable source is relocating to.

(B) Whether or not the sources will be considered as one source. See Non Rule Policy (NRP) Air-005 and Air-006.

(6) If the sources will be considered as one source, whether or not the source to be relocated to has received the necessary approvals from IDEM to allow the relocation.

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).

(c) A "Relocation Site Approval" letter shall be obtained prior to relocating.

(d) A valid operation permit consists of this document and any subsequent "Relocation Site Approval" letter specifying the current location of the portable plant.

Note: This source is not allowed to relocate in Lake County because specific requirements, such as 326 IAC 6.8 were not specified in the permit.

### **Stratospheric Ozone Protection**

#### **C.20 Compliance with 40 CFR 82 and 326 IAC 22-1**

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

## SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

### Emissions Unit Description:

- (a) One (1) Drum Mix Asphalt Plant, constructed in 2008, consisting of the following:
- (1) One (1) drum mixer, identified as EU-05, with a maximum capacity of 300 tons of asphalt per hour, processing blast furnace slag, steel slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) aggregate rotary dryer/burner, identified as emission unit EU-07; fueled primarily with re-refined waste-oil and using natural gas and No. 2 distillate fuel-oil as backup fuels, with a maximum rated capacity of 96 MMBtu per hour, and one (1) jet-pulse baghouse for particulate control, exhausting through stack S-1.

Under NSPS subpart I, this is considered an affected hot-mix asphalt facility.

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

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

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

Pursuant to 326 IAC 6.5-1-2 (Particulate Matter Limitations Except Lake County), particulate matter (PM) emissions from the dryer/mixer shall not exceed 0.03 grain per dry standard cubic foot of exhaust air when the source is located in Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo, or Wayne Counties.

#### D.1.2 Particulate Matter (PM) [326 IAC 2-2]

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

- (a) The amount of asphalt processed shall not exceed 1,480,000 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 0.225 pounds per ton of asphalt processed.

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

#### D.1.3 FESOP Limits: PM10, PM2.5, CO, and VOC [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 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, the Permittee shall comply with the following:

- (a) The amount of asphalt processed shall not exceed 1,480,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) The PM10 emissions from the dryer/mixer shall not exceed 0.099 pounds per ton of asphalt processed.
- (c) The PM2.5 emissions from the dryer/mixer shall not exceed 0.118 pounds per ton of asphalt processed.

- (d) The CO emissions from the dryer/mixer shall not exceed 0.130 pounds per ton of asphalt processed.
- (e) The VOC emissions from the dryer/mixer shall not exceed 0.032 pounds per ton of asphalt processed.
- (f) The Permittee shall control PM10 and PM2.5 emissions from the paved and unpaved roads according to the fugitive dust plan, included as Attachment A to the permit.

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

D.1.4 FESOP Limits: SO<sub>2</sub>, CO, and HAPs [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAPs)) not applicable, the Permittee shall comply with the following:

(a) Fuel and Slag Specifications

- (1) The sulfur content of No. 2 fuel oil shall not exceed 0.50% by weight.
- (2) The sulfur content of the waste or used fuel oil shall not exceed 0.75% by weight.
- (3) The waste oil combusted shall not contain more than 0.95% ash, 0.200% chlorine, and 0.01% lead.
- (4) The sulfur content of the blast furnace slag shall not exceed 1.50% by weight.
- (5) The SO<sub>2</sub> emissions from the dryer/mixer shall not exceed 0.740 pounds per ton of blast furnace slag processed in the aggregate mix.
- (6) The sulfur content of the steel slag shall not exceed 0.66% by weight.
- (7) The SO<sub>2</sub> emissions from the dryer/mixer shall not exceed 0.0014 pounds per ton of steel slag processed in the aggregate mix.
- (8) The HCl emissions shall not exceed 13.2 pounds of HCl per 1,000 gallons of waste oil burned.

(b) Single Fuel and Slag Usage Limitations:

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

- (1) Natural gas usage shall not exceed 841 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month;
- (2) No. 2 fuel oil usage shall not exceed 2,142,463 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month; and

- (3) Waste oil usage shall not exceed 1,379,727 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (4) The Blast Furnace slag usage shall not exceed 50,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (c) Multiple Fuel and Slag Usage Limitation:  
When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner, in conjunction with the use of slag in the aggregate mix, and all other combustion equipment, emissions from the dryer/mixer shall be limited as follows:
  - (1) SO<sub>2</sub> emissions shall not exceed 94.56 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (d) Asphalt Shingle Usage Limitation  
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 the following as an additive in its aggregate mix:
  - (i) Certified asbestos-free factory second asphalt shingles;
  - (ii) Post consumer waste shingles generated at single family homes and/or residential buildings containing four or fewer dwelling units; and/or
  - (iii) Factory second shingles and/or post consumer waste shingles that have sampled negative for asbestos.

Compliance with these limits, combined with the limited potential emissions from all other emission units at this source, shall limit the source-wide total potential to emit CO and SO<sub>2</sub> to less than one hundred (100) tons per twelve (12) consecutive month period, each, any single HAP to less than ten (10) tons per twelve (12) consecutive month period, and total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAPs)) not applicable.

#### D.1.5 Sulfur Dioxide (SO<sub>2</sub>) [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 (SO<sub>2</sub>) emissions from the dryer/mixer burner shall not exceed 0.5 pounds per million Btu heat input when using distillate oil.
- (b) The sulfur dioxide (SO<sub>2</sub>) emissions from the dryer/mixer burner shall not exceed 1.60 pounds per million Btu heat input when using residual oil.
- (c) Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a calendar month average.

#### D.1.6 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]

In order to render the requirements of 326 IAC 8-1-6 (New Facilities; General Reduction Requirements) not applicable, the dryer/mixer shall be limited as follows:

- (a) The amount of asphalt processed shall not exceed 1,480,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

- (b) The VOC emissions from the dryer/mixer shall not exceed 0.032 pounds per ton of asphalt processed.

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 (New Facilities; General Reduction Requirements) not applicable.

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

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A Preventive Maintenance Plan is required for these facilities and any corresponding 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 2-1.1-11][326 IAC 2-8-5(a)(1), (4)]

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- (a) In order to demonstrate compliance with Condition D.1.2(b), the Permittee shall perform PM testing of the dryer/mixer at least once every five (5) years from the date of the most recent valid compliance demonstration, utilizing methods approved by the Commissioner. 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.
- (b) In order to demonstrate compliance with Conditions D.1.3(b) and D.1.3(c), the Permittee shall perform PM<sub>2.5</sub> and PM<sub>10</sub> testing on the dryer/mixer every five (5) years from the most recent valid compliance demonstration. This testing shall be conducted utilizing methods approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this 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. PM<sub>10</sub> and PM<sub>2.5</sub> includes filterable and condensable PM.
- (c) In order to demonstrate compliance with Condition D.1.4(a)(5), when using blast furnace slag, the Permittee shall perform SO<sub>2</sub> testing for the aggregate dryer not later than one hundred eighty (180) days of initial use of blast furnace slag in the aggregate mix, utilizing methods as approved by the Commissioner. Testing shall only be performed if the company has not previously performed SO<sub>2</sub> testing while using blast furnace slag in the aggregate mix at one of their other Indiana facilities. 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

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- (a) In order to comply with Conditions D.1.1, D.1.2, and D.1.3(b) and D.1.3(c), the baghouse for the dryer/mixer shall be in operation and control emissions from the emission unit 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 Multiple Fuel Slag Usage Limitations

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In order to comply with Condition D.1.4(c) when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and hot oil heating system, in conjunction with the use of slag in the aggregate mix, the Permittee shall limit fuel and slag usage according to the following formulas:

Sulfur Dioxide (SO<sub>2</sub>) emission calculation:

$$SO_2 = \frac{G(E_G) + O(E_O) + W(E_W) + B(E_B) + S(E_S)}{2,000 \text{ lbs/ton}}$$

where:

- SO<sub>2</sub> = tons of sulfur dioxide emissions for a 12-month consecutive period
- G = million cubic feet of natural gas used in the last 12 months
- O = gallons of No. 2 fuel oil used in last 12 months
- W = gallons of Waste oil used for last 12 months
- B = tons of blast furnace slag used in the dryer/mixer in the last 12 months
- S = tons of steel slag used in the dryer/mixer in the last 12 months
- E<sub>G</sub> = 0.60 lb/million cubic feet of natural gas
- E<sub>O</sub> = 71.00 pounds/1000 gallons of No. 2 fuel oil
- E<sub>W</sub> = 110.25 pounds/1000 gallons of waste oil
- E<sub>B</sub> = 0.74 lb/ton of blast furnace slag used
- E<sub>S</sub> = 0.0014 lb/ton of steel slag used

#### D.1.11 Sulfur Dioxide (SO<sub>2</sub>) Emissions and Sulfur Content

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##### **Fuel Oil**

- (a) Compliance with the sulfur dioxide emissions and sulfur content limitations in Conditions D.1.4(a)(1), D.1.4(a)(2), D.1.5(a) and D.1.5(b) shall be determined utilizing one of the following options. Pursuant to 326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements), and 326 IAC 3-7-4 (Fuel oil sampling; analysis methods), compliance shall be demonstrated on a thirty (30) day calendar-month average.
- (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.
    - (A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
    - (B) 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 burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

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

##### **Blast Furnace Slag**

- (b) Pursuant to 326 IAC 2-8-4 (FESOP), compliance with the blast furnace slag limitations established in Condition D.1.4(a)(4) shall be determined utilizing one of the following options. Compliance shall be demonstrated on a thirty (30) day calendar-month average.
- (1) Maintaining all records of vendor analyses or certifications of Blast Furnace slag delivered; or
  - (2) Analyzing a sample of each blast furnace slag delivery, if no vendor analyses or certifications are available, to determine the sulfur content of the Blast Furnace slag, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.
  - (3) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the dryer burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, or other procedures approved by IDEM, OAQ.

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

**Steel Slag**

- (c) Pursuant to 326 IAC 2-8-4 (FESOP), compliance with the steel slag limitations established in Condition D.1.4(a)(6) shall be determined utilizing one of the following options. Compliance shall be demonstrated on a thirty (30) day calendar-month average.
- (1) Maintaining all records of vendor analyses or certifications of steel slag delivered; or
  - (2) Analyzing a sample of each steel slag delivery, if no vendor analyses or certifications are available, at least once per quarter, to determine the sulfur content of the steel slag, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.
  - (3) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the dryer burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, or other procedures approved by IDEM, OAQ.

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

**D.1.12 Hydrogen Chloride (HCl) Emissions and Ash, Chlorine, and Lead Content**

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The Permittee shall demonstrate compliance with the waste oil ash, chlorine, and lead content limits established in Condition D.1.4(a)(3), by providing a vendor analysis of each fuel delivery accompanied by a vendor certification.

**D.1.13 Shingle Asbestos Content**

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Compliance with Condition D.1.4(d) shall be determined utilizing one of the following options:

- (a) Providing a shingle supplier certification that the factory second shingles do not contain asbestos;

- (b) Obtaining from the post consumer waste shingle supplier a signed certification that the post consumer waste shingles were generated at single family homes and/or residential buildings containing four or fewer dwelling units; and/or
- (c) Analyzing a sample of the factory second shingles and/or post consumer waste shingles delivery to determine the asbestos content of the 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.

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

#### **D.1.14 Visible Emissions Notations**

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- (a) Visible emission notations of the conveyors, screens, material transfer points, and dryer/mixer stack (S-1) 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 steps. 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.1.15 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

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- (a) 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 a reasonable response. The normal range for this unit is a pressure drop between 1.0 and 8.0 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.
- (b) The instruments used for determining the pressure and temperature 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, or as recommended by the manufacturer.

#### **D.1.16 Broken or Failed Bag Detection**

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- (a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately

until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

- (b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the 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, or dust traces.

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

#### **D.1.17 Record Keeping Requirement**

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- (a) To document the compliance status with Conditions D.1.2, D.1.3 and D.1.6 the Permittee shall keep records of the amount of asphalt processed through the dryer/mixer. Records necessary to demonstrate compliance shall be available within thirty (30) days of the end of each compliance period.
- (b) To document the compliance status with Conditions D.1.4 and D.1.5, the Permittee shall maintain records in accordance with (1) through (11) below.
- (1) Calendar dates covered in the compliance determination period;
  - (2) Actual fuel usage, sulfur content, heat content, and equivalent sulfur dioxide emission rates for each fuel used at the source per month;
  - (3) Actual waste oil usage, ash, chlorine, and lead content, and equivalent hydrogen chloride (HCl) emission rate for waste oil used at the source since the last compliance determination period;
  - (4) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and
  - (5) If the fuel supplier certification is used to demonstrate compliance, the following, as a minimum, shall be maintained:
    - (A) Fuel supplier certifications;
    - (B) The name of the fuel suppliers; and
    - (C) A statement from the fuel supplier that certifies the sulfur content of the No. 2 fuel oil and/or the Waste oil.
  - (6) Actual blast furnace and steel slag usage, sulfur content, and equivalent sulfur dioxide emission rates for all blast furnace and steel slag used at the source since the last compliance determination period;
  - (7) A certification, signed by the owner or operator, that the records of the blast furnace and steel slag supplier certifications represent all of the blast furnace and steel slag used during the period; and

- (8) If the slag supplier certification is used to demonstrate compliance, the following, as a minimum, shall be maintained:
  - (A) Blast furnace and steel slag supplier certifications;
  - (B) The name of the blast furnace and steel slag supplier; and
  - (C) A statement from the blast furnace and steel slag supplier that certifies the sulfur content of the blast furnace and steel slag.
- (9) If the factory second shingle supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:
  - (A) Factory second shingle supplier certifications;
  - (B) The name of the factory second shingle supplier(s); and
  - (C) A statement from the factory second shingle supplier(s) that certifies the shingles from their company do not contain asbestos.
- (10) If the post consumer waste shingle supplier certification is used to demonstrate compliance, the following as a minimum, shall be maintained:
  - (A) Post consumer waste shingle supplier certifications;
  - (B) The name of the post consumer waste shingle supplier(s); and
  - (C) A statement from the post consumer shingle supplier(s) that certifies the shingles were generated at single family homes and/or residential buildings containing four or fewer dwelling units.
- (11) If the factory second shingles and/or post consumer waste shingles are analyzed to determine the asbestos content, the following, as a minimum, shall be maintained:
  - (A) The name of the shingle supplier(s);
  - (B) The name of the certified lab or certified personnel that performed the shingle asbestos content analysis; and
  - (C) The shingle asbestos content analysis results.
- (c) To document the compliance status with Conditions D.1.4(c) and D.1.10 when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and hot oil heating system, the Permittee shall maintain records of actual fuel usage, and equivalent sulfur dioxide emission rates for each fuel used at the source per month.
- (d) To document the compliance status with Condition D.1.14, the Permittee shall maintain daily records of the visible emission notations from each of the conveyors, screens, material transfer points, and dryer/mixer stack (S-1) exhaust. 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 dryer/mixer did not operate that day).
- (e) To document the compliance status with Condition D.1.15, the Permittee shall maintain daily records of the pressure drop across the baghouse controlling the dryer/mixer. The

Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading, (e.g., the dryer/mixer did not operate that day).

- (f) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.

#### D.1.18 Reporting Requirements

A quarterly summary of the information to document the compliance status with Conditions D.1.2(a), D.1.3(a), D.1.4(b), D.1.4(c), D.1.6(a), and D.1.10 shall be submitted using the reporting forms located at the end of this permit, or their equivalent, 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 meets 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 D.2 EMISSIONS UNIT OPERATION CONDITIONS

**Emissions Unit Description:** Insignificant Activities

- (d) One (1) hot oil heater, burning natural gas or No. 2 fuel, nominally rated at 2.00 million British thermal units per hour (MMBtu/hr), exhausting through stack S-2.

(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.2.1 Particulate Emission Limitations [326 IAC 6-2]

---

Pursuant to 326 IAC 6-2-4 (Particulate Emission Limitations for Sources of Indirect Heating), particulate emissions from the hot oil heater shall not exceed six tenths (0.6) pounds per MMBtu heat input.

**SECTION E.1**

**FACILITY OPERATION CONDITIONS**

**Emissions Unit Description:** Hot-Mix Asphalt Plant

- (a) One (1) Drum Mix Asphalt Plant, constructed in 2008, consisting of the following:
- (1) One (1) drum mixer, identified as EU-05, with a maximum capacity of 300 tons of asphalt per hour, processing blast furnace slag, steel slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) aggregate rotary dryer/burner, identified as emission unit EU-07; fueled primarily with re-refined waste-oil and using natural gas and No. 2 distillate fuel-oil as backup fuels, with a maximum rated capacity of 96 MMBtu per hour, and one (1) jet-pulse baghouse for particulate control, exhausting through stack S-1.

Under NSPS subpart I, this is considered an affected hot-mix asphalt facility.

(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 2-8-4(1)]**

**E.1.1 General Provisions Relating to New Source Performance Standards (NSPS) [40 CFR Part 60, Subpart A] [326 IAC 12]**

---

- (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

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

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

Source Name: Wabash Valley Asphalt  
Initial Source Address: 2000 E. CR 800 S, Cloverdale, Indiana 46120  
FESOP Permit No.: F133-33494-05321

**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: Wabash Valley Asphalt  
Initial Source Address: 2000 E. CR 800 S, Cloverdale, Indiana 46120  
FESOP Permit No.: F133-33494-05321

**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"><li>• 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</li><li>• 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</li></ul> |
|--|

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<br>Describe:   |
| Type of Pollutants Emitted: TSP, PM-10, SO <sub>2</sub> , VOC, NO <sub>x</sub> , 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: Wabash Valley Asphalt  
Initial Source Address: 2000 E. CR 800 S, Cloverdale, Indiana 46120  
FESOP Permit No.: F133-33494-05321  
Facility: Dryer/Burner (EU-5)  
Parameter: Hot Mix Asphalt Production  
Limit: The amount of hot mix asphalt produced in the dryer/burner shall not exceed 1,480,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

**QUARTER:** \_\_\_\_\_

**YEAR:** \_\_\_\_\_

| Month   | Column 1                                   | Column 2   | Column 1 + Column 2                            |
|---------|--|--|--|
|         | Hot Mix Asphalt Produced This Month (tons) | Hot Mix Asphalt Produced Previous 11 Months (tons) | 12 Month Total Hot Mix Asphalt Produced (tons) |
| 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**

**Fuel and Slag Usage / SO<sub>2</sub> Emissions Quarterly Report**

**Page 1 of 2**

Source Name: Wabash Valley Asphalt  
Initial Source Address: 2000 E. CR 800 S, Cloverdale, Indiana 46120  
FESOP Permit No.: F133-33494-05321  
Facility: EU-05/EU-07  
Parameters: Fuel and Slag Usage / SO<sub>2</sub> Emissions

Limit: Sulfur dioxide (SO<sub>2</sub>) emissions shall be less than **94.56** tons per twelve (12) consecutive month period, with compliance determined at the end of each month, using the equation found in Condition D.1.10.

Limit: Natural gas usage shall not exceed **841** million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month.

Limit: No. 2 fuel oil usage shall not exceed **2,142,463** gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Limit: Waste oil usage shall not exceed **1,379,727** gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Limit: The Blast Furnace slag usage shall not exceed **50,000** tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

### Fuel and Slag Usage / SO<sub>2</sub> Emissions Quarterly Report

QUARTER: \_\_\_\_\_

YEAR: \_\_\_\_\_

|         |                                  | Column 1            | Column 2                    | Column 1 +<br>Column 2  | Equation Results                  |
|---------|----------------------------------|---------------------|-----------------------------|-------------------------|-----------------------------------|
| Month   | Fuel Types (units)               | Usage<br>This Month | Usage<br>Previous 11 Months | Usage<br>12 Month Total | Emissions<br>(tons per 12 months) |
| Month 1 | Natural Gas (million cubic feet) |                     |                             |                         | Sulfur Dioxide =                  |
|         | No. 2 Fuel Oil (gallons)         |                     |                             |                         |                                   |
|         | Used/waste oil (gallons)         |                     |                             |                         |                                   |
|         | Blast Furnace Slag (tons)        |                     |                             |                         |                                   |
| Month 2 | Natural Gas (million cubic feet) |                     |                             |                         | Sulfur Dioxide =                  |
|         | No. 2 Fuel Oil (gallons)         |                     |                             |                         |                                   |
|         | Used/waste oil (gallons)         |                     |                             |                         |                                   |
|         | Blast Furnace Slag (tons)        |                     |                             |                         |                                   |
| Month 3 | Natural Gas (million cubic feet) |                     |                             |                         | Sulfur Dioxide =                  |
|         | No. 2 Fuel Oil (gallons)         |                     |                             |                         |                                   |
|         | Used/waste oil (gallons)         |                     |                             |                         |                                   |
|         | Blast Furnace Slag (tons)        |                     |                             |                         |                                   |

- No deviation occurred in this reporting period.
- Deviation/s occurred in this reporting period.

Deviation has been reported on: \_\_\_\_\_

Submitted by: \_\_\_\_\_

Date: \_\_\_\_\_

Title / Position: \_\_\_\_\_

Phone: \_\_\_\_\_

Signature: \_\_\_\_\_

**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: Wabash Valley Asphalt  
 Initial Source Address: 2000 E. CR 800 S, Cloverdale, Indiana 46120  
 FESOP Permit No.: F133-33494-05321

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

|  |                               |
|--|-------------------------------|
| <b>Permit Requirement</b> (specify permit condition #) |                               |
| <b>Date of Deviation:</b>                              | <b>Duration of Deviation:</b> |
| <b>Number of Deviations:</b>                           |                               |
| <b>Probable Cause of Deviation:</b>                    |                               |
| <b>Response Steps Taken:</b>                           |                               |
| <b>Permit Requirement</b> (specify permit condition #) |                               |
| <b>Date of Deviation:</b>                              | <b>Duration of Deviation:</b> |
| <b>Number of Deviations:</b>                           |                               |
| <b>Probable Cause of Deviation:</b>                    |                               |
| <b>Response Steps Taken:</b>                           |                               |
| <b>Permit Requirement</b> (specify permit condition #) |                               |
| <b>Date of Deviation:</b>                              | <b>Duration of Deviation:</b> |
| <b>Number of Deviations:</b>                           |                               |
| <b>Probable Cause of Deviation:</b>                    |                               |
| <b>Response Steps Taken:</b>                           |                               |

Form Completed by: \_\_\_\_\_

Title / Position: \_\_\_\_\_

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

**Attachment A to  
FESOP Renewal No. F133-33494-05321**

**Wabash Valley Asphalt  
Fugitive Dust Control Plan – Cloverdale Plant**

- (a) Fugitive particulate matter emissions from paved roads, unpaved roads, and parking lots shall be controlled by one or more of the following methods:
  - Paved roads and parking lots:
    - (1) power brooming while wet either from rain or application of water on an as needed basis.
  - Unpaved roads and parking lots:
    - (1) paving with asphalt;
    - (2) treating with emulsified asphalt on an as needed basis;
    - (3) treating with water on an as needed basis; or
- (b) Fugitive particulate matter emissions from aggregate stockpiles shall be controlled by one or more of the following methods on an as needed basis:
  - (1) maintaining minimum size and number of stockpiles of aggregate;
  - (2) treating around the stockpile area with water; or
  - (3) treating the stockpiles with water.
- (c) Fugitive particulate matter emissions from outdoor conveying of aggregates shall be controlled by the following methods:
  - (1) applying water at the feed and the intermediate points.
- (d) Fugitive particulate matter emissions from the transfer of aggregates shall be controlled by one of the following methods:
  - (1) minimize the vehicular distance between transfer points;
  - (2) apply water on transfer points on an as needed basis.
- (e) Fugitive particulate matter emissions from transportation of aggregate by truck, front end loader, etc. shall be controlled by one of the following methods:
  - (1) maintain vehicle bodies in condition to prevent leakage;
  - (2) spray the aggregates with water; or
  - (3) maintain a 10 mph speed limit in the yard.
- (f) Fugitive particulate matter emissions from the loading and unloading of aggregate shall be controlled by one of the following methods:
  - (1) reduce free fall distance to a minimum;
  - (2) reduce the rate of discharge of the aggregate; or
  - (3) spray the aggregate with water on an as needed basis.

**Attachment B to  
FESOP Renewal No. F133-33494-05321**

**Title 40: Protection of Environment**

**PART 60—NEW SOURCE PERFORMANCE STANDARDS**

**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 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 (four hundredths (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 (FESOP) Renewal  
with New Source Review

**Source Background and Description**

|                            |  |
|----------------------------|--|
| <b>Source Name:</b>        | <b>Wabash Valley Asphalt</b>                     |
| <b>Source Location:</b>    | <b>2000 E. CR 800 S, Cloverdale, IN 46120</b>    |
| <b>County:</b>             | <b>Putnam</b>                                    |
| <b>SIC Code:</b>           | <b>2951 (Asphalt Paving Mixtures and Blocks)</b> |
| <b>Permit Renewal No.:</b> | <b>F133-33494-05321</b>                          |
| <b>Permit Reviewer:</b>    | <b>Tamera Wessel</b>                             |

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Wabash Valley Asphalt relating to the operation of a portable hot drum mix asphalt plant. On August 2, 2013, Wabash Valley Asphalt submitted an application to the OAQ requesting to renew its operating permit. Wabash Valley Asphalt was issued its first FESOP F153-26997-00036 on January 23, 2009.

On November 4, 2013, Wabash Valley Asphalt submitted information requesting to include the use of blast furnace slag, steel slag, and recycled asphalt shingles as additional process material options. The addition of these materials to the aggregate mix would have required a Significant Permit Revision to the FESOP; however, IDEM, OAQ is incorporating this change into the FESOP Renewal. Therefore, this permit is being processed as a FESOP Renewal with New Source Review.

**Permitted Emission Units and Pollution Control Equipment**

This portable source consists of the following permitted emission units:

- (a) One (1) Drum Mix Asphalt Plant, constructed in 2008, consisting of the following:
  - (1) One (1) drum mixer, identified as EU-05, with a maximum capacity of 300 tons of asphalt per hour, equipped with one (1) aggregate rotary dryer/burner, identified as emission unit EU-07; fueled primarily with re-refined waste-oil and using natural gas and No. 2 distillate fuel-oil as backup fuels, with a maximum rated capacity of 96 MMBtu per hour, and one (1) jet-pulse baghouse for particulate control, exhausting through stack S-1.

Under NSPS subpart I, this is considered an affected hot-mix asphalt facility.

- (b) Material Handling and conveying operations, constructed in 2008, consisting of the following:
  - (1) Two (2) feeder conveyors;
  - (2) One (1) asphalt storage silo with a maximum storage capacity of 120 tons per year;
  - (3) One (1) asphalt storage silo with a maximum storage capacity of 200 tons per year;
  - (4) One (1) slat conveyor;

- (5) Seven (7) cold feed bins, collectively identified as EU-04, with a combined material throughput rate of 2,600,000 tons per year;
  - (6) Two (2) Recycled Asphalt Pavement (RAP) feed bins, collectively identified as EU-06, with a combined material throughput rate of 526,000 tons per year; and
  - (7) One (1) aggregate storage area.
- (c) Three (3) liquid asphalt storage tanks, identified as EU-10, EU-11, and EU-13 with maximum storage capacities of 30,000, 20,000, and 20,000 gallons respectively
  - (d) One (1) hot oil heater, burning natural gas or No. 2 fuel, nominally rated at 2.00 million British thermal units per hour (MMBtu/hr), exhausting through stack S-2.
  - (e) One (1) fuel storage tank, identified as EU-12, with a maximum storage capacity of 20,000 gallons.

|                                 |
|---------------------------------|
| <b>Insignificant Activities</b> |
|---------------------------------|

The portable source also consists of the following insignificant activities:

- (a) Fuel-oil fired combustion sources with heat input equal to or less than two million (2,000,000) Btu per hour and firing fuel containing less than five-tenths percent (0.5%) sulfur by weight.
- (b) Combustion source flame safety purging on startup
- (c) A petroleum fuel, other than gasoline, dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less.
- (d) Degreasing operations that do not exceed one hundred forty-five (145) gallons per twelve (12) months, except if subject to 326 IAC 20-6.
- (e) Cleaners and solvents characterized as follows where the use of which, for all cleaners and solvents combined, does not exceed one hundred forty-five (145) gallons per twelve months:
  - (1) Having a vapor pressure equal to or less than two kilo Pascals (2.0 kPa) (fifteen millimeters of mercury (15mm Hg) or three-tenths pound per square inch (0.3 psi)) measured at thirty-eight degrees Centigrade (38°C) (one hundred degrees Fahrenheit (100°F)).
  - (2) Having a vapor pressure equal to or less than seven-tenths kilo Pascals (0.7 kPa) (five millimeters of mercury (5mm Hg) or one-tenth pound per square inch (0.1 psi)) measured at twenty degrees Centigrade (20°C) (sixty-eight degrees Fahrenheit (68°F)).
- (f) Closed loop heating and cooling systems
- (g) Replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment.
- (h) Paved and unpaved roads and parking lots with public access.

- (i) Emissions from a laboratory as defined in 2-7-1(21)(D).
- (k) One (1) fuel storage tank with a maximum storage capacity of 8,000 gallons.

#### **Description of Proposed Revision**

The Office of Air Quality (OAQ) has reviewed an application, submitted by Wabash Valley Asphalt on November 4, 2013, relating to the inclusion of blast furnace slag, steel slag, and recycled asphalt shingles as additional process material options.

The following is a list of the modified emission units and pollution control devices:

- (a) One (1) Drum Mix Asphalt Plant, constructed in 2008, consisting of the following:
  - (1) One (1) drum mixer, identified as EU-05, with a maximum capacity of 300 tons of asphalt per hour, processing blast furnace slag, steel slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) aggregate rotary dryer/burner, identified as emission unit EU-07; fueled primarily with re-refined waste-oil and using natural gas and No. 2 distillate fuel-oil as backup fuels, with a maximum rated capacity of 96 MMBtu per hour, and one (1) jet-pulse baghouse for particulate control, exhausting through stack S-1.

#### **Existing Approvals**

Since the issuance of the FESOP F153-26997-05321 on January 23, 2009, the source has constructed or has been operating under the following additional approvals:

- (a) Relocation No. 133-27882-05321, issued on May 28, 2009; and
- (b) Administrative Amendment No. 133-29137-05321, issued on April 26, 2010.

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**

IDEM is aware that there is a pending enforcement action for failure to submit a timely renewal application. IDEM is reviewing this matter and will take the appropriate action.

#### **Emission Calculations**

See Appendix A of this document for detailed emission calculations.

#### **County Attainment Status**

The source is located in Putnam County.

| Pollutant  | Designation  |
|--|--|
| SO <sub>2</sub>  | Better than national standards.  |
| CO   | Unclassifiable or attainment effective November 15, 1990.  |
| O <sub>3</sub>   | Unclassifiable or attainment effective July 20, 2012, for the 8-hour ozone standard. <sup>1</sup>    |
| PM <sub>2.5</sub>  | Unclassifiable or attainment effective April 5, 2005, for the annual PM <sub>2.5</sub> standard.     |
| PM <sub>2.5</sub>  | Unclassifiable or attainment effective December 13 2009, for the 24-hour PM <sub>2.5</sub> standard. |
| PM <sub>10</sub>   | Unclassifiable effective November 15, 1990.  |
| NO <sub>2</sub>  | Cannot be classified or better than national standards.  |
| Pb   | Unclassifiable or attainment effective December 31, 2011.  |
| <sup>1</sup> Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005. |  |

- (a) **Ozone Standards**  
 Volatile organic compounds (VOC) and Nitrogen Oxides (NO<sub>x</sub>) 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<sub>x</sub> emissions are considered when evaluating the rule applicability relating to ozone. Putnam County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) **PM<sub>2.5</sub>**  
 Putnam County has been classified as attainment for PM<sub>2.5</sub>. On May 8, 2008, U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM<sub>2.5</sub> 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<sub>2.5</sub> significant level at ten (10) tons per year. This rule became effective June 28, 2011. Therefore, direct PM<sub>2.5</sub>, SO<sub>2</sub>, and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (c) **Other Criteria Pollutants**  
 Putnam County has been classified as attainment or unclassifiable in Indiana for all remaining criteria 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, 326 IAC 2-3, or 326 IAC 2-7, however, there is an applicable New Source Performance Standard that was in effect on August 7, 1980, therefore fugitive emissions, 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                               | Greater than 250                |
| PM <sub>10</sub>                 | Greater than 250                |
| PM <sub>2.5</sub>                | Greater than 250                |
| SO <sub>2</sub>                  | Greater than 250                |
| VOC                              | Less than 100                   |
| CO                               | Greater than 100, Less than 250 |
| NO <sub>x</sub>                  | Less than 100                   |
| GHGs as CO <sub>2</sub> e        | Less than 100,000               |
| Single HAP                       | Greater than 10                 |
| Total HAP                        | Greater than 25                 |

Appendix A of this TSD reflects the unrestricted potential emissions of the source.

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and CO is greater than one hundred (100) tons per year. However, the Permittee has agreed to limit the source's PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and CO emissions 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 CO<sub>2</sub> equivalent emissions (CO<sub>2</sub>e) per year.
- (d) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is equal to or greater 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 equal to or greater than twenty-five (25) tons per year. However, the Permittee has agreed to limit the source's single HAP emissions and total HAP emissions below Title V levels. Therefore, the Permittee will be issued a FESOP Renewal.

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| <b>Potential to Emit After Issuance</b> |
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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/<br>Emission Unit                    | Potential To Emit of the Entire Source After Issuance of Renewal (tons/year) |                    |                      |                 |                 |              |              |                           |              |                               |
|--|--|--------------------|----------------------|-----------------|-----------------|--------------|--------------|---------------------------|--------------|-------------------------------|
|  | PM   | PM <sub>10</sub> * | PM <sub>2.5</sub> ** | SO <sub>2</sub> | NO <sub>x</sub> | VOC          | CO           | GHGs                      | Total HAPs   | Worst Single HAP              |
| <b>Ducted Emissions</b>                      |  |                    |                      |                 |                 |              |              |                           |              |                               |
| Dryer Fuel Combustion (worst case)           | 41.94  | 33.42              | 33.42                | 76.06           | 42.05           | 2.31         | 35.32        | 50,830                    | 10.50        | 9.11 hydrogen chloride        |
| Dryer/Mixer (Process)                        | 166.67   | 73.54              | 87.51                | 42.92           | 40.70           | 23.68        | 96.20        | 24,642                    | 7.89         | 2.29 formaldehyde             |
| Dryer/Mixer Slag Processing                  | 0  | 0                  | 0                    | 18.50           | 0               | 0            | 0            | 0                         | 0            | 0                             |
| Hot Oil Heater Fuel Combustion               | 0.13   | 0.21               | 0.21                 | 4.44            | 1.25            | 0.05         | 0.74         | 1,752                     | 0.02         | 0.016 hexane                  |
| <b>Worst Case Emissions</b>                  | <b>166.80</b>  | <b>73.75</b>       | <b>87.72</b>         | <b>99.00</b>    | <b>43.30</b>    | <b>23.73</b> | <b>96.94</b> | <b>52,582</b>             | <b>10.52</b> | <b>9.11 hydrogen chloride</b> |
| <b>Fugitive Emissions</b>                    |  |                    |                      |                 |                 |              |              |                           |              |                               |
| Asphalt Load-Out, Silo Filling, On-Site Yard | 0.82   | 0.82               | 0.82                 | 0               | 0               | 12.68        | 2.13         | 0                         | 0.21         | 0.07 formaldehyde             |
| Material Storage Piles                       | 0.58   | 0.20               | 0.20                 | 0               | 0               | 0            | 0            | 0                         | 0            | 0                             |
| Material Processing and Handling             | 4.78   | 2.26               | 0.34                 | 0               | 0               | 0            | 0            | 0                         | 0            | 0                             |
| Material Crushing, Screening, and Conveying  | 23.48  | 8.58               | 8.58                 | 0               | 0               | 0            | 0            | 0                         | 0            | 0                             |
| Unpaved and Paved Roads (worst case)         | 52.54  | 13.39              | 1.34                 | 0               | 0               | 0            | 0            | 0                         | 0            | 0                             |
| Volatile Organic Liquid Storage Vessels      | 0  | 0                  | 0                    | 0               | 0               | negl.        | 0            | 0                         | negl.        | negl.                         |
| <b>Total Fugitive Emissions</b>              | <b>82.20</b>   | <b>25.25</b>       | <b>11.28</b>         | <b>0</b>        | <b>0</b>        | <b>12.68</b> | <b>2.13</b>  | <b>0</b>                  | <b>0.21</b>  | <b>0</b>                      |
| <b>Total Limited/ Controlled Emissions</b>   | <b>249.00</b>  | <b>99.00</b>       | <b>99.00</b>         | <b>99.00</b>    | <b>43.30</b>    | <b>36.40</b> | <b>99.07</b> | <b>52,582</b>             | <b>10.73</b> | <b>9.11 hydrogen chloride</b> |
| Title V Major Source Thresholds              | NA   | 100                | 100                  | 100             | 100             | 100          | 100          | 100,000 CO <sub>2</sub> e | 25           | 10                            |
| PSD Major Source Thresholds                  | 250  | 250                | 250                  | 250             | 250             | 250          | 250          | 100,000 CO <sub>2</sub> e | NA           | NA                            |

negl. = negligible

\* Under the Part 70 Permit program (40 CFR 70), PM10 and PM2.5, not particulate matter (PM), are each considered as a regulated air pollutant".

\*\*PM<sub>2.5</sub> listed is direct PM<sub>2.5</sub>.

(a) FESOP Status

This existing source is still not a Title V major stationary source, because the potential to emit criteria pollutants from the entire source will continue to be limited to less than the Title V major source threshold levels. In addition, this existing source is not a major source of HAPs, as defined in 40 CFR 63.41, because the potential to emit HAPs will continue to be limited to less than ten (10) tons per year for a single HAP and continue to be limited to less than twenty-five (25) tons per year of total HAPs. Therefore, this source is still considered an area source under Section 112 of the Clean Air Act and is subject to the provisions of 326 IAC 2-8 (FESOP).

- (1) Pursuant to 326 IAC 2-8-4 (FESOP) and in order to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable, PM10, PM2.5, SO<sub>2</sub>, VOC, and CO emissions from the dryer/mixer shall be limited as follows:
- (A) The amount of asphalt processed shall not exceed 1,480,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
  - (B) The PM10 emissions from the dryer/mixer shall not exceed 0.099 pounds per ton of asphalt processed. *This is a change from the following existing limit: "The PM10 emissions from the dryer/mixer shall not exceed 0.170 pounds per ton of asphalt processed." This is a Title I change.*
  - (C) The PM2.5 emissions from the dryer/mixer shall not exceed 0.118 pounds per ton of asphalt processed. *This is a change from the following existing limit: "The PM2.5 emissions from the dryer/mixer shall not exceed 0.170 pounds per ton of asphalt processed." This is a Title I change.*
  - (D) The CO emissions from the dryer/mixer shall not exceed 0.130 pounds per ton of asphalt processed. *This is a change from the following existing limit: "The CO emissions from the dryer/mixer shall not exceed 0.190 pounds per ton of asphalt processed." This is a Title I change.*
  - (E) The VOC emissions from the dryer/mixer shall not exceed 0.032 pounds per ton of asphalt processed. *This is a change from the following existing limit: "The VOC emissions from the dryer/mixer shall not exceed 0.048 pounds per ton of asphalt processed." This is a Title I change.*
  - (F) The Permittee shall control PM10 and PM2.5 emissions from the paved and unpaved roads according to the fugitive dust plan, included as Attachment A to the permit.

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

- (2) Pursuant to 326 IAC 2-8-4 (FESOP) and in order to render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable, SO<sub>2</sub> and HAP emissions from the dryer/mixer shall be limited as follows:
- (A) Fuel and Slag Specifications
    - (i) The sulfur content of the No. 2 fuel oil shall not exceed 0.5% by weight.

- (ii) The sulfur content of the waste or used fuel oil shall not exceed 0.75% by weight
- (iii) The waste oil combusted shall not contain more than 0.95% ash, 0.200% chlorine, and 0.01% lead.
- (iv) The sulfur content of the blast furnace slag shall not exceed 1.50% by weight.
- (v) The SO<sub>2</sub> emissions from the dryer/mixer shall not exceed 0.740 pounds per ton of blast furnace slag processed in the aggregate mix.
- (vi) The sulfur content of the steel slag shall not exceed 0.66% by weight.
- (vii) The SO<sub>2</sub> emissions from the dryer/mixer shall not exceed 0.0014 pounds per ton of steel slag processed in the aggregate mix.
- (viii) The HCl emissions shall not exceed 13.2 pounds of HCl per 1,000 gallons of waste oil burned.

(B) Single Fuel and Slag Usage Limitations:

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

- (i) Natural gas usage shall not exceed 841 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from 1,875 million cubic feet of natural gas usage. This change is required to limit GHG emissions to less than 100,000 tons per twelve (12) consecutive month period and to render 326 IAC 2-7 (Part 70 Permit Program) and 326 IAC 2-2 (PSD) not applicable. This is a Title I change.*
- (ii) No. 2 fuel oil usage shall not exceed 2,142,463 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month; and
- (iii) Waste oil usage shall not exceed 1,379,727 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (iv) The Blast Furnace slag usage shall not exceed 50,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a new requirement. This is a Title I change.*

Note: A steel slag usage limit is not required for the source to comply with their FESOP SO<sub>2</sub> Limit, since unlimited use results in a PTE SO<sub>2</sub> of only 0.77 tons per year. To form a conservative estimate, limited SO<sub>2</sub> emissions are based on the "worst case" assumption that steel slag usage corresponds to 100% of the aggregate used to produce hot-mix asphalt.

(C) Multiple Fuel and Slag Usage Limitation:

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

SO<sub>2</sub> emissions from the dryer/mixer shall not exceed 94.56 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from the existing limit of less than 100 tons of sulfur dioxide for every twelve (12) month consecutive period. This change is necessary to allow for emissions from other units. This is a Title I change.*

$$\text{SO}_2 = 76.06 + 18.50 = 94.56 \text{ tons}$$

The Permittee shall limit fuel usage in the dryer/mixer burner according to the following formula:

$$\text{SO}_2 = \frac{G(E_G) + O(E_O) + W(E_W) + B(E_B) + S(E_S)}{2,000 \text{ lbs/ton}}$$

where:

- SO<sub>2</sub> = tons of sulfur dioxide emissions for a 12-month consecutive period
- G = million cubic feet of natural gas used in the last 12 months
- O = gallons of No. 2 fuel oil used in last 12 months
- W = gallons of Waste oil used for last 12 months
- B = tons of blast furnace slag used in the dryer/mixer in the last 12 months
- S = tons of steel slag used in the dryer/mixer in the last 12 months
- E<sub>G</sub> = 0.60 lb/million cubic feet of natural gas
- E<sub>O</sub> = 71.00 pounds/1000 gallons of No. 2 fuel oil
- E<sub>W</sub> = 110.25 pounds/1000 gallons of waste oil
- E<sub>B</sub> = 0.74 lb/ton of blast furnace slag used
- E<sub>S</sub> = 0.0014 lb/ton of steel slag used

Note: The potential to emit NO<sub>x</sub> from unrestricted fuel combustion in the existing dryer/mixer is below 100 tons per year. Therefore, the existing NO<sub>x</sub> limit, and any associated compliance determination, recordkeeping, and reporting requirements have been removed from the permit. *This is a Title I change.*

(D) Asphalt Shingle Usage Limitation  
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 the following as an additive in its aggregate mix:

- (i) Certified asbestos-free factory second asphalt shingles;
- (ii) Post consumer waste shingles generated at single family homes and/or residential buildings containing four or fewer dwelling units; and/or
- (iii) Factory second shingles and/or post consumer waste shingles that have sampled negative for asbestos.

*This is a new requirement. This is a Title I change.*

Compliance with these limits, combined with the potential to emit SO<sub>2</sub>, CO and HAPs from all other emission units at this source, shall limit the source-wide total potential to emit of SO<sub>2</sub> and CO to less than 100 tons per twelve (12) consecutive month period, each, any single HAP to less than ten (10) tons per twelve (12) consecutive month

period, and total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, and shall render the requirements of 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable.

(b) PSD Minor Source

This existing source is not a major stationary source, under PSD (326 IAC 2-2), because the potential to emit of PM is limited to less than 250 tons per year and the potential to emit all other attainment regulated pollutants are less than 250 tons per year, and this source is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(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 amount of asphalt processed shall not exceed 1,480,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (2) PM emissions from the dryer/mixer shall not exceed 0.225 pounds per ton of asphalt processed.

*This is a change from the following existing limit: "PM emissions from the dryer/mixer shall not exceed 0.430 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.

- (c) GHG emissions are less than one hundred thousand (<100,000) tons of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) emissions per year.

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| <b>Federal Rule Applicability</b> |
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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.

New Source Performance Standards (NSPS)

- (b) This stationary drum hot-mix asphalt plant, approved for construction in 2008, is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.90, Subpart I) (326 IAC 12) because it meets the definition of a hot-mix asphalt facility pursuant to the rule and it was constructed after June 11, 1973. This rule limits particulate matter emissions to 0.04 grains per dry standard cubic foot (gr/dscf) and also limits visible emissions to 20% opacity.

The source will be able to comply with this rule by using the Baghouse to limit particulate matter emissions from the dryer/mixer to less than 0.04 gr/dscf.

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

- (1) 40 CFR 60.90.
- (2) 40 CFR 60.91.
- (3) 40 CFR 60.92.

(4) 40 CFR 60.93.

Nonapplicable portions of the NSPS will not be included in the permit.

The provisions of 40 CFR 60 Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the dryer/mixer except when otherwise specified in 40 CFR 60 Subpart I.

- (c) 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, since pursuant to 40 CFR 60.471, the stationary drum hot-mix asphalt plant is not an asphalt processing plant because it does not blow asphalt, or an asphalt roofing plant because it does not produce asphalt roofing products, and pursuant to 40 CFR 60.101(a) the stationary drum hot-mix asphalt plant is not a petroleum refinery because it is not engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking or reforming of unfinished petroleum derivatives.
- (d) 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, therefore, pursuant to 40 CFR 60.670(a)(2) stand-alone screening operations at plants without crushers or grinding mills are exempt.
- (e) 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 a 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.
- (f) The three (3) liquid asphalt storage tanks, identified as EU-10, EU-11, and EU-13, with maximum storage capacities of 30,000, 20,000, and 20,000 gallons respectively, are not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) "Standards of Performance for Volatile Organic Liquid Storage Vessels". The storage tanks have capacities greater than 75 m<sup>3</sup> (19,813 gallons) but less than 151 m<sup>3</sup> (39,890 gallons) and the liquid stored in the tanks have a maximum true vapor pressures of less than 15.0 kPa. Therefore, pursuant to 40 CFR 60.110b(b), these tanks are exempt from this rule and the requirements of this rule are not included in the permit for these tanks.
- (g) The one (1) 20,000 gallon waste oil storage tank, identified as EU-12 is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) "Standards of Performance for Volatile Organic Liquid Storage Vessels". The storage tank has a capacity greater than 75 m<sup>3</sup> (19,813 gallons) but less than 151 m<sup>3</sup> (39,890 gallons) and the liquid stored in the tank has a maximum true vapor pressures of less than 15.0 kPa. Therefore, pursuant to 40 CFR 60.110b(b), this tank is exempt from this rule and the requirements of this rule are not included in the permit for this tank.
- (h) The one (1) 8,000 gallon fuel storage tank is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) "Standards of Performance for Volatile Organic Liquid Storage Vessels". The storage tank has a capacity less than 75 m<sup>3</sup> (19,813 gallons).
- (i) 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)

- (j) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart LLLLLL (326 IAC 20-71), are not included in the permit, since the stationary drum hot-mix asphalt plant is not a major source of HAPs, is not located at and is not part of a major source of HAP emissions, and does not engage in the preparation of asphalt flux or asphalt roofing materials.
- (k) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Gasoline-Dispensing Facilities, 40 CFR 63, Subpart CCCCCC (326 IAC 3-20), are not included in the permit, because this hot drum mix asphalt plant does not include any gasoline dispensing facilities, as defined under 40 CFR 63.11132.
- (l) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

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| <b>State Rule Applicability - Entire Source</b> |
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#### 326 IAC 1-5-2 (Emergency Reduction Plans)

The source is subject to 326 IAC 1-5-2.

#### 326 IAC 1-7 (Stack Height Provisions)

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using ambient air quality modeling pursuant to 326 IAC 1-7-4.

#### 326 IAC 2-8-4 (FESOP)

FESOP applicability is discussed under the PTE of the Entire Source After Issuance of the FESOP section above.

#### 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.

#### 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The unlimited potential to emit of HAPs from the emission units is greater than ten (10) tons per year for any single HAP and/or greater than twenty-five (25) tons per year of a combination of HAPs. However, the source shall limit the potential to emit of HAPs to less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, the source is not subject to the requirements of 326 IAC 2-4.1. See PTE of the Entire Source After Issuance of the FESOP Section above.

#### 326 IAC 2-6 (Emission Reporting)

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

#### 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, when the source is located in any County except Lake or the areas specified in 326 IAC 5-1-2(2)(a) through (c).
- (2) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4, when the source is located in the following areas listed in 326 IAC 5-1-1(c):
  - (a) Clark County (Jefferson Township - Cities of Jeffersonville, Clarksville, Oak Park);
  - (b) Dearborn County (Lawrenceburg Township - Cities of Lawrenceburg and Greendale);
  - (c) Dubois County (Bainbridge Township - the City of Jasper);
  - (d) Marion County (except the area of Washington Township east of Fall Creek and the area of Franklin Township south of Thompson Road and east of Five Points Road);
  - (e) St. Joseph County (the area north of Kern Road and east of Pine Road);
  - (f) Vanderburgh County (the area included in the City of Evansville and Pigeon Township); and
  - (g) Vigo County (Indiana State University campus, 0.5km radius around UTM Easting 464,519.00, Northing 4,369,208.00, Zone 16).
- (3) 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.

#### 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.

#### 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

The source is subject to the requirements of 326 IAC 6-5, 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 have combined 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, submitted on November 4, 2013, which is included as Attachment A to the permit.

#### 326 IAC 6.5 (PM Limitations Except Lake County)

This existing portable hot drum mix asphalt plant is authorized to relocate to Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo, or Wayne Counties and the potential to emit particulate matter (PM) before controls for the entire source is greater than one hundred (100) tons per year. Therefore, the requirements of 326 IAC 6.5 apply to any ducted or ductable emission unit located at the source.

Note: This limitation is more stringent than the applicable requirement of four hundredths (0.04) grains per dry standard cubic foot established by 326 IAC 12 (New Source Performance Standards) (40 CFR 60, Subpart I Standards of Performance for Hot Mix Asphalt Facilities). Therefore, compliance with 326 IAC 6.5-1-2(a) will satisfy the grain loading limitation specified in 326 IAC 12 and 40 CFR 60, Subpart I. This existing source will continue to comply by using a baghouse, to limit PM emissions to less than three hundredths (0.03) gr/dscf when located in Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo, or Wayne Counties.

**326 IAC 6.8 (Particulate Matter Limitations)**

This portable source is not permitted to locate in Lake County; therefore, the requirements of 326 IAC 6.8 do not apply.

**326 IAC 12 (New Source Performance Standards)**

See Federal Rule Applicability Section of this TSD.

**326 IAC 20 (Hazardous Air Pollutants)**

See Federal Rule Applicability Section of this TSD.

|   |
|---|
| <b>State Rule Applicability – Individual Facilities</b> |
|---|

Hot-mix Asphalt Plant

**326 IAC 6-3-2 (Particulate Matter Emission Limitations)**

Pursuant to the applicability determination in 326 IAC 6-3-1(c), the requirements of 326 IAC 6-3 do not apply to the hot-mix asphalt operations at this source because the particulate matter emission limit required in 326 IAC 12 (as the incorporation of the New Source Performance Standard for Hot Mix Asphalt Facilities, 40 CFR 60, Subpart I) is more stringent than the particulate limitation required by 326 IAC 6-3. Therefore, 326 IAC 6-3-2 does not apply.

**326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)**

The dryer/mixer burner, identified as emission unit EU1, is subject to 326 IAC 7-1.1 because it has potential SO<sub>2</sub> emissions of greater than 25 tons per year (limited potential emissions are 90.56 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 (including No. 2 fuel oil). This equates to a maximum allowable sulfur content of (0.5% by weight) for the distillate fuel oils.

**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 SO<sub>2</sub> per MMBtu), to the OAQ upon request.

**326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)**

The Permittee will continue to limit VOC emissions to less than 25 tons per year to render 326 IAC 8-1-6 not applicable. In order to render the requirements of 326 IAC 8-1-6 not applicable, the dryer/mixer shall be limited as follows:

- (a) The amount of asphalt processed shall not exceed 1,480,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) The VOC emissions from the dryer/mixer shall not exceed 0.032 pounds per ton of asphalt processed.

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 the requirements of 326 IAC 8-1-6 (New Facilities; General Reduction Requirements) not applicable.

*Note: The throughput limit has been revised from the initial FESOP limit of 1,439,394 tons per twelve (12) consecutive month period. This is a Title I change.*

#### 326 IAC 8-5-2 (Miscellaneous operations: Asphalt Paving)

The requirements of 326 IAC 8-5-2 apply to any paving application made after January 1, 1980. Pursuant to this rule, no person shall cause or allow the use of cutback asphalt or asphalt emulsion containing more than seven percent (7%) oil distillate by volume of emulsion for any paving application except the following purposes:

- (a) penetrating prime coating
- (b) stockpile storage
- (c) application during the months of November, December, January, February and March.

The source shall continue to not process emulsified or cutback asphalt at this source unless proper approval has been obtained from IDEM, OAQ. Therefore, the requirements of this rule are still not applicable and are not included in the permit.

#### 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. The one (1) 96 million Btu dryer/mixer burner is not subject to this rule, therefore the requirements of 326 IAC 10-3 are not included in the permit for this source.

#### Hot Oil Heater

##### 326 IAC 6-2 (Particulate Emissions from Indirect Heating Units)

The No. 2 distillate fuel oil fired hot oil heater, having maximum rated heat input capacity of 2.0 MMBtu/hr, is subject to 326 IAC 6-2-4 because the unit was constructed after the rule applicability date of September 21, 1983, and meets the definition of an indirect heating unit, as defined in 326 IAC 1-2-19. Pursuant to 326 IAC 6-2-4(a), for a total source maximum operating capacity rating of less than ten (10) MMBtu/hr, the pounds of particulate matter emitted per million Btu (lb/MMBtu) heat input shall not exceed six tenths (0.6) pounds per MMBtu (lb/MMBtu).

Therefore, particulate emissions from the hot oil heater shall not exceed six tenths (0.6) pounds per MMBtu heat input.

#### Storage Tanks

##### 326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)

Pursuant to 326 IAC 8-4-1 (Applicability) and 326 IAC 8-4-3 (Petroleum Liquid Storage Facilities), all petroleum liquid storage vessels with capacities greater than one hundred fifty thousand (150,000) liters (39,000 gallons) containing VOC whose true vapor pressure is greater than 10.5 kPa (1.52 psi) shall comply with the requirements for external fixed and floating roof tanks and the specified record keeping and reporting requirements. EU-12 has a maximum capacity less than 39,000 gallons. Therefore, the requirements of this rule are not applicable to this facility and are not included in this permit.

##### 326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)

The two (2) liquid asphalt storage tanks and the one (1) waste fuel oil storage tank are each not subject to the requirements of this rule because the source is not located in Clark, Floyd, Lake, or Porter Counties

**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.

(a) The dryer/mixer has applicable compliance determination conditions as specified below:

| Emission Unit | Control Device | Timeframe for Testing  | Pollutant                             | Frequency of Testing      | Limit or Requirement   |
|---------------|----------------|--|---------------------------------------|---------------------------|--|
| EU-05 / EU-07 | B-1            | not later than 5 years from the most recent valid compliance demonstration | PM                                    | Once every five (5) years | 0.225 lb PM/ton of asphalt   |
| EU-05 / EU-07 | B-1            | not later than 5 years from the most recent valid compliance demonstration | PM <sub>10</sub><br>PM <sub>2.5</sub> | Once every five (5) years | 0.099 lb PM <sub>10</sub> /ton of asphalt; and<br>0.118 lb PM <sub>2.5</sub> /ton of asphalt |
| Dryer/Mixer   | N/A            | Within 180 days after initial use of Blast Furnace Slag <sup>(1)</sup>     | SO <sub>2</sub>                       | One time test             | 0.74 lb SO <sub>2</sub> /ton of blast furnace slag   |

- (1) Testing shall only be performed if the company has not previously performed SO<sub>2</sub> testing while adding blast furnace slag to the aggregate mix at one of their other Indiana facilities.
- (2) Testing is not required in order to demonstrate compliance with the 0.048 lb/ton VOC limit since the the uncontrolled AP-42 emission factor for this type of operation is 0.032 lb/ton.

(b) The drum mixer and aggregate dryer/burner, baghouse stack exhaust, identified as S1, the conveying, screening, and material transfer points have applicable compliance monitoring conditions as specified below:

| Control   | Parameter           | Frequency | Range             | Excursions and Exceedances |
|---|---------------------|-----------|-------------------|----------------------------|
| Conveyors, screening, material transfer points and dryer/mixer stack (S1) exhaust | Visible Emissions   | Daily     | Normal-Abnormal   | Response Steps             |
| Baghouse for the dryer/mixer  | Water Pressure Drop | Daily     | 1.0 to 8.0 inches | Response Steps             |

(c) Shingle supplier certifications are used to document that the shingles do not contain asbestos.

### Recommendation

The staff recommends to the Commissioner that the FESOP Renewal be approved.

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 August 2, 2013.

### Conclusion

The operation of this portable asphalt plant shall be subject to the conditions of the attached FESOP Renewal with New Source Review No. F133-33494-05321.

### IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Tamera Wessel 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) 234-8530 or toll free at 1-800-451-6027 extension 4-8530.
- (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](http://www.idem.in.gov)

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

**Asphalt Plant Limitations - Drum Mix**

|   |           |                              |      |                   |      |       |       |             |       |        |  |
|---|-----------|------------------------------|------|-------------------|------|-------|-------|-------------|-------|--------|--|
| Maximum Hourly Asphalt Production =             | 300       | ton/hr                       |      |                   |      |       |       |             |       |        |  |
| Annual Asphalt Production Limitation =          | 1,480,000 | ton/yr                       |      |                   |      |       |       |             |       |        |  |
| Blast Furnace Slag Usage Limitation =           | 50,000    | ton/yr                       | 1.50 | % sulfur          |      |       |       |             |       |        |  |
| Steel Slag Usage Limitation =                   | 1,103,760 |                              | 0.66 | % sulfur          |      |       |       |             |       |        |  |
| Maximum Dryer Fuel Input Rate =                 | 96        | MMBtu/hr                     |      |                   |      |       |       |             |       |        |  |
| Natural Gas Limitation =                        | 841       | MMCF/yr                      |      |                   |      |       |       |             |       |        |  |
| No. 2 Fuel Oil Limitation =                     | 2,142,463 | gal/yr, and                  | 0.50 | % sulfur          |      |       |       |             |       |        |  |
| No. 4 Fuel Oil Limitation =                     | 0         | 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 =                     | 1,379,727 | gal/yr, and                  | 0.75 | % sulfur          | 0.95 | % 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 =                     | 0.225     | lb/ton of asphalt production |      |                   |      |       |       |             |       |        |  |
| PM10 Dryer/Mixer Limitation =                   | 0.099     | lb/ton of asphalt production |      |                   |      |       |       |             |       |        |  |
| PM2.5 Dryer/Mixer Limitation =                  | 0.118     | 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 = | 0.740     | lb/ton of slag processed     |      |                   |      |       |       |             |       |        |  |
| Steel Slag SO2 Dryer/Mixer Limitation =         | 0.0014    | lb/ton of slag processed     |      |                   |      |       |       |             |       |        |  |
| Cold Mix Asphalt VOC Limitation =               | 0.0       | tons/yr                      |      |                   |      |       |       |             |       |        |  |
| HCl Limitation =                                | 13.2      | 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 <sub>2</sub> e | Total HAPs               | Worst Case HAP |                     |
| <b>Ducted Emissions</b>                             |  |              |              |              |              |              |              |                   |                          |                |                     |
| Dryer Fuel Combustion (worst case)                  | 41.94  | 33.42        | 33.42        | 76.06        | 42.05        | 2.31         | 35.32        | 50,830            | 10.50                    | 9.11           | (hydrogen chloride) |
| Dryer/Mixer (Process)                               | 166.67   | 73.54        | 87.51        | 42.92        | 40.70        | 23.68        | 96.20        | 24,642            | 7.89                     | 2.29           | (formaldehyde)      |
| Dryer/Mixer Slag Processing                         | 0  | 0            | 0            | 18.50        | 0            | 0            | 0            | 0                 | 0                        | 0              |                     |
| Hot Oil Heater Fuel Combustion/Process (worst case) | 0.13   | 0.21         | 0.21         | 4.44         | 1.25         | 0.05         | 0.74         | 1,752             | 0.02                     | 0.016          | (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              | 0.00                     | 0.000          | (benzene)           |
| <b>Worst Case Emissions*</b>                        | <b>166.80</b>                                      | <b>73.75</b> | <b>87.72</b> | <b>99.00</b> | <b>43.30</b> | <b>23.73</b> | <b>96.94</b> | <b>52,582</b>     | <b>10.52</b>             | <b>9.11</b>    | (hydrogen chloride) |
| <b>Fugitive Emissions</b>                           |  |              |              |              |              |              |              |                   |                          |                |                     |
| Asphalt Load-Out, Silo Filling, On-Site Yard        | 0.82   | 0.82         | 0.82         | 0            | 0            | 12.68        | 2.13         | 0                 | 0.21                     | 0.07           | (formaldehyde)      |
| Material Storage Piles                              | 0.58   | 0.20         | 0.20         | 0            | 0            | 0            | 0            | 0                 | 0                        | 0              |                     |
| Material Processing and Handling                    | 4.78   | 2.26         | 0.34         | 0            | 0            | 0            | 0            | 0                 | 0                        | 0              |                     |
| Material Crushing, Screening, and Conveying         | 23.48  | 8.58         | 8.58         | 0            | 0            | 0            | 0            | 0                 | 0                        | 0              |                     |
| Unpaved and Paved Roads (worst case)                | 52.54  | 13.39        | 1.34         | 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                     | negl           |                     |
| <b>Total Fugitive Emissions</b>                     | <b>82.20</b>                                       | <b>25.25</b> | <b>11.28</b> | <b>0</b>     | <b>0</b>     | <b>12.68</b> | <b>2.13</b>  | <b>0.00</b>       | <b>0.21</b>              | <b>0.00</b>    | (xylenes)           |
| <b>Totals Limited/Controlled Emissions</b>          | <b>249.00</b>                                      | <b>99.00</b> | <b>99.00</b> | <b>99.00</b> | <b>43.30</b> | <b>36.40</b> | <b>99.07</b> | <b>52,582</b>     | <b>10.73</b>             | <b>9.11</b>    | (hydrogen chloride) |

negl = negligible

Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.

\*Worst Case Emissions (tons/yr) = Worst Case Emissions from Dryer Fuel Combustion and Dryer/Mixer + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion 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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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 =                       | 96        | MMBtu/hr  |
| Natural Gas Limitation =                        | 841       | MMCF/yr   |
| No. 2 Fuel Oil Limitation =                     | 2,142,463 | gal/yr, and 0.50 % sulfur   |
| No. 4 Fuel Oil Limitation =                     | 0         | 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 =                     | 1,379,727 | gal/yr, and 0.75 % sulfur, 0.95 % ash, 0.200 % chlorine, 0.010 % lead |

**Limited Emissions**

| Criteria Pollutant             | Emission Factor (units) |                          |                           |  |                   |                  |                          | Limited 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              | 60.8                     | 0.80                                | 2.14                     | 0.00                     | 0.00   | 0.000             | 0.000            | 41.94                    | <b>41.94</b>              |
| PM10/PM2.5                     | 7.6                     | 3.3                      | 8.3                       | 9.315  | 0.5               | 0.6              | 48.45                    | 3.20                                | 3.54                     | 0.00                     | 0.00   | 0.000             | 0.000            | 33.42                    | <b>33.42</b>              |
| SO2                            | 0.6                     | 71.0                     | 75.0                      | 78.5   | 0.02              | 0.02             | 110.25                   | 0.25                                | 76.06                    | 0.00                     | 0.00   | 0.000             | 0.000            | 76.06                    | <b>76.06</b>              |
| NOx                            | 100                     | 20.0                     | 20.0                      | 55.0   | 13.0              | 15.0             | 19.0                     | 42.05                               | 21.42                    | 0.00                     | 0.00   | 0.00              | 0.00             | 13.11                    | <b>42.05</b>              |
| VOC                            | 5.5                     | 0.20                     | 0.20                      | 0.28   | 1.0               | 1.10             | 1.0                      | 2.31                                | 0.21                     | 0.00                     | 0.00   | 0.00              | 0.00             | 0.69                     | <b>2.31</b>               |
| CO                             | 84                      | 5.0                      | 5.0                       | 5.0  | 7.5               | 8.4              | 5.0                      | 35.32                               | 5.36                     | 0.00                     | 0.00   | 0.00              | 0.00             | 3.45                     | <b>35.32</b>              |
| <b>Hazardous Air Pollutant</b> |                         |                          |                           |  |                   |                  |                          |                                     |                          |                          |  |                   |                  |                          |                           |
| HCl                            |                         |                          |                           |  |                   |                  | 13.2                     |                                     |                          |                          |  |                   |                  | 9.11                     | <b>9.11</b>               |
| Antimony                       |                         |                          | 5.25E-03                  | 5.25E-03                                     |                   |                  | negl                     |                                     |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  | negl                     | <b>0.0E+00</b>            |
| Arsenic                        | 2.0E-04                 | 5.6E-04                  | 1.32E-03                  | 1.32E-03                                     |                   |                  | 1.1E-01                  | 8.4E-05                             | 6.00E-04                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 7.59E-02                 | <b>7.6E-02</b>            |
| Beryllium                      | 1.2E-05                 | 4.2E-04                  | 2.78E-05                  | 2.78E-05                                     |                   |                  | negl                     | 5.0E-06                             | 4.50E-04                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | negl                     | <b>4.5E-04</b>            |
| Cadmium                        | 1.1E-03                 | 4.2E-04                  | 3.98E-04                  | 3.98E-04                                     |                   |                  | 9.3E-03                  | 4.6E-04                             | 4.50E-04                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 6.42E-03                 | <b>6.4E-03</b>            |
| Chromium                       | 1.4E-03                 | 4.2E-04                  | 8.45E-04                  | 8.45E-04                                     |                   |                  | 2.0E-02                  | 5.9E-04                             | 4.50E-04                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 1.38E-02                 | <b>1.4E-02</b>            |
| Cobalt                         | 8.4E-05                 |                          | 6.02E-03                  | 6.02E-03                                     |                   |                  | 2.1E-04                  | 3.5E-05                             |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  | 1.45E-04                 | <b>1.4E-04</b>            |
| Lead                           | 5.0E-04                 | 1.3E-03                  | 1.51E-03                  | 1.51E-03                                     |                   |                  | 0.55                     | 2.1E-04                             | 1.35E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 3.8E-01                  | <b>0.38</b>               |
| Manganese                      | 3.8E-04                 | 8.4E-04                  | 3.00E-03                  | 3.00E-03                                     |                   |                  | 6.8E-02                  | 1.6E-04                             | 9.00E-04                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 4.69E-02                 | <b>0.05</b>               |
| Mercury                        | 2.6E-04                 | 4.2E-04                  | 1.13E-04                  | 1.13E-04                                     |                   |                  |                          | 1.1E-04                             | 4.50E-04                 | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>4.5E-04</b>            |
| Nickel                         | 2.1E-03                 | 4.2E-04                  | 8.45E-02                  | 8.45E-02                                     |                   |                  | 1.1E-02                  | 8.8E-04                             | 4.50E-04                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 7.59E-03                 | <b>0.008</b>              |
| Selenium                       | 2.4E-05                 | 2.1E-03                  | 6.83E-04                  | 6.83E-04                                     |                   |                  | negl                     | 1.0E-05                             | 2.25E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | negl                     | <b>2.2E-03</b>            |
| 1,1,1-Trichloroethane          |                         |                          | 2.36E-04                  | 2.36E-04                                     |                   |                  |                          |                                     |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>0.0E+00</b>            |
| 1,3-Butadiene                  |                         |                          |                           |  |                   |                  |                          |                                     |                          |                          |  |                   |                  |                          | <b>0.0E+00</b>            |
| Acetaldehyde                   |                         |                          |                           |  |                   |                  |                          |                                     |                          |                          |  |                   |                  |                          | <b>0.0E+00</b>            |
| Acrolein                       |                         |                          |                           |  |                   |                  |                          |                                     |                          |                          |  |                   |                  |                          | <b>0.0E+00</b>            |
| Benzene                        | 2.1E-03                 |                          | 2.14E-04                  | 2.14E-04                                     |                   |                  |                          | 8.8E-04                             |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>8.8E-04</b>            |
| Bis(2-ethylhexyl)phthalate     |                         |                          |                           |  |                   |                  | 2.2E-03                  |                                     |                          |                          |  |                   |                  | 1.52E-03                 | <b>1.5E-03</b>            |
| Dichlorobenzene                | 1.2E-03                 |                          |                           |  |                   |                  | 8.0E-07                  | 5.0E-04                             |                          |                          |  |                   |                  | 5.52E-07                 | <b>5.0E-04</b>            |
| Ethylbenzene                   |                         |                          | 6.36E-05                  | 6.36E-05                                     |                   |                  |                          |                                     |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>0.0E+00</b>            |
| Formaldehyde                   | 7.5E-02                 | 6.10E-02                 | 3.30E-02                  | 3.30E-02                                     |                   |                  |                          | 3.2E-02                             | 6.53E-02                 | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>0.065</b>              |
| Hexane                         | 1.8E+00                 |                          |                           |  |                   |                  |                          | 0.76                                |                          |                          |  |                   |                  |                          | <b>0.757</b>              |
| Phenol                         |                         |                          |                           |  |                   |                  | 2.4E-03                  |                                     |                          |                          |  |                   |                  | 1.66E-03                 | <b>1.7E-03</b>            |
| Toluene                        | 3.4E-03                 |                          | 6.20E-03                  | 6.20E-03                                     |                   |                  |                          | 1.4E-03                             |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>1.4E-03</b>            |
| Total PAH Haps                 | negl                    |                          | 1.13E-03                  | 1.13E-03                                     |                   |                  | 3.9E-02                  | negl                                |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  | 2.70E-02                 | <b>2.7E-02</b>            |
| Polycyclic Organic Matter      |                         | 3.30E-03                 |                           |  |                   |                  |                          |                                     | 3.54E-03                 |                          |  |                   |                  |                          | <b>3.5E-03</b>            |
| Xylene                         |                         |                          | 1.09E-04                  | 1.09E-04                                     |                   |                  |                          |                                     |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>0.0E+00</b>            |
| <b>Total HAPs</b>              |                         |                          |                           |  |                   |                  |                          | <b>0.79</b>                         | <b>0.08</b>              | <b>0.00</b>              | <b>0.00</b>                                  | <b>0</b>          | <b>0</b>         | <b>9.67</b>              | <b>10.50</b>              |

**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

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

**Abbreviations**

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

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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 =                       | 96        | MMBtu/hr    |      |                               |      |       |       |             |       |        |
| Natural Gas Limitation =                        | 841       | MMCF/yr     |      |                               |      |       |       |             |       |        |
| No. 2 Fuel Oil Limitation =                     | 2,142,463 | gal/yr, and | 0.50 | % sulfur                      |      |       |       |             |       |        |
| No. 4 Fuel Oil Limitation =                     | 0         | 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 ft <sup>3</sup> sulfur |      |       |       |             |       |        |
| Butane Limitation =                             | 0         | gal/yr, and | 0.22 | gr/100 ft <sup>3</sup> sulfur |      |       |       |             |       |        |
| Used/Waste Oil Limitation =                     | 1,379,727 | gal/yr, and | 0.75 | % sulfur                      | 0.95 | % ash | 0.200 | % chlorine, | 0.010 | % lead |

**Limited Emissions**

| CO <sub>2</sub> e Fraction | Emission Factor (units)  |                                |                                |   |                      |                     |                                | 11/29/2013 Global Warming Potentials (GWP) |                     |                             |
|----------------------------|--------------------------|--------------------------------|--------------------------------|---|----------------------|---------------------|--------------------------------|--|---------------------|-----------------------------|
|                            | Natural Gas<br>(lb/MMCF) | No. 2<br>Fuel Oil<br>(lb/kgal) | No. 4<br>Fuel Oil<br>(lb/kgal) | Residual<br>(No. 5 or No. 6)<br>Fuel Oil<br>(lb/kgal) | Propane<br>(lb/kgal) | Butane<br>(lb/kgal) | Used/Waste<br>Oil<br>(lb/kgal) | Name                                       | Chemical<br>Formula | Global warming<br>potential |
| CO <sub>2</sub>            | 120,161.84               | 22,501.41                      | 24,153.46                      | 24,835.04   | 12,500.00            | 14,506.73           | 22,024.15                      | Carbon dioxide                             | CO <sub>2</sub>     | 1                           |
| CH <sub>4</sub>            | 2.49                     | 0.91                           | 0.97                           | 1.00  | 0.60                 | 0.67                | 0.89                           | Methane                                    | CH <sub>4</sub>     | 25                          |
| N <sub>2</sub> O           | 2.20                     | 0.26                           | 0.19                           | 0.53  | 0.90                 | 0.90                | 0.18                           | Nitrous oxide                              | N <sub>2</sub> O    | 298                         |

| CO <sub>2</sub> e Fraction                            | Limited Potential to Emit (tons/yr) |                                |                                |   |                      |                     |                                |
|---|-------------------------------------|--------------------------------|--------------------------------|---|----------------------|---------------------|--------------------------------|
|   | Natural Gas<br>(tons/yr)            | No. 2<br>Fuel Oil<br>(tons/yr) | No. 4<br>Fuel Oil<br>(tons/yr) | Residual<br>(No. 5 or No. 6)<br>Fuel Oil<br>(tons/yr) | Propane<br>(tons/yr) | Butane<br>(tons/yr) | Used/Waste<br>Oil<br>(tons/yr) |
| CO <sub>2</sub>                                       | 50,528.06                           | 24,104.22                      | 0.00                           | 0.00  | 0.00                 | 0.00                | 15,193.66                      |
| CH <sub>4</sub>                                       | 1.05                                | 0.98                           | 0.00                           | 0.00  | 0.00                 | 0.00                | 0.62                           |
| N <sub>2</sub> O                                      | 0.93                                | 0.28                           | 0.00                           | 0.00  | 0.00                 | 0.00                | 0.12                           |
| <b>Total</b>  | <b>50,530.03</b>                    | <b>24,105</b>                  | <b>0.00</b>                    | <b>0.00</b>   | <b>0.00</b>          | <b>0.00</b>         | <b>15,194.40</b>               |
| <b>CO<sub>2</sub>e Equivalent Emissions (tons/yr)</b> | <b>50,830</b>                       | <b>24,212</b>                  | <b>0.00</b>                    | <b>0.00</b>   | <b>0.00</b>          | <b>0.00</b>         | <b>15,246</b>                  |

|   |
|---|
| <b>CO<sub>2</sub>e for<br/>Worst Case<br/>Fuel*<br/>(tons/yr)</b> |
| <b>50,830</b>   |

**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 CO<sub>2</sub> and CH<sub>4</sub> from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N<sub>2</sub>O 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 CO<sub>2</sub> and CH<sub>4</sub> from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N<sub>2</sub>O from AP-42 Chapter 1.3 Oil: (dated 5/10), Table 1.3-8  
Propane and Butane: Emission Factors for CO<sub>2</sub> and CH<sub>4</sub> from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N<sub>2</sub>O from AP-42 Chapter 1.5 (dated 7/08), Table 1.5-1  
Waste Oil: Emission Factors for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O 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 CO<sub>2</sub>e Emissions (tons/yr) = CO<sub>2</sub> Potential Emission of "worst case" fuel (ton/yr) x CO<sub>2</sub> GWP (1) + CH<sub>4</sub> Potential Emission of "worst case" fuel (ton/yr) x CH<sub>4</sub> GWP (21) + N<sub>2</sub>O Potential Emission of "worst case" fuel (ton/yr) x N<sub>2</sub>O GWP (310).

**Abbreviations**

CH<sub>4</sub> = Methane                      CO<sub>2</sub> = Carbon Dioxide                      N<sub>2</sub>O = Nitrogen Dioxide                      PTE = Potential to Emit

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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

|  |           |                              |
|--|-----------|------------------------------|
| Maximum Hourly Asphalt Production =    | 300       | ton/hr                       |
| Annual Asphalt Production Limitation = | 1,480,000 | ton/yr                       |
| PM Dryer/Mixer Limitation =            | 0.23      | lb/ton of asphalt production |
| PM10 Dryer/Mixer Limitation =          | 0.10      | lb/ton of asphalt production |
| PM2.5 Dryer/Mixer Limitation =         | 0.12      | lb/ton of asphalt production |
| CO Dryer/Mixer Limitation =            | 0.13      | lb/ton of asphalt production |
| VOC Dryer/Mixer Limitation =           | 0.03      | 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*                            | 0.225   | 0.225          | 0.225     | 166.7   | 166.7          | 166.7     | 166.7          |
| PM10*                          | 0.099   | 0.099          | 0.099     | 73.5  | 73.5           | 73.5      | 73.5           |
| PM2.5*                         | 0.118   | 0.118          | 0.118     | 87.5  | 87.5           | 87.5      | 87.5           |
| SO2**                          | 0.003   | 0.011          | 0.058     | 2.5   | 8.1            | 42.9      | 42.9           |
| NOx**                          | 0.026   | 0.055          | 0.055     | 19.2  | 40.7           | 40.7      | 40.7           |
| VOC**                          | 0.032   | 0.032          | 0.032     | 23.7  | 23.7           | 23.7      | 23.7           |
| CO***                          | 0.130   | 0.130          | 0.130     | 96.2  | 96.2           | 96.2      | 96.2           |
| <b>Hazardous Air Pollutant</b> |   |                |           |   |                |           |                |
| HCl                            |   |                | 2.10E-04  |   |                | 0.16      | 0.16           |
| Antimony                       | 1.80E-07  | 1.80E-07       | 1.80E-07  | 1.33E-04  | 1.33E-04       | 1.33E-04  | 1.33E-04       |
| Arsenic                        | 5.60E-07  | 5.60E-07       | 5.60E-07  | 4.14E-04  | 4.14E-04       | 4.14E-04  | 4.14E-04       |
| Beryllium                      | negl  | negl           | negl      | negl  | negl           | negl      | 0.00E+00       |
| Cadmium                        | 4.10E-07  | 4.10E-07       | 4.10E-07  | 3.03E-04  | 3.03E-04       | 3.03E-04  | 3.03E-04       |
| Chromium                       | 5.50E-06  | 5.50E-06       | 5.50E-06  | 4.07E-03  | 4.07E-03       | 4.07E-03  | 4.07E-03       |
| Cobalt                         | 2.60E-08  | 2.60E-08       | 2.60E-08  | 1.92E-05  | 1.92E-05       | 1.92E-05  | 1.92E-05       |
| Lead                           | 6.20E-07  | 1.50E-05       | 1.50E-05  | 4.59E-04  | 1.11E-02       | 1.11E-02  | 1.11E-02       |
| Manganese                      | 7.70E-06  | 7.70E-06       | 7.70E-06  | 5.70E-03  | 5.70E-03       | 5.70E-03  | 5.70E-03       |
| Mercury                        | 2.40E-07  | 2.60E-06       | 2.60E-06  | 1.78E-04  | 1.92E-03       | 1.92E-03  | 1.92E-03       |
| Nickel                         | 6.30E-05  | 6.30E-05       | 6.30E-05  | 4.66E-02  | 4.66E-02       | 4.66E-02  | 4.66E-02       |
| Selenium                       | 3.50E-07  | 3.50E-07       | 3.50E-07  | 2.59E-04  | 2.59E-04       | 2.59E-04  | 2.59E-04       |
| 2,2,4 Trimethylpentane         | 4.00E-05  | 4.00E-05       | 4.00E-05  | 2.96E-02  | 2.96E-02       | 2.96E-02  | 2.96E-02       |
| Acetaldehyde                   |   |                | 1.30E-03  |   |                | 0.96      | 0.96           |
| Acrolein                       |   |                | 2.60E-05  |   |                | 1.92E-02  | 1.92E-02       |
| Benzene                        | 3.90E-04  | 3.90E-04       | 3.90E-04  | 0.29  | 0.29           | 0.29      | 0.29           |
| Ethylbenzene                   | 2.40E-04  | 2.40E-04       | 2.40E-04  | 0.18  | 0.18           | 0.18      | 0.18           |
| Formaldehyde                   | 3.10E-03  | 3.10E-03       | 3.10E-03  | 2.29  | 2.29           | 2.29      | 2.29           |
| Hexane                         | 9.20E-04  | 9.20E-04       | 9.20E-04  | 0.68  | 0.68           | 0.68      | 0.68           |
| Methyl chloroform              | 4.80E-05  | 4.80E-05       | 4.80E-05  | 0.04  | 0.04           | 0.04      | 0.04           |
| MEK                            |   |                | 2.00E-05  |   |                | 0.01      | 0.01           |
| Propionaldehyde                |   |                | 1.30E-04  |   |                | 0.10      | 0.10           |
| Quinone                        |   |                | 1.60E-04  |   |                | 0.12      | 0.12           |
| Toluene                        | 1.50E-04  | 2.90E-03       | 2.90E-03  | 0.11  | 2.15           | 2.15      | 2.15           |
| Total PAH Haps                 | 1.90E-04  | 8.80E-04       | 8.80E-04  | 0.14  | 0.65           | 0.65      | 0.65           |
| Xylene                         | 2.00E-04  | 2.00E-04       | 2.00E-04  | 0.15  | 0.15           | 0.15      | 0.15           |

**Total HAPs 7.89**

**Worst Single HAP 2.294 (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 (CO<sub>2</sub>e) Emissions from the  
Drum-Mix Plant (Dryer/Mixer) Process Emissions**

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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

Maximum Hourly Asphalt Production = 300 ton/hr  
 Annual Asphalt Production Limitation = 1,480,000 ton/yr

| Criteria Pollutant                               | Emission Factor (lb/ton)<br>Drum-Mix Plant (dryer/mixer) |                |           | 11/29/2013<br>Global Warming<br>Potentials<br>(GWP) | Limited Potential to Emit (tons/yr)<br>Drum-Mix Plant (dryer/mixer) |                |           | CO <sub>2</sub> e for<br>Worst Case<br>Fuel<br>(tons/yr) |
|--|--|----------------|-----------|---|---|----------------|-----------|--|
|  | Natural Gas  | No. 2 Fuel Oil | Waste Oil |   | Natural Gas   | No. 2 Fuel Oil | Waste Oil |  |
| CO <sub>2</sub>                                  | 33   | 33             | 33        | 1   | 24,420  | 24,420         | 24,420    | 24,642   |
| CH <sub>4</sub>                                  | 0.0120   | 0.0120         | 0.0120    | 25  | 8.88  | 8.88           | 8.88      |  |
| N <sub>2</sub> O                                 |  |                |           | 298   | 0   | 0              | 0         |  |
| Total  |  |                |           |   | 24,429  | 24,429         | 24,429    |  |
| CO <sub>2</sub> e Equivalent Emissions (tons/yr) |  |                |           |   | 24,642  | 24,642         | 24,642    |  |

**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 N<sub>2</sub>O available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N<sub>2</sub>O 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 CO<sub>2</sub>e Emissions (tons/yr) = CO<sub>2</sub> Potential Emission of "worst case" fuel (ton/yr) x CO<sub>2</sub> GWP (1) + CH<sub>4</sub> Potential Emission of "worst case" fuel (ton/yr) x CH<sub>4</sub> GWP (21) + N<sub>2</sub>O Potential Emission of "worst case" fuel (ton/yr) x N<sub>2</sub>O GWP (310).

**Abbreviations**

CO<sub>2</sub> = Carbon Dioxide

CH<sub>4</sub> = Methane

N<sub>2</sub>O = Nitrogen Dioxide

PTE = Potential to Emit

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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

Limited Blast Furnace Slag Usage = 

|        |
|--------|
| 50,000 |
|--------|

 ton/yr 

|      |
|------|
| 1.50 |
|------|

 % sulfur  
 Limited Annual Steel Slag Usage = 

|           |
|-----------|
| 1,103,760 |
|-----------|

 ton/yr 

|      |
|------|
| 0.66 |
|------|

 % sulfur

| Type of Slag        | SO2 Emission Factor (lb/ton) | Limited Potential to Emit SO2 (tons/yr) |
|---------------------|------------------------------|---|
| Blast Furnace Slag* | 0.7400                       | 18.5                                    |
| Steel Slag**        | 0.0014                       | 0.77                                    |

**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:** Wabash Valley Asphalt  
**Source Location:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

Maximum Hot Oil Heater Fuel Input Rate = 2.00 MMBtu/hr  
 Natural Gas Usage = 17.5 MMCF/yr  
 No. 2 Fuel Oil Usage = 125,143 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                      | 0.017  | 0.125                    | 0.13                      |
| PM10/PM2.5                     | 7.6                     | 3.3                      | 0.067  | 0.206                    | 0.21                      |
| SO2                            | 0.6                     | 71.0                     | 0.005  | 4.443                    | 4.44                      |
| NOx                            | 100                     | 20.0                     | 0.876  | 1.251                    | 1.25                      |
| VOC                            | 5.5                     | 0.20                     | 0.048  | 0.013                    | 0.05                      |
| CO                             | 84                      | 5.0                      | 0.736  | 0.313                    | 0.74                      |
| <b>Hazardous Air Pollutant</b> |                         |                          |  |                          |                           |
| Arsenic                        | 2.0E-04                 | 5.6E-04                  | 1.8E-06  | 3.50E-05                 | 3.5E-05                   |
| Beryllium                      | 1.2E-05                 | 4.2E-04                  | 1.1E-07  | 2.63E-05                 | 2.6E-05                   |
| Cadmium                        | 1.1E-03                 | 4.2E-04                  | 9.6E-06  | 2.63E-05                 | 2.6E-05                   |
| Chromium                       | 1.4E-03                 | 4.2E-04                  | 1.2E-05  | 2.63E-05                 | 2.6E-05                   |
| Cobalt                         | 8.4E-05                 |                          | 7.4E-07  |                          | 7.4E-07                   |
| Lead                           | 5.0E-04                 | 1.3E-03                  | 4.4E-06  | 7.88E-05                 | 7.9E-05                   |
| Manganese                      | 3.8E-04                 | 8.4E-04                  | 3.3E-06  | 5.26E-05                 | 5.3E-05                   |
| Mercury                        | 2.6E-04                 | 4.2E-04                  | 2.3E-06  | 2.63E-05                 | 2.6E-05                   |
| Nickel                         | 2.1E-03                 | 4.2E-04                  | 1.8E-05  | 2.63E-05                 | 2.6E-05                   |
| Selenium                       | 2.4E-05                 | 2.1E-03                  | 2.1E-07  | 1.31E-04                 | 1.3E-04                   |
| Benzene                        | 2.1E-03                 |                          | 1.8E-05  |                          | 1.8E-05                   |
| Dichlorobenzene                | 1.2E-03                 |                          | 1.1E-05  |                          | 1.1E-05                   |
| Ethylbenzene                   |                         |                          |  |                          | 0                         |
| Formaldehyde                   | 7.5E-02                 | 6.10E-02                 | 6.6E-04  | 3.82E-03                 | 0.004                     |
| Hexane                         | 1.8E+00                 |                          | 0.02   |                          | 0.016                     |
| Phenol                         |                         |                          |  |                          | 0                         |
| Toluene                        | 3.4E-03                 |                          | 3.0E-05  |                          | 3.0E-05                   |
| Total PAH Haps                 | negl                    |                          | negl   |                          | 0                         |
| Polycyclic Organic Matter      |                         | 3.30E-03                 |  | 2.06E-04                 | 2.1E-04                   |

**Total HAPs = 1.7E-02 4.5E-03 0.020**  
**Worst Single HAP = 1.6E-02 3.8E-03 1.6E-02**  
**(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)] \* [kgal/1000 gal] \* [ton/2000 lbs]  
 Sources of AP-42 Emission Factors for fuel combustion:

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4  
 No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 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 (CO<sub>2</sub>e) Emissions from  
Hot Oil Heater Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

Maximum Hot Oil Heater Fuel Input Rate = 2.00 MMBtu/hr  
 Natural Gas Usage = 17.52 MMCF/yr  
 No. 2 Fuel Oil Usage = 125,142.86 gal/yr, 0.50 % sulfur

**Unlimited/Uncontrolled Emissions**

| Criteria Pollutant | Emission Factor (units)     |                                | 11/29/2013<br>Global Warming<br>Potentials<br>(GWP) | Unlimited/Uncontrolled Potential<br>to Emit (tons/yr) |                                |
|--------------------|-----------------------------|--------------------------------|---|---|--------------------------------|
|                    | Natural<br>Gas<br>(lb/MMCF) | No. 2<br>Fuel Oil<br>(lb/kgal) |   | Natural Gas<br>(tons/yr)                              | No. 2<br>Fuel Oil<br>(tons/yr) |
| CO <sub>2</sub>    | 120,161.84                  | 22,501.41                      | 1   | 1,052.62  | 1,407.95                       |
| CH <sub>4</sub>    | 2.49                        | 0.91                           | 25  | 0.022   | 5.71E-02                       |
| N <sub>2</sub> O   | 2.20                        | 0.26                           | 298   | 0.019   | 1.63E-02                       |
| Total              |                             |                                |   | 1,052.66  | 1,408.02                       |

|   |
|---|
| <b>Worse Case<br/>CO<sub>2</sub>e Emissions<br/>(tons/yr)</b> |
| <b>1,414</b>  |

|  |       |       |
|--|-------|-------|
| CO <sub>2</sub> e Equivalent Emissions (tons/yr) | 1,059 | 1,414 |
|--|-------|-------|

**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 CO<sub>2</sub> and CH<sub>4</sub> from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N<sub>2</sub>O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2

No. 2 Fuel Oil: Emission Factors for CO<sub>2</sub> and CH<sub>4</sub> from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N<sub>2</sub>O 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 CO<sub>2</sub>e (tons/yr) = Unlimited Potential to Emit CO<sub>2</sub> of "worst case" fuel (ton/yr) x CO<sub>2</sub> GWP (1) + Unlimited Potential to Emit CH<sub>4</sub> of "worst case" fuel (ton/yr) x CH<sub>4</sub> GWP (21) + Unlimited Potential to Emit N<sub>2</sub>O of "worst case" fuel (ton/yr) x N<sub>2</sub>O GWP (310).

**Abbreviations**

CH<sub>4</sub> = Methane

N<sub>2</sub>O = Nitrogen Dioxide

CO<sub>2</sub> = Carbon Dioxide

PTE = Potential to Emit

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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 = 2.00 MMBtu/hr  
 Natural Gas Usage = 17.52 MMCF/yr, and  
 No. 2 Fuel Oil Usage = 125,142.86 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                | 2.28E-04   | 0.002          | 0.002                         |
| CO                      | 8.90E-06             | 0.0012                  | 0.078  | 0.075          | 0.078                         |
| Greenhouse Gas as CO2e* |                      |                         |  |                |                               |
| CO2                     | 0.20                 | 28.00                   | 1752.00  | 1752.00        | 1752.00                       |
| Hazardous Air Pollutant |                      |                         |  |                |                               |
| Formaldehyde            | 2.60E-08             | 3.50E-06                | 2.28E-04   | 2.19E-04       | 2.28E-04                      |
| Acenaphthene            |                      | 5.30E-07                |  | 3.32E-05       | 3.32E-05                      |
| Acenaphthylene          |                      | 2.00E-07                |  | 1.25E-05       | 1.25E-05                      |
| Anthracene              |                      | 1.80E-07                |  | 1.13E-05       | 1.13E-05                      |
| Benzo(b)fluoranthene    |                      | 1.00E-07                |  | 6.26E-06       | 6.26E-06                      |
| Fluoranthene            |                      | 4.40E-08                |  | 2.75E-06       | 2.75E-06                      |
| Fluorene                |                      | 3.20E-08                |  | 2.00E-06       | 2.00E-06                      |
| Naphthalene             |                      | 1.70E-05                |  | 1.06E-03       | 1.06E-03                      |
| Phenanthrene            |                      | 4.90E-06                |  | 3.07E-04       | 3.07E-04                      |
| Pyrene                  |                      | 3.20E-08                |  | 2.00E-06       | 2.00E-06                      |
| <b>Total HAPs</b>       |                      |                         |  |                | <b>1.67E-03</b>               |
| <b>Worst Single HAP</b> |                      |                         |  |                | <b>1.06E-03 (Naphthalene)</b> |

**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  
Asphalt Load-Out, Silo Filling, and Yard Emissions**

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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 = | 1,480,000 | 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           | 0.39                                | 0.43         | NA           | <b>0.82</b> |
| Organic PM | 3.4E-04                          | 2.5E-04      | NA           | 0.25                                | 0.188        | NA           | <b>0.44</b> |
| TOC        | 0.004                            | 0.012        | 0.001        | 3.08                                | 9.02         | 0.814        | <b>12.9</b> |
| CO         | 0.001                            | 0.001        | 3.5E-04      | 1.00                                | 0.873        | 0.260        | <b>2.13</b> |

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

|                         |                |                |                |                |
|-------------------------|----------------|----------------|----------------|----------------|
| <b>PM/HAPs</b>          | <b>0.018</b>   | <b>0.021</b>   | <b>0</b>       | <b>0.039</b>   |
| <b>VOC/HAPs</b>         | <b>0.045</b>   | <b>0.115</b>   | <b>0.012</b>   | <b>0.172</b>   |
| <b>non-VOC/HAPs</b>     | <b>2.4E-04</b> | <b>2.4E-05</b> | <b>6.3E-05</b> | <b>3.2E-04</b> |
| <b>non-VOC/non-HAPs</b> | <b>0.22</b>    | <b>0.13</b>    | <b>0.06</b>    | <b>0.41</b>    |

|                         |             |             |              |                                       |
|-------------------------|-------------|-------------|--------------|---------------------------------------|
| <b>Total VOCs</b>       | <b>2.89</b> | <b>9.02</b> | <b>0.8</b>   | <b>12.7</b>                           |
| <b>Total HAPs</b>       | <b>0.06</b> | <b>0.14</b> | <b>0.012</b> | <b>0.21</b>                           |
| <b>Worst Single HAP</b> |             |             |              | <b>0.066</b><br><b>(formaldehyde)</b> |

**Methodology**

The asphalt temperature and volatility factor were provided by the source.

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

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16

Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::

Total PM/PM10 Ef =  $0.000181 + 0.00141(-V)e^{(0.0251)(T+460)-20.43}$

Organic PM Ef =  $0.00141(-V)e^{(0.0251)(T+460)-20.43}$

TOC Ef =  $0.0172(-V)e^{(0.0251)(T+460)-20.43}$

CO Ef =  $0.00558(-V)e^{(0.0251)(T+460)-20.43}$

Silo Filling Emission Factor Equations (AP-42 Table 11.1-14):

PM/PM10 Ef =  $0.000332 + 0.00105(-V)e^{(0.0251)(T+460)-20.43}$

Organic PM Ef =  $0.00105(-V)e^{(0.0251)(T+460)-20.43}$

TOC Ef =  $0.0504(-V)e^{(0.0251)(T+460)-20.43}$

CO Ef =  $0.00488(-V)e^{(0.0251)(T+460)-20.43}$

On Site Yard CO emissions estimated by multiplying the TOC emissions by 0.32

\*No emission factors available for PM10 or PM2.5, therefore IDEM assumes PM10 and PM2.5 are equivalent to Total PM.

**Abbreviations**

TOC = Total Organic Compounds

CO = Carbon Monoxide

PM = Particulate

Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

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

Company Name: Wabash Valley Asphalt  
Source Address: 2000 E CR 800 S, Cloverdale, IN 46120  
Permit Number: F133-33494-05321  
Reviewer: Tamera Wessel

**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        |
| <b>PAH HAPs</b>                 |          |          |          |            |  |   |                                     |              |             |              |
| Acenaphthene                    | 83-32-9  | PM/HAP   | POM      | Organic PM | 0.26%  | 0.47%   | 6.6E-04                             | 8.8E-04      | NA          | 1.5E-03      |
| Acenaphthylene                  | 208-96-8 | PM/HAP   | POM      | Organic PM | 0.028%   | 0.014%  | 7.1E-05                             | 2.6E-05      | NA          | 9.7E-05      |
| Anthracene                      | 120-12-7 | PM/HAP   | POM      | Organic PM | 0.07%  | 0.13%   | 1.8E-04                             | 2.4E-04      | NA          | 4.2E-04      |
| Benzo(a)anthracene              | 56-55-3  | PM/HAP   | POM      | Organic PM | 0.019%   | 0.056%  | 4.8E-05                             | 1.1E-04      | NA          | 1.5E-04      |
| Benzo(b)fluoranthene            | 205-99-2 | PM/HAP   | POM      | Organic PM | 0.0076%  | 0   | 1.9E-05                             | 0            | NA          | 1.9E-05      |
| Benzo(k)fluoranthene            | 207-08-9 | PM/HAP   | POM      | Organic PM | 0.0022%  | 0   | 5.6E-06                             | 0            | NA          | 5.6E-06      |
| Benzo(g,h,i)perylene            | 191-24-2 | PM/HAP   | POM      | Organic PM | 0.0019%  | 0   | 4.8E-06                             | 0            | NA          | 4.8E-06      |
| Benzo(a)pyrene                  | 50-32-8  | PM/HAP   | POM      | Organic PM | 0.0023%  | 0   | 5.8E-06                             | 0            | NA          | 5.8E-06      |
| Benzo(e)pyrene                  | 192-97-2 | PM/HAP   | POM      | Organic PM | 0.0078%  | 0.0095%   | 2.0E-05                             | 1.8E-05      | NA          | 3.8E-05      |
| Chrysene                        | 218-01-9 | PM/HAP   | POM      | Organic PM | 0.103%   | 0.21%   | 2.6E-04                             | 3.9E-04      | NA          | 6.5E-04      |
| Dibenz(a,h)anthracene           | 53-70-3  | PM/HAP   | POM      | Organic PM | 0.00037%   | 0   | 9.3E-07                             | 0            | NA          | 9.3E-07      |
| Fluoranthene                    | 206-44-0 | PM/HAP   | POM      | Organic PM | 0.05%  | 0.15%   | 1.3E-04                             | 2.8E-04      | NA          | 4.1E-04      |
| Fluorene                        | 86-73-7  | PM/HAP   | POM      | Organic PM | 0.77%  | 1.01%   | 1.9E-03                             | 1.9E-03      | NA          | 3.8E-03      |
| Indeno(1,2,3-cd)pyrene          | 193-39-5 | PM/HAP   | POM      | Organic PM | 0.00047%   | 0   | 1.2E-06                             | 0            | NA          | 1.2E-06      |
| 2-Methylnaphthalene             | 91-57-6  | PM/HAP   | POM      | Organic PM | 2.38%  | 5.27%   | 6.0E-03                             | 9.9E-03      | NA          | 0.016        |
| Naphthalene                     | 91-20-3  | PM/HAP   | POM      | Organic PM | 1.25%  | 1.82%   | 3.2E-03                             | 3.4E-03      | NA          | 6.6E-03      |
| Perylene                        | 198-55-0 | PM/HAP   | POM      | Organic PM | 0.022%   | 0.03%   | 5.6E-05                             | 5.6E-05      | NA          | 1.1E-04      |
| Phenanthrene                    | 85-01-8  | PM/HAP   | POM      | Organic PM | 0.81%  | 1.80%   | 2.0E-03                             | 3.4E-03      | NA          | 5.4E-03      |
| Pyrene                          | 129-00-0 | PM/HAP   | POM      | Organic PM | 0.15%  | 0.44%   | 3.8E-04                             | 8.3E-04      | NA          | 1.2E-03      |
| <b>Total PAH HAPs</b>           |          |          |          |            |  |   | <b>0.015</b>                        | <b>0.021</b> | <b>NA</b>   | <b>0.036</b> |
| <b>Other semi-volatile HAPs</b> |          |          |          |            |  |   |                                     |              |             |              |
| Phenol                          |          | PM/HAP   | ---      | Organic PM | 1.18%  | 0   | 3.0E-03                             | 0            | 0           | 3.0E-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        |
| <b>VOC</b>                         |           | VOC             | ---      | TOC    | 94%   | 100%   | <b>2.89</b>                         | <b>9.02</b>  | <b>0.77</b>  | <b>12.68</b> |
| non-VOC/non-HAPS                   |           |                 |          |        |   |  |                                     |              |              |              |
| Methane                            | 74-82-8   | non-VOC/non-HAP | ---      | TOC    | 6.50%   | 0.26%  | 2.0E-01                             | 2.3E-02      | 5.3E-02      | 0.276        |
| Acetone                            | 67-64-1   | non-VOC/non-HAP | ---      | TOC    | 0.046%  | 0.055%   | 1.4E-03                             | 5.0E-03      | 3.7E-04      | 0.007        |
| Ethylene                           | 74-85-1   | non-VOC/non-HAP | ---      | TOC    | 0.71%   | 1.10%  | 2.2E-02                             | 9.9E-02      | 5.8E-03      | 0.127        |
| <b>Total non-VOC/non-HAPS</b>      |           |                 |          |        | <b>7.30%</b>                                  | <b>1.40%</b>   | <b>0.225</b>                        | <b>0.126</b> | <b>0.059</b> | <b>0.41</b>  |
| Volatile organic HAPs              |           |                 |          |        |   |  |                                     |              |              |              |
| Benzene                            | 71-43-2   | VOC/HAP         | ---      | TOC    | 0.052%  | 0.032%   | 1.6E-03                             | 2.9E-03      | 4.2E-04      | 4.9E-03      |
| Bromomethane                       | 74-83-9   | VOC/HAP         | ---      | TOC    | 0.0096%                                       | 0.0049%  | 3.0E-04                             | 4.4E-04      | 7.8E-05      | 8.2E-04      |
| 2-Butanone                         | 78-93-3   | VOC/HAP         | ---      | TOC    | 0.049%  | 0.039%   | 1.5E-03                             | 3.5E-03      | 4.0E-04      | 5.4E-03      |
| Carbon Disulfide                   | 75-15-0   | VOC/HAP         | ---      | TOC    | 0.013%  | 0.016%   | 4.0E-04                             | 1.4E-03      | 1.1E-04      | 1.9E-03      |
| Chloroethane                       | 75-00-3   | VOC/HAP         | ---      | TOC    | 0.00021%                                      | 0.004%   | 6.5E-06                             | 3.6E-04      | 1.7E-06      | 3.7E-04      |
| Chloromethane                      | 74-87-3   | VOC/HAP         | ---      | TOC    | 0.015%  | 0.023%   | 4.6E-04                             | 2.1E-03      | 1.2E-04      | 2.7E-03      |
| Cumene                             | 92-82-8   | VOC/HAP         | ---      | TOC    | 0.11%   | 0  | 3.4E-03                             | 0            | 9.0E-04      | 4.3E-03      |
| Ethylbenzene                       | 100-41-4  | VOC/HAP         | ---      | TOC    | 0.28%   | 0.038%   | 8.6E-03                             | 3.4E-03      | 2.3E-03      | 0.014        |
| Formaldehyde                       | 50-00-0   | VOC/HAP         | ---      | TOC    | 0.088%  | 0.69%  | 2.7E-03                             | 6.2E-02      | 7.2E-04      | 0.066        |
| n-Hexane                           | 100-54-3  | VOC/HAP         | ---      | TOC    | 0.15%   | 0.10%  | 4.6E-03                             | 9.0E-03      | 1.2E-03      | 0.015        |
| Isooctane                          | 540-84-1  | VOC/HAP         | ---      | TOC    | 0.0018%                                       | 0.00031%   | 5.5E-05                             | 2.8E-05      | 1.5E-05      | 9.8E-05      |
| Methylene Chloride                 | 75-09-2   | non-VOC/HAP     | ---      | TOC    | 0   | 0.00027%   | 0                                   | 2.4E-05      | 0            | 2.4E-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%  | 2.2E-04                             | 4.9E-04      | 5.9E-05      | 7.7E-04      |
| Tetrachloroethene                  | 127-18-4  | non-VOC/HAP     | ---      | TOC    | 0.0077%                                       | 0  | 2.4E-04                             | 0            | 6.3E-05      | 3.0E-04      |
| Toluene                            | 100-88-3  | VOC/HAP         | ---      | TOC    | 0.21%   | 0.062%   | 6.5E-03                             | 5.6E-03      | 1.7E-03      | 0.014        |
| 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  | 4.0E-05                             | 0            | 1.1E-05      | 5.1E-05      |
| m-/p-Xylene                        | 1330-20-7 | VOC/HAP         | ---      | TOC    | 0.41%   | 0.20%  | 1.3E-02                             | 1.8E-02      | 3.3E-03      | 0.034        |
| o-Xylene                           | 95-47-6   | VOC/HAP         | ---      | TOC    | 0.08%   | 0.057%   | 2.5E-03                             | 5.1E-03      | 6.5E-04      | 8.3E-03      |
| <b>Total volatile organic HAPs</b> |           |                 |          |        | <b>1.50%</b>                                  | <b>1.30%</b>   | <b>0.046</b>                        | <b>0.117</b> | <b>0.012</b> | <b>0.176</b> |

**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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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.

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

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          | 1.1                  | 1.27                          | 0.33                                    | 0.077               | 0.027                       |
| Stone         | 1                    | 1.16                          | 1.32                                    | 0.279               | 0.098                       |
| RAP           | 0.2                  | 0.23                          | 1.65                                    | 0.070               | 0.024                       |
| Gravel        | 0.9                  | 1.04                          | 0.50                                    | 0.095               | 0.033                       |
| Shingles      | 0.5                  | 0.58                          | 0.33                                    | 0.035               | 0.012                       |
| Slag          | 0.8                  | 0.93                          | 0.16                                    | 0.027               | 0.009                       |
| <b>Totals</b> |                      |                               |   | <b>0.58</b>         | <b>0.20</b>                 |

**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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

**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.

$$E_f = k \cdot (0.0032)^{0.75} \cdot (U/5)^{1.3} / (M/2)^{1.4}$$

where:  $E_f$  = Emission factor (lb/ton)

|                 |          |  |
|-----------------|----------|--|
| $k$ (PM) =      | 0.74     | = particle size multiplier (0.74 assumed for aerodynamic diameter $\leq 100$ $\mu$ m)  |
| $k$ (PM10) =    | 0.35     | = particle size multiplier (0.35 assumed for aerodynamic diameter $\leq 10$ $\mu$ m)   |
| $k$ (PM2.5) =   | 0.053    | = particle size multiplier (0.053 assumed for aerodynamic diameter $\leq 2.5$ $\mu$ m) |
| $U$ =           | 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)            |
| $E_f$ (PM) =    | 2.27E-03 | lb PM/ton of material handled  |
| $E_f$ (PM10) =  | 1.07E-03 | lb PM10/ton of material handled  |
| $E_f$ (PM2.5) = | 1.62E-04 | lb PM2.5/ton of material handled   |

|  |           |         |
|--|-----------|---------|
| Annual Asphalt Production Limitation =     | 1,480,000 | tons/yr |
| Percent Asphalt Cement/Binder (weight %) = | 5.0%      |         |
| Maximum Material Handling Throughput =     | 1,406,000 | 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            | 1.59                        | 0.75                          | 0.11                           |
| Front-end loader dumping of materials into feeder bins     | 1.59                        | 0.75                          | 0.11                           |
| Conveyor dropping material into dryer/mixer or batch tower | 1.59                        | 0.75                          | 0.11                           |
| <b>Total (tons/yr)</b>                                     | <b>4.78</b>                 | <b>2.26</b>                   | <b>0.34</b>                    |

**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   | 3.80                        | 1.69                                  |
| Screening                                    | 0.025  | 0.0087   | 17.58                       | 6.12                                  |
| Conveying                                    | 0.003  | 0.0011   | 2.11                        | 0.77                                  |
| <b>Limited Potential to Emit (tons/yr) =</b> |  |  | <b>23.48</b>                | <b>8.58</b>                           |

**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  $\mu$ m)  
 PM2.5 = Particulate Matter (<2.5  $\mu$ m)  
 PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary  
Unpaved Roads**

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

**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 =     | 1,480,000 | tons/yr    |
| Percent Asphalt Cement/Binder (weight %) = | 5.0%      |            |
| Maximum Material Handling Throughput =     | 1,406,000 | tons/yr    |
| Maximum Asphalt Cement/Binder Throughput = | 74,000    | tons/yr    |
| No. 2 Fuel Oil Limitation =                | 2,142,463 | gallons/yr |

| Process                                 | Vehicle Type            | Maximum Weight of Vehicle (tons) | Maximum Weight of Load (tons) | Maximum Weight of Vehicle and Load (tons/trip) | Maximum trips per year (trip/yr) | Total Weight driven per year (ton/yr) | Maximum one-way distance (feet/trip) | Maximum one-way distance (mi/trip) | Maximum one-way miles (miles/yr) |
|---|-------------------------|----------------------------------|-------------------------------|--|----------------------------------|---------------------------------------|--------------------------------------|------------------------------------|----------------------------------|
| Aggregate/RAP Truck Enter Full          | Dump truck (16 CY)      | 17.0                             | 22.4                          | 39.4   | 6.3E+04                          | 2.5E+06                               | 300                                  | 0.057                              | 3566.4                           |
| Aggregate/RAP Truck Leave Empty         | Dump truck (16 CY)      | 17.0                             | 0                             | 17.0   | 6.3E+04                          | 1.1E+06                               | 300                                  | 0.057                              | 3566.4                           |
| Asphalt Cement/Binder Truck Enter Full  | Tanker truck (6000 gal) | 12.0                             | 36.0                          | 48.0   | 2.1E+03                          | 9.9E+04                               | 300                                  | 0.057                              | 116.8                            |
| Asphalt Cement/Binder Truck Leave Empty | Tanker truck (6000 gal) | 12.0                             | 0                             | 12.0   | 2.1E+03                          | 2.5E+04                               | 300                                  | 0.057                              | 116.8                            |
| Fuel Oil Truck Enter Full               | Tanker truck (6000 gal) | 12.0                             | 32.0                          | 44.0   | 2.3E+02                          | 1.0E+04                               | 300                                  | 0.057                              | 12.9                             |
| Fuel Oil Truck Leave Empty              | Tanker truck (6000 gal) | 12.0                             | 0                             | 12.0   | 2.3E+02                          | 2.7E+03                               | 300                                  | 0.057                              | 12.9                             |
| Aggregate/RAP Loader Full               | Front-end loader (3 CY) | 15.0                             | 4.2                           | 19.2   | 3.3E+05                          | 6.4E+06                               | 300                                  | 0.057                              | 19020.6                          |
| Aggregate/RAP Loader Empty              | Front-end loader (3 CY) | 15.0                             | 0                             | 15.0   | 3.3E+05                          | 5.0E+06                               | 300                                  | 0.057                              | 19020.6                          |
| Asphalt Concrete Truck Leave Full       | Dump truck (16 CY)      | 17.0                             | 24.0                          | 41.0   | 6.2E+04                          | 2.5E+06                               | 300                                  | 0.057                              | 3503.8                           |
| Asphalt Concrete Truck Enter Empty      | Dump truck (16 CY)      | 17.0                             | 0                             | 17.0   | 6.2E+04                          | 1.0E+06                               | 300                                  | 0.057                              | 3503.8                           |
| <b>Total</b>                            |                         |                                  |                               |  | <b>9.2E+05</b>                   | <b>1.9E+07</b>                        |                                      |                                    | <b>5.2E+04</b>                   |

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

Unmitigated Emission Factor,  $E_f = k \cdot [(s/12)^a] \cdot [(W/3)^b]$  (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 =       | 20.3 | 20.3 | 20.3  | tons = average vehicle weight (provided by source)  |
| b =       | 0.45 | 0.45 | 0.45  | = constant (AP-42 Table 13.2.2-2)   |

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

|  | PM   | PM10 | PM2.5 |   |
|--|------|------|-------|---|
| Unmitigated Emission Factor, $E_f =$   | 6.09 | 1.55 | 0.16  | lb/mile   |
| Mitigated Emission Factor, $E_{ext} =$ | 4.01 | 1.02 | 0.10  | lb/mile   |
| Dust Control Efficiency =              | 50%  | 50%  | 50%   | (pursuant to control measures outlined in fugitive dust control plan) |

| Process                                 | Vehicle Type            | Unmitigated PTE of PM (tons/yr) | Unmitigated PTE of PM10 (tons/yr) | Unmitigated PTE of PM2.5 (tons/yr) | Mitigated PTE of PM (tons/yr) | Mitigated PTE of PM10 (tons/yr) | Mitigated PTE of PM2.5 (tons/yr) | Controlled PTE of PM (tons/yr) | Controlled PTE of PM10 (tons/yr) | Controlled PTE of PM2.5 (tons/yr) |
|---|-------------------------|---------------------------------|-----------------------------------|------------------------------------|-------------------------------|---------------------------------|----------------------------------|--------------------------------|----------------------------------|-----------------------------------|
| Aggregate/RAP Truck Enter Full          | Dump truck (16 CY)      | 10.87                           | 2.77                              | 0.28                               | 7.15                          | 1.82                            | 0.18                             | 3.57                           | 0.91                             | 0.09                              |
| Aggregate/RAP Truck Leave Empty         | Dump truck (16 CY)      | 10.87                           | 2.77                              | 0.28                               | 7.15                          | 1.82                            | 0.18                             | 3.57                           | 0.91                             | 0.09                              |
| Asphalt Cement/Binder Truck Enter Full  | Tanker truck (6000 gal) | 0.356                           | 0.091                             | 0.01                               | 0.234                         | 0.060                           | 6.0E-03                          | 0.117                          | 0.030                            | 3.0E-03                           |
| Asphalt Cement/Binder Truck Leave Empty | Tanker truck (6000 gal) | 0.356                           | 0.091                             | 0.01                               | 0.234                         | 0.060                           | 6.0E-03                          | 0.117                          | 0.030                            | 3.0E-03                           |
| Fuel Oil Truck Enter Full               | Tanker truck (6000 gal) | 0.039                           | 0.010                             | 1.0E-03                            | 0.026                         | 0.007                           | 6.6E-04                          | 0.013                          | 0.003                            | 3.3E-04                           |
| Fuel Oil Truck Leave Empty              | Tanker truck (6000 gal) | 0.039                           | 0.010                             | 1.0E-03                            | 0.026                         | 0.007                           | 6.6E-04                          | 0.013                          | 0.003                            | 3.3E-04                           |
| Aggregate/RAP Loader Full               | Front-end loader (3 CY) | 57.96                           | 14.77                             | 1.48                               | 38.11                         | 9.71                            | 0.97                             | 19.06                          | 4.86                             | 0.49                              |
| Aggregate/RAP Loader Empty              | Front-end loader (3 CY) | 57.96                           | 14.77                             | 1.48                               | 38.11                         | 9.71                            | 0.97                             | 19.06                          | 4.86                             | 0.49                              |
| Asphalt Concrete Truck Leave Full       | Dump truck (16 CY)      | 10.68                           | 2.72                              | 0.27                               | 7.02                          | 1.79                            | 0.18                             | 3.51                           | 0.89                             | 0.09                              |
| Asphalt Concrete Truck Enter Empty      | Dump truck (16 CY)      | 10.68                           | 2.72                              | 0.27                               | 7.02                          | 1.79                            | 0.18                             | 3.51                           | 0.89                             | 0.09                              |
| <b>Totals</b>                           |                         | <b>159.80</b>                   | <b>40.73</b>                      | <b>4.07</b>                        | <b>105.08</b>                 | <b>26.78</b>                    | <b>2.68</b>                      | <b>52.54</b>                   | <b>13.39</b>                     | <b>1.34</b>                       |

**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  
Paved Roads**

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

**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 =     | 1,480,000 | tons/yr    |
| Percent Asphalt Cement/Binder (weight %) = | 5.0%      |            |
| Maximum Material Handling Throughput =     | 1,406,000 | tons/yr    |
| Maximum Asphalt Cement/Binder Throughput = | 74,000    | tons/yr    |
| No. 2 Fuel Oil Limitation =                | 2,142,463 | gallons/yr |

| Process                                 | Vehicle Type            | Maximum Weight of Vehicle (tons) | Maximum Weight of Load (tons) | Maximum Weight of Vehicle and Load (tons/trip) | Maximum trips per year (trip/yr) | Total Weight driven per day (ton/yr) | Maximum one-way distance (feet/trip) | Maximum one-way distance (mi/trip) | Maximum one-way miles (miles/yr) |
|---|-------------------------|----------------------------------|-------------------------------|--|----------------------------------|--------------------------------------|--------------------------------------|------------------------------------|----------------------------------|
| Aggregate/RAP Truck Enter Full          | Dump truck (16 CY)      | 17.0                             | 22.4                          | 39.40  | 6.3E+04                          | 2.5E+06                              | 300                                  | 0.057                              | 3566.4                           |
| Aggregate/RAP Truck Leave Empty         | Dump truck (16 CY)      | 17.0                             | 0                             | 17.00  | 6.3E+04                          | 1.1E+06                              | 300                                  | 0.057                              | 3566.4                           |
| Asphalt Cement/Binder Truck Enter Full  | Tanker truck (6000 gal) | 12.0                             | 36.0                          | 48.00  | 2.1E+03                          | 9.9E+04                              | 300                                  | 0.057                              | 116.8                            |
| Asphalt Cement/Binder Truck Leave Empty | Tanker truck (6000 gal) | 12.0                             | 0                             | 12.00  | 2.1E+03                          | 2.5E+04                              | 300                                  | 0.057                              | 116.8                            |
| Fuel Oil Truck Enter Full               | Tanker truck (6000 gal) | 12.0                             | 32.0                          | 44.00  | 2.3E+02                          | 1.0E+04                              | 300                                  | 0.057                              | 12.9                             |
| Fuel Oil Truck Leave Empty              | Tanker truck (6000 gal) | 12.0                             | 0                             | 12.00  | 2.3E+02                          | 2.7E+03                              | 300                                  | 0.057                              | 12.9                             |
| Aggregate/RAP Loader Full               | Front-end loader (3 CY) | 15.0                             | 4.2                           | 19.20  | 3.3E+05                          | 6.4E+06                              | 300                                  | 0.057                              | 19020.6                          |
| Aggregate/RAP Loader Empty              | Front-end loader (3 CY) | 15.0                             | 0                             | 15.00  | 3.3E+05                          | 5.0E+06                              | 300                                  | 0.057                              | 19020.6                          |
| Asphalt Concrete Truck Leave Full       | Dump truck (16 CY)      | 17.0                             | 24.0                          | 41.00  | 6.2E+04                          | 2.5E+06                              | 300                                  | 0.057                              | 3503.8                           |
| Asphalt Concrete Truck Enter Empty      | Dump truck (16 CY)      | 17.0                             | 0                             | 17.00  | 6.2E+04                          | 1.0E+06                              | 300                                  | 0.057                              | 3503.8                           |
| <b>Total</b>                            |                         |                                  |                               |  | <b>9.2E+05</b>                   | <b>1.9E+07</b>                       |                                      |                                    | <b>5.2E+04</b>                   |

|                                   |       |            |
|-----------------------------------|-------|------------|
| Average Vehicle Weight Per Trip = | 20.3  | 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 =       | 20.3  | 20.3   | 20.3    | tons = average vehicle weight (provided by source)   |
| sL =      | 0.6   | 0.6    | 0.6     | g/m <sup>2</sup> = 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,  $E_{ext} = E_f * [1 - (p/4N)]$

|   |     |   |
|---|-----|---|
| Mitigated Emission Factor, $E_{ext} = E_f * [1 - (p/4N)]$ |     |   |
| 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, $E_f =$   | 0.15 | 0.03 | 0.01  | lb/mile   |
| Mitigated Emission Factor, $E_{ext} =$ | 0.14 | 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)      | 0.27                            | 0.05                              | 0.01                               | 0.24                          | 0.05                            | 0.01                             | 0.12                           | 0.02                             | 0.01                              |
| Aggregate/RAP Truck Leave Empty         | Dump truck (16 CY)      | 0.27                            | 0.05                              | 0.01                               | 0.24                          | 0.05                            | 0.01                             | 0.12                           | 0.02                             | 0.01                              |
| Asphalt Cement/Binder Truck Enter Full  | Tanker truck (6000 gal) | 0.009                           | 0.002                             | 4.3E-04                            | 0.008                         | 0.002                           | 3.9E-04                          | 0.004                          | 7.9E-04                          | 1.9E-04                           |
| Asphalt Cement/Binder Truck Leave Empty | Tanker truck (6000 gal) | 0.009                           | 0.002                             | 4.3E-04                            | 0.008                         | 0.002                           | 3.9E-04                          | 0.004                          | 7.9E-04                          | 1.9E-04                           |
| Fuel Oil Truck Enter Full               | Tanker truck (6000 gal) | 9.6E-04                         | 1.9E-04                           | 4.7E-05                            | 8.7E-04                       | 1.7E-04                         | 4.3E-05                          | 4.4E-04                        | 8.7E-05                          | 2.1E-05                           |
| Fuel Oil Truck Leave Empty              | Tanker truck (6000 gal) | 9.6E-04                         | 1.9E-04                           | 4.7E-05                            | 8.7E-04                       | 1.7E-04                         | 4.3E-05                          | 4.4E-04                        | 8.7E-05                          | 2.1E-05                           |
| Aggregate/RAP Loader Full               | Front-end loader (3 CY) | 1.41                            | 0.28                              | 0.07                               | 1.29                          | 0.26                            | 0.06                             | 0.65                           | 0.13                             | 0.03                              |
| Aggregate/RAP Loader Empty              | Front-end loader (3 CY) | 1.41                            | 0.28                              | 0.07                               | 1.29                          | 0.26                            | 0.06                             | 0.65                           | 0.13                             | 0.03                              |
| Asphalt Concrete Truck Leave Full       | Dump truck (16 CY)      | 0.26                            | 0.05                              | 0.01                               | 0.24                          | 0.05                            | 0.01                             | 0.12                           | 0.02                             | 0.01                              |
| Asphalt Concrete Truck Enter Empty      | Dump truck (16 CY)      | 0.26                            | 0.05                              | 0.01                               | 0.24                          | 0.05                            | 0.01                             | 0.12                           | 0.02                             | 0.01                              |
| <b>Totals</b>                           |                         | <b>3.90</b>                     | <b>0.78</b>                       | <b>0.19</b>                        | <b>3.57</b>                   | <b>0.71</b>                     | <b>0.18</b>                      | <b>1.78</b>                    | <b>0.36</b>                      | <b>0.09</b>                       |

**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: **Wabash Valley Asphalt**  
 Source Address: **2000 E CR 800 S, Cloverdale, IN 46120**  
 Permit Number: **F133-33494-05321**  
 Reviewer: **Tamera Wessel**

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                          | #DIV/0!                        |
| Cut back asphalt medium cure (assuming kerosene solvent)                                      | 28.6%                                     | 70.0%  | 0.0                                    | 0.0                          | #DIV/0!                        |
| Cut back asphalt slow cure (assuming fuel oil solvent)  | 20.0%                                     | 25.0%  | 0.0                                    | 0.0                          | #DIV/0!                        |
| Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent) | 15.0%                                     | 46.4%  | 0.0                                    | 0.0                          | #DIV/0!                        |
| Other asphalt with solvent binder   | 25.9%                                     | 2.5%   | 0.0                                    | 0.0                          | #DIV/0!                        |
| <b>Worst Case Limited PTE of VOC =</b>  |   |  |  | <b>0.0</b>                   |                                |

**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        |
| <b>Limited PTE of Total HAPs (tons/yr) =</b>               | <b>0.00</b>         |
| <b>Limited PTE of Single HAP (tons/yr) =</b>               | <b>0.00 Xylenes</b> |

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

| Volatile Organic HAP      | CAS#      | Hazardous Air Pollutant (HAP) Content (% by weight)*<br>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%       | 5.00E-5%        |
| Benzene                   | 71-43-2   | 1.90%  |                    | 2.90E-4%             |                |                 |
| Benzo(a)anthracene        | 56-55-3   |  |                    | 9.60E-7%             | 4.50E-7%       | 5.50E-4%        |
| Benzo(a)pyrene            | 50-32-8   |  |                    | 2.20E-6%             | 2.10E-7%       | 4.40E-5%        |
| Benzo(g,h,i)perylene      | 191-24-2  |  |                    | 1.20E-7%             | 5.70E-8%       |                 |
| Biphenyl                  | 92-52-4   |  |                    | 6.30E-4%             | 7.20E-5%       |                 |
| Chrysene                  | 218-01-9  |  |                    | 4.50E-7%             | 1.40E-6%       | 6.90E-4%        |
| Ethylbenzene              | 100-41-4  | 1.70%  |                    | 0.07%                | 3.40E-4%       |                 |
| Fluoranthene              | 206-44-0  |  | 7.10E-6%           | 5.90E-5%             | 1.40E-5%       | 2.40E-4%        |
| Fluorene                  | 86-73-7   |  | 4.20E-5%           | 8.60E-4%             | 1.90E-4%       |                 |
| Indeno(1,2,3-cd)pyrene    | 193-39-5  |  |                    | 1.60E-7%             |                | 1.00E-4%        |
| Methyl-tert-butylether    | 1634-04-4 | 0.33%  |                    |                      |                |                 |
| Naphthalene               | 91-20-3   | 0.25%  | 0.31%              | 0.26%                | 0.22%          | 4.20E-5%        |
| n-Hexane                  | 110-54-3  | 2.40%  |                    |                      |                |                 |
| Phenanthrene              | 85-01-8   |  | 8.60E-6%           | 8.80E-4%             | 7.90E-4%       | 2.10E-4%        |
| Pyrene                    | 129-00-0  |  | 2.40E-6%           | 4.60E-5%             | 2.90E-5%       | 2.30E-5%        |
| Toluene                   | 108-88-3  | 8.10%  |                    | 0.18%                | 6.20E-4%       |                 |
| Total Xylenes             | 1330-20-7 | 9.00%  |                    | 0.50%                | 0.23%          |                 |
| <b>Total Organic HAPs</b> |           | <b>26.08%</b>  | <b>0.33%</b>       | <b>1.29%</b>         | <b>0.68%</b>   | <b>0.19%</b>    |
| <b>Worst Single HAP</b>   |           | <b>9.00%</b>   | <b>0.31%</b>       | <b>0.50%</b>         | <b>0.23%</b>   | <b>0.07%</b>    |
|                           |           | <b>Xylenes</b>   | <b>Naphthalene</b> | <b>Xylenes</b>       | <b>Xylenes</b> | <b>Chrysene</b> |

**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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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:

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

**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                  |
| <b>Total</b>                                      |   | <b>0.00</b>           |

**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        |
| <b>Limited PTE of Total HAPs (tons/yr) =</b>               | <b>0.00</b> |                |
| <b>Limited PTE of Single HAP (tons/yr) =</b>               | <b>0.00</b> | <b>Xylenes</b> |

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

**Asphalt Plant Maximum Capacity - Drum Mix**

|  |           |                              |  |      |                   |      |       |       |             |       |        |
|--|-----------|------------------------------|--|------|-------------------|------|-------|-------|-------------|-------|--------|
| Maximum Hourly Asphalt Production =                            | 300       | ton/hr                       |  |      |                   |      |       |       |             |       |        |
| Maximum Annual Asphalt Production =                            | 2,628,000 | ton/yr                       |  |      |                   |      |       |       |             |       |        |
| Maximum Annual Blast Furnace Slag Usage =                      | 1,103,760 | ton/yr                       |  | 1.5  | % sulfur          |      |       |       |             |       |        |
| Maximum Annual Steel Slag Usage =                              | 1,103,760 | ton/yr                       |  | 0.66 | % sulfur          |      |       |       |             |       |        |
| Maximum Dryer Fuel Input Rate =                                | 96.0      | MMBtu/hr                     |  |      |                   |      |       |       |             |       |        |
| Natural Gas Usage =  | 841       | MMCF/yr                      |  |      |                   |      |       |       |             |       |        |
| No. 2 Fuel Oil Usage =   | 6,006,857 | gal/yr, and                  |  | 0.50 | % sulfur          |      |       |       |             |       |        |
| No. 4 Fuel Oil Usage =   | 0         | 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 =   | 6,006,857 | gal/yr, and                  |  | 0.75 | % sulfur          | 0.95 | % 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 <sub>2</sub> e         | Total HAPs               | Worst Case HAP                   |
| <b>Ducted Emissions</b>                             |  |                 |                 |               |              |              |               |                           |                          |                                  |
| Dryer Fuel Combustion (worst case)                  | 182.61   | 145.52          | 145.52          | 331.13        | 60.07        | 3.00         | 35.32         | 67,883                    | 43.05                    | 39.65 (hydrogen chloride)        |
| Dryer/Mixer (Process)                               | 36,792.00  | 8,541.00        | 1,971.00        | 76.21         | 72.27        | 42.05        | 170.82        | 43,756                    | 14.01                    | 4.07 (formaldehyde)              |
| Dryer/Mixer Slag Processing (worst case)            | 0  | 0               | 0               | 408.39        | 0            | 0            | 0             | 0.00                      | 0                        | 0                                |
| Hot Oil Heater Fuel Combustion/Process (worst case) | 0.13   | 0.21            | 0.21            | 4.44          | 1.25         | 0.05         | 0.74          | 1,752                     | 0.020                    | 0.016 (hexane)                   |
| Diesel-Fired Generator < 600 HP                     | 0  | 0               | 0               | 0             | 0            | 0            | 0             | 0                         | 0                        | 0 (formaldehyde)                 |
| Diesel-Fired Generator > 600 HP                     | 0  | 0               | 0               | 0             | 0            | 0            | 0             | 0                         | 0                        | 0 (benzene)                      |
| <b>Worst Case Emissions*</b>                        | <b>36,792.13</b>                                     | <b>8,541.21</b> | <b>1,971.21</b> | <b>743.96</b> | <b>73.52</b> | <b>42.10</b> | <b>171.56</b> | <b>69,635</b>             | <b>43.07</b>             | <b>39.65</b> (hydrogen chloride) |
| <b>Fugitive Emissions</b>                           |  |                 |                 |               |              |              |               |                           |                          |                                  |
| Asphalt Load-Out, Silo Filling, On-Site Yard        | 1.46   | 1.46            | 1.46            | 0             | 0            | 22.51        | 3.79          | 0                         | 0.38                     | 0.12 (formaldehyde)              |
| Material Storage Piles                              | 0.58   | 0.20            | 0.20            | 0             | 0            | 0            | 0             | 0                         | 0                        | 0                                |
| Material Processing and Handling                    | 8.49   | 4.02            | 0.61            | 0             | 0            | 0            | 0             | 0                         | 0                        | 0                                |
| Material Crushing, Screening, and Conveying         | 41.69  | 15.23           | 15.23           | 0             | 0            | 0            | 0             | 0                         | 0                        | 0                                |
| Unpaved and Paved Roads (worst case)                | 82.00  | 20.90           | 2.09            | 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                                |
| <b>Total Fugitive Emissions</b>                     | <b>134.22</b>  | <b>41.80</b>    | <b>19.59</b>    | <b>0</b>      | <b>0.00</b>  | <b>22.51</b> | <b>3.79</b>   | <b>0.00</b>               | <b>0.38</b>              | <b>0.00</b> (xylenes)            |
| <b>Totals Unlimited/Uncontrolled PTE</b>            | <b>36,926.34</b>                                     | <b>8,583.01</b> | <b>1,990.79</b> | <b>743.96</b> | <b>73.52</b> | <b>64.61</b> | <b>175.34</b> | <b>69,635</b>             | <b>43.44</b>             | <b>39.65</b> (xylenes)           |

negl = negligible

Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.

\*Worst Case Emissions (tons/yr) = Worst Case Emissions from Dryer Fuel Combustion and Dryer/Mixer + 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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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 =                  | 96        | MMBtu/hr          |
| Natural Gas Usage =                        | 841       | MMCF/yr           |
| No. 2 Fuel Oil Usage =                     | 6,006,857 | gal/yr, and       |
| No. 4 Fuel Oil Usage =                     | 0         | 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 =                     | 6,006,857 | gal/yr, and       |
|  | 0.50      | % sulfur          |
|  | 0.50      | % sulfur          |
|  | 0.50      | % sulfur          |
|  | 0.20      | gr/100 ft3 sulfur |
|  | 0.22      | gr/100 ft3 sulfur |
|  | 0.75      | % sulfur          |
|  | 0.95      | % 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              | 60.8                     | 0.80   | 6.01                     | 0.00                     | 0.00   | 0.000             | 0.000            | 182.61                   | <b>182.61</b>             |
| PM10/PM2.5                     | 7.6                     | 3.3                      | 8.3                       | 9.315  | 0.5               | 0.6              | 48.45                    | 3.20   | 9.91                     | 0.00                     | 0.00   | 0.000             | 0.000            | 145.52                   | <b>145.52</b>             |
| SO2                            | 0.6                     | 71.0                     | 75.0                      | 78.5   | 0.020             | 0.020            | 110.3                    | 0.25   | 213.24                   | 0.00                     | 0.00   | 0.000             | 0.000            | 331.13                   | <b>331.13</b>             |
| NOx                            | 100                     | 20.0                     | 20.0                      | 55.0   | 13.0              | 15.0             | 19.0                     | 42.05  | 60.07                    | 0.00                     | 0.00   | 0.00              | 0.00             | 57.07                    | <b>60.07</b>              |
| VOC                            | 5.5                     | 0.20                     | 0.20                      | 0.28   | 1.00              | 1.10             | 1.0                      | 2.31   | 0.60                     | 0.00                     | 0.00   | 0.00              | 0.00             | 3.00                     | <b>3.00</b>               |
| CO                             | 84                      | 5.0                      | 5.0                       | 5.0  | 7.5               | 8.4              | 5.0                      | 35.32032   | 15.02                    | 0.00                     | 0.00   | 0.00              | 0.00             | 15.02                    | <b>35.32</b>              |
| <b>Hazardous Air Pollutant</b> |                         |                          |                           |  |                   |                  |                          |  |                          |                          |  |                   |                  |                          |                           |
| HCl                            |                         |                          |                           |  |                   |                  | 13.2                     |  |                          |                          |  |                   |                  | 39.65                    | <b>39.65</b>              |
| Antimony                       |                         |                          | 5.25E-03                  | 5.25E-03                                     |                   |                  |                          |  |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  | negl                     | <b>0.0E+00</b>            |
| Arsenic                        | 2.0E-04                 | 5.6E-04                  | 1.32E-03                  | 1.32E-03                                     |                   |                  | 1.1E-01                  | 8.4E-05  | 1.68E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 3.30E-01                 | <b>3.3E-01</b>            |
| Beryllium                      | 1.2E-05                 | 4.2E-04                  | 2.78E-05                  | 2.78E-05                                     |                   |                  | negl                     | 5.0E-06  | 1.26E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | negl                     | <b>1.3E-03</b>            |
| Cadmium                        | 1.1E-03                 | 4.2E-04                  | 3.98E-04                  | 3.98E-04                                     |                   |                  | 9.3E-03                  | 4.6E-04  | 1.26E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 2.79E-02                 | <b>2.8E-02</b>            |
| Chromium                       | 1.4E-03                 | 4.2E-04                  | 8.45E-04                  | 8.45E-04                                     |                   |                  | 2.0E-02                  | 5.9E-04  | 1.26E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 6.01E-02                 | <b>6.0E-02</b>            |
| Cobalt                         | 8.4E-05                 |                          | 6.02E-03                  | 6.02E-03                                     |                   |                  | 2.1E-04                  | 3.5E-05  |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  | 6.31E-04                 | <b>6.3E-04</b>            |
| Lead                           | 5.0E-04                 | 1.3E-03                  | 1.51E-03                  | 1.51E-03                                     |                   |                  | 0.55                     | 2.1E-04  | 3.78E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 1.7E+00                  | <b>1.65</b>               |
| Manganese                      | 3.8E-04                 | 8.4E-04                  | 3.00E-03                  | 3.00E-03                                     |                   |                  | 6.8E-02                  | 1.6E-04  | 2.52E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 2.04E-01                 | <b>0.20</b>               |
| Mercury                        | 2.6E-04                 | 4.2E-04                  | 1.13E-04                  | 1.13E-04                                     |                   |                  |                          | 1.1E-04  | 1.26E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>1.3E-03</b>            |
| Nickel                         | 2.1E-03                 | 4.2E-04                  | 8.45E-02                  | 8.45E-02                                     |                   |                  | 1.1E-02                  | 8.8E-04  | 1.26E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | 3.30E-02                 | <b>0.033</b>              |
| Selenium                       | 2.4E-05                 | 2.1E-03                  | 6.83E-04                  | 6.83E-04                                     |                   |                  | negl                     | 1.0E-05  | 6.31E-03                 | 0.00E+00                 | 0.00E+00                                     |                   |                  | negl                     | <b>6.3E-03</b>            |
| 1,1,1-Trichloroethane          |                         |                          | 2.36E-04                  | 2.36E-04                                     |                   |                  |                          |  |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>0.0E+00</b>            |
| 1,3-Butadiene                  |                         |                          |                           |  |                   |                  |                          |  |                          |                          |  |                   |                  |                          | <b>0.0E+00</b>            |
| Acetaldehyde                   |                         |                          |                           |  |                   |                  |                          |  |                          |                          |  |                   |                  |                          | <b>0.0E+00</b>            |
| Acrolein                       |                         |                          |                           |  |                   |                  |                          |  |                          |                          |  |                   |                  |                          | <b>0.0E+00</b>            |
| Benzene                        | 2.1E-03                 |                          | 2.14E-04                  | 2.14E-04                                     |                   |                  |                          | 8.8E-04  |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>8.8E-04</b>            |
| Bis(2-ethylhexyl)phthalate     |                         |                          |                           |  |                   |                  | 2.2E-03                  |  |                          |                          |  |                   |                  | 6.61E-03                 | <b>6.6E-03</b>            |
| Dichlorobenzene                | 1.2E-03                 |                          |                           |  |                   |                  | 8.0E-07                  | 5.0E-04  |                          |                          |  |                   |                  | 2.40E-06                 | <b>5.0E-04</b>            |
| Ethylbenzene                   |                         |                          | 6.36E-05                  | 6.36E-05                                     |                   |                  |                          |  |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>0.0E+00</b>            |
| Formaldehyde                   | 7.5E-02                 | 6.10E-02                 | 3.30E-02                  | 3.30E-02                                     |                   |                  |                          | 3.2E-02  | 1.83E-01                 | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>0.183</b>              |
| Hexane                         | 1.8E+00                 |                          |                           |  |                   |                  |                          | 0.76   |                          |                          |  |                   |                  |                          | <b>0.757</b>              |
| Phenol                         |                         |                          |                           |  |                   |                  | 2.4E-03                  |  |                          |                          |  |                   |                  | 7.21E-03                 | <b>7.2E-03</b>            |
| Toluene                        | 3.4E-03                 |                          | 6.20E-03                  | 6.20E-03                                     |                   |                  |                          | 1.4E-03  |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>1.4E-03</b>            |
| Total PAH Haps                 | negl                    |                          | 1.13E-03                  | 1.13E-03                                     |                   |                  | 3.9E-02                  | negl   |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  | 1.17E-01                 | <b>1.2E-01</b>            |
| Polycyclic Organic Matter      |                         | 3.30E-03                 |                           |  |                   |                  |                          |  | 9.91E-03                 |                          |  |                   |                  |                          | <b>9.9E-03</b>            |
| Xylene                         |                         |                          | 1.09E-04                  | 1.09E-04                                     |                   |                  |                          |  |                          | 0.00E+00                 | 0.00E+00                                     |                   |                  |                          | <b>0.0E+00</b>            |
| <b>Total HAPs</b>              |                         |                          |                           |  |                   |                  |                          | <b>0.79</b>  | <b>0.21</b>              | <b>0.00</b>              | <b>0.00</b>                                  | <b>0</b>          | <b>0</b>         | <b>42.08</b>             | <b>43.05</b>              |

**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

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

**Abbreviations**

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

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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 =                  | 96        | MMBtu/hr    |      |                   |      |       |       |                          |
| Natural Gas Usage =                        | 841       | MMCF/yr     |      |                   |      |       |       |                          |
| No. 2 Fuel Oil Usage =                     | 6,006,857 | gal/yr, and | 0.50 | % sulfur          |      |       |       |                          |
| No. 4 Fuel Oil Usage =                     | 0         | 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 =                     | 6,006,857 | gal/yr, and | 0.75 | % sulfur          | 0.95 | % ash | 0.200 | % chlorine, 0.010 % lead |

**Unlimited/Uncontrolled Emissions**

| CO2e Fraction | Emission Factor (units) |                          |                          |  |                   |                  |                          | 11/29/2013 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 <sub>2</sub>  | 1                        |
| CH4           | 2.49                    | 0.91                     | 0.97                     | 1.00   | 0.60              | 0.67             | 0.89                     | Methane                                    | CH <sub>4</sub>  | 25                       |
| N2O           | 2.2                     | 0.26                     | 0.19                     | 0.53   | 0.9               | 0.9              | 0.18                     | Nitrous oxide                              | N <sub>2</sub> O | 298                      |

| CO2e 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) |
| CO2           | 50,525.65  | 67,581.38                | 0.00                     | 0.00   | 0.00              | 0.00             | 66,147.97                |
| CH4           | 1.05   | 2.74                     | 0.00                     | 0.00   | 0.00              | 0.00             | 2.68                     |
| N2O           | 0.93   | 0.78                     | 0.00                     | 0.00   | 0.00              | 0.00             | 0.54                     |
| <b>Total</b>  | <b>50,528</b>                                      | <b>67,585</b>            | <b>0.00</b>              | <b>0.00</b>                                  | <b>0.00</b>       | <b>0.00</b>      | <b>66,151</b>            |

|  |
|--|
| <b>CO2e for Worst Case Fuel* (tons/yr)</b> |
| <b>67,883</b>                              |

|  |               |               |             |             |             |             |               |
|--|---------------|---------------|-------------|-------------|-------------|-------------|---------------|
| <b>CO2e Equivalent Emissions (tons/yr)</b> | <b>50,828</b> | <b>67,883</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>66,376</b> |
|--|---------------|---------------|-------------|-------------|-------------|-------------|---------------|

**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 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

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: Wabash Valley Asphalt  
Source Address: 2000 E CR 800 S, Cloverdale, IN 46120  
Permit Number: F133-33494-05321  
Reviewer: Tamera Wessel**

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        | 36,792.00  | 36,792.00      | 36,792.00 | <b>36,792.00</b> |
| PM10*                          | 6.5                                    | 6.5            | 6.5       | 8,541.00   | 8,541.00       | 8,541.00  | <b>8,541.00</b>  |
| PM2.5*                         | 1.5                                    | 1.5            | 1.5       | 1,971.00   | 1,971.00       | 1,971.00  | <b>1,971.00</b>  |
| SO2**                          | 0.0034                                 | 0.011          | 0.058     | 4.47   | 14.45          | 76.21     | <b>76.21</b>     |
| NOx**                          | 0.026                                  | 0.055          | 0.055     | 34.16  | 72.27          | 72.27     | <b>72.27</b>     |
| VOC**                          | 0.032                                  | 0.032          | 0.032     | 42.05  | 42.05          | 42.05     | <b>42.05</b>     |
| CO***                          | 0.13                                   | 0.13           | 0.13      | 170.82   | 170.82         | 170.82    | <b>170.82</b>    |
| <b>Hazardous Air Pollutant</b> |  |                |           |  |                |           |                  |
| HCl                            |  |                | 2.10E-04  |  |                | 2.76E-01  | <b>0.28</b>      |
| Antimony                       | 1.80E-07                               | 1.80E-07       | 1.80E-07  | 2.37E-04   | 2.37E-04       | 2.37E-04  | <b>2.37E-04</b>  |
| Arsenic                        | 5.60E-07                               | 5.60E-07       | 5.60E-07  | 7.36E-04   | 7.36E-04       | 7.36E-04  | <b>7.36E-04</b>  |
| Beryllium                      | negl                                   | negl           | negl      | negl   | negl           | negl      | <b>0.00E+00</b>  |
| Cadmium                        | 4.10E-07                               | 4.10E-07       | 4.10E-07  | 5.39E-04   | 5.39E-04       | 5.39E-04  | <b>5.39E-04</b>  |
| Chromium                       | 5.50E-06                               | 5.50E-06       | 5.50E-06  | 7.23E-03   | 7.23E-03       | 7.23E-03  | <b>7.23E-03</b>  |
| Cobalt                         | 2.60E-08                               | 2.60E-08       | 2.60E-08  | 3.42E-05   | 3.42E-05       | 3.42E-05  | <b>3.42E-05</b>  |
| Lead                           | 6.20E-07                               | 1.50E-05       | 1.50E-05  | 8.15E-04   | 1.97E-02       | 1.97E-02  | <b>1.97E-02</b>  |
| Manganese                      | 7.70E-06                               | 7.70E-06       | 7.70E-06  | 1.01E-02   | 1.01E-02       | 1.01E-02  | <b>1.01E-02</b>  |
| Mercury                        | 2.40E-07                               | 2.60E-06       | 2.60E-06  | 3.15E-04   | 3.42E-03       | 3.42E-03  | <b>3.42E-03</b>  |
| Nickel                         | 6.30E-05                               | 6.30E-05       | 6.30E-05  | 0.08   | 0.08           | 0.08      | <b>0.08</b>      |
| Selenium                       | 3.50E-07                               | 3.50E-07       | 3.50E-07  | 4.60E-04   | 4.60E-04       | 4.60E-04  | <b>4.60E-04</b>  |
| 2,2,4 Trimethylpentane         | 4.00E-05                               | 4.00E-05       | 4.00E-05  | 0.05   | 0.05           | 0.05      | <b>0.05</b>      |
| Acetaldehyde                   |  |                | 1.30E-03  |  |                | 1.71      | <b>1.71</b>      |
| Acrolein                       |  |                | 2.60E-05  |  |                | 3.42E-02  | <b>3.42E-02</b>  |
| Benzene                        | 3.90E-04                               | 3.90E-04       | 3.90E-04  | 0.51   | 0.51           | 0.51      | <b>0.51</b>      |
| Ethylbenzene                   | 2.40E-04                               | 2.40E-04       | 2.40E-04  | 0.32   | 0.32           | 0.32      | <b>0.32</b>      |
| Formaldehyde                   | 3.10E-03                               | 3.10E-03       | 3.10E-03  | 4.07   | 4.07           | 4.07      | <b>4.07</b>      |
| Hexane                         | 9.20E-04                               | 9.20E-04       | 9.20E-04  | 1.21   | 1.21           | 1.21      | <b>1.21</b>      |
| Methyl chloroform              | 4.80E-05                               | 4.80E-05       | 4.80E-05  | 0.06   | 0.06           | 0.06      | <b>0.06</b>      |
| MEK                            |  |                | 2.00E-05  |  |                | 0.03      | <b>0.03</b>      |
| Propionaldehyde                |  |                | 1.30E-04  |  |                | 0.17      | <b>0.17</b>      |
| Quinone                        |  |                | 1.60E-04  |  |                | 0.21      | <b>0.21</b>      |
| Toluene                        | 1.50E-04                               | 2.90E-03       | 2.90E-03  | 0.20   | 3.81           | 3.81      | <b>3.81</b>      |
| Total PAH Haps                 | 1.90E-04                               | 8.80E-04       | 8.80E-04  | 0.25   | 1.16           | 1.16      | <b>1.16</b>      |
| Xylene                         | 2.00E-04                               | 2.00E-04       | 2.00E-04  | 0.26   | 0.26           | 0.26      | <b>0.26</b>      |

**Total HAPs 14.01  
Worst Single HAP 4.07 (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 (CO<sub>2</sub>e) Emissions from the  
Drum-Mix Plant (Dryer/Mixer) Process Emissions**

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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

Maximum Hourly Asphalt Production = 300 ton/hr  
 Maximum Annual Asphalt Production = 2,628,000 ton/yr

| Criteria Pollutant                                    | Emission Factor (lb/ton)<br>Drum-Mix Plant (dryer/mixer) |                |           | 11/29/2013<br>Global<br>Warming<br>Potentials<br>(GWP) | Unlimited/Uncontrolled Potential to Emit (tons/yr)<br>Drum-Mix Plant (dryer/mixer) |                |           | CO <sub>2</sub> e for<br>Worst Case<br>Fuel<br>(tons/yr) |
|---|--|----------------|-----------|--|--|----------------|-----------|--|
|   | Natural Gas  | No. 2 Fuel Oil | Waste Oil |  | Natural Gas  | No. 2 Fuel Oil | Waste Oil |  |
| CO <sub>2</sub>                                       | 33   | 33             | 33        | 1  | 43,362.00  | 43,362.00      | 43,362.00 | 43,756   |
| CH <sub>4</sub>                                       | 0.0120   | 0.0120         | 0.0120    | 25   | 15.77  | 15.77          | 15.77     |  |
| N <sub>2</sub> O                                      |  |                |           | 298  | 0  | 0              | 0         |  |
| <b>Total</b>  |  |                |           |  | 43,378   | 43,378         | 43,378    |  |
| <b>CO<sub>2</sub>e Equivalent Emissions (tons/yr)</b> |  |                |           |  | 43,756   | 43,756         | 43,756    |  |

**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 N<sub>2</sub>O available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N<sub>2</sub>O 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 CO<sub>2</sub>e (tons/yr) = Unlimited Potential to Emit CO<sub>2</sub> of "worst case" fuel (ton/yr) x CO<sub>2</sub> GWP (1) + Unlimited Potential to Emit CH<sub>4</sub> of "worst case" fuel (ton/yr) x CH<sub>4</sub> GWP (21) + Unlimited Potential to Emit N<sub>2</sub>O of "worst case" fuel (ton/yr) x N<sub>2</sub>O GWP (310).

**Abbreviations**

CO<sub>2</sub> = Carbon Dioxide                      CH<sub>4</sub> = Methane                      N<sub>2</sub>O = Nitrogen Dioxide                      PTE = Potential to Emit

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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

Maximum Annual Blast Furnace Slag Usage = 

|           |
|-----------|
| 1,103,760 |
|-----------|

 ton/yr      

|     |
|-----|
| 1.5 |
|-----|

 % sulfur  
 Maximum Annual Steel Slag Usage = 

|           |
|-----------|
| 1,103,760 |
|-----------|

 ton/yr      

|      |
|------|
| 0.66 |
|------|

 % sulfur

| Type of Slag        | SO2 Emission Factor (lb/ton) | Unlimited Potential to Emit SO2 (tons/yr) |
|---------------------|------------------------------|---|
| Blast Furnace Slag* | 0.74                         | 408.4                                     |
| Steel Slag**        | 0.0014                       | 0.77                                      |

**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:** Wabash Valley Asphalt  
**Source Location:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

Maximum Hot Oil Heater Fuel Input Rate = 2.00 MMBtu/hr  
 Natural Gas Usage = 17.5 MMCF/yr  
 No. 2 Fuel Oil Usage = 125,143 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                      | 0.017  | 0.125                    | <b>0.13</b>               |
| PM10/PM2.5                     | 7.6                     | 3.3                      | 0.067  | 0.206                    | <b>0.21</b>               |
| SO2                            | 0.6                     | 71.0                     | 0.005  | 4.443                    | <b>4.44</b>               |
| NOx                            | 100                     | 20.0                     | 0.876  | 1.251                    | <b>1.25</b>               |
| VOC                            | 5.5                     | 0.20                     | 0.048  | 0.013                    | <b>0.05</b>               |
| CO                             | 84                      | 5.0                      | 0.736  | 0.313                    | <b>0.74</b>               |
| <b>Hazardous Air Pollutant</b> |                         |                          |  |                          |                           |
| Arsenic                        | 2.0E-04                 | 5.6E-04                  | 1.8E-06  | 3.50E-05                 | <b>3.5E-05</b>            |
| Beryllium                      | 1.2E-05                 | 4.2E-04                  | 1.1E-07  | 2.63E-05                 | <b>2.6E-05</b>            |
| Cadmium                        | 1.1E-03                 | 4.2E-04                  | 9.6E-06  | 2.63E-05                 | <b>2.6E-05</b>            |
| Chromium                       | 1.4E-03                 | 4.2E-04                  | 1.2E-05  | 2.63E-05                 | <b>2.6E-05</b>            |
| Cobalt                         | 8.4E-05                 |                          | 7.4E-07  |                          | <b>7.4E-07</b>            |
| Lead                           | 5.0E-04                 | 1.3E-03                  | 4.4E-06  | 7.88E-05                 | <b>7.9E-05</b>            |
| Manganese                      | 3.8E-04                 | 8.4E-04                  | 3.3E-06  | 5.26E-05                 | <b>5.3E-05</b>            |
| Mercury                        | 2.6E-04                 | 4.2E-04                  | 2.3E-06  | 2.63E-05                 | <b>2.6E-05</b>            |
| Nickel                         | 2.1E-03                 | 4.2E-04                  | 1.8E-05  | 2.63E-05                 | <b>2.6E-05</b>            |
| Selenium                       | 2.4E-05                 | 2.1E-03                  | 2.1E-07  | 1.31E-04                 | <b>1.3E-04</b>            |
| Benzene                        | 2.1E-03                 |                          | 1.8E-05  |                          | <b>1.8E-05</b>            |
| Dichlorobenzene                | 1.2E-03                 |                          | 1.1E-05  |                          | <b>1.1E-05</b>            |
| Ethylbenzene                   |                         |                          |  |                          | <b>0.0E+00</b>            |
| Formaldehyde                   | 7.5E-02                 | 6.10E-02                 | 6.6E-04  | 3.82E-03                 | <b>3.8E-03</b>            |
| Hexane                         | 1.8E+00                 |                          | 1.6E-02  |                          | <b>1.6E-02</b>            |
| Phenol                         |                         |                          |  |                          | <b>0.0E+00</b>            |
| Toluene                        | 3.4E-03                 |                          | 3.0E-05  |                          | <b>3.0E-05</b>            |
| Total PAH Haps                 | negl                    |                          | negl   |                          | <b>0.0E+00</b>            |
| Polycyclic Organic Matter      |                         | 3.30E-03                 |  | 2.06E-04                 | <b>2.1E-04</b>            |

**Total HAPs = 1.7E-02 4.5E-03 0.020**  
**Worst Single HAP = 1.6E-02 3.8E-03 1.6E-02**  
**(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)] \* [kgal/1000 gal] \* [ton/2000 lbs]

Sources of AP-42 Emission Factors for fuel combustion:

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4

No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 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 (CO<sub>2</sub>e) Emissions from  
Hot Oil Heater Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

Maximum Hot Oil Heater Fuel Input Rate = 2.00 MMBtu/hr  
 Natural Gas Usage = 17.52 MMCF/yr  
 No. 2 Fuel Oil Usage = 125,142.86 gal/yr, 0.50 % sulfur

**Unlimited/Uncontrolled Emissions**

| Criteria Pollutant                                    | Emission Factor (units)  |                                | 11/29/2013<br>Global Warming<br>Potentials<br>(GWP) | Unlimited/Uncontrolled<br>Potential to Emit (tons/yr) |                                |
|---|--------------------------|--------------------------------|---|---|--------------------------------|
|   | Natural Gas<br>(lb/MMCF) | No. 2<br>Fuel Oil<br>(lb/kgal) |   | Natural Gas<br>(tons/yr)                              | No. 2<br>Fuel Oil<br>(tons/yr) |
| CO <sub>2</sub>                                       | 120,161.84               | 22,501.41                      | 1   | 1,052.62  | 1,407.95                       |
| CH <sub>4</sub>                                       | 2.49                     | 0.91                           | 25  | 0.02  | 0.06                           |
| N <sub>2</sub> O                                      | 2.2                      | 0.26                           | 298   | 0.02  | 0.02                           |
|   |                          |                                |   | 1,053   | 1,408                          |
| <b>CO<sub>2</sub>e Equivalent Emissions (tons/yr)</b> |                          |                                |   | <b>1,059</b>  | <b>1,414</b>                   |

|   |
|---|
| <b>Worse Case<br/>CO<sub>2</sub>e Emissions<br/>(tons/yr)</b> |
| <b>1,414</b>  |

**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 CO<sub>2</sub> and CH<sub>4</sub> from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N<sub>2</sub>O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2

No. 2 Fuel Oil: Emission Factors for CO<sub>2</sub> and CH<sub>4</sub> from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N<sub>2</sub>O 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 CO<sub>2</sub>e (tons/yr) = Unlimited Potential to Emit CO<sub>2</sub> of "worst case" fuel (ton/yr) x CO<sub>2</sub> GWP (1) + Unlimited Potential to Emit CH<sub>4</sub> of "worst case" fuel (ton/yr) x CH<sub>4</sub> GWP (21) + Unlimited Potential to Emit N<sub>2</sub>O of "worst case" fuel (ton/yr) x N<sub>2</sub>O GWP (310).

**Abbreviations**

CO<sub>2</sub> = Carbon Dioxide  
 CH<sub>4</sub> = Methane

N<sub>2</sub>O = Nitrogen Dioxide  
 PTE = Potential to Emit

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

**Company Name:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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 = 2.00 MMBtu/hr  
 Natural Gas Usage = 17.52 MMCF/yr, and  
 No. 2 Fuel Oil Usage = 125,142.86 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                | 2.28E-04   | 0.002          | <b>0.002</b>                  |
| CO                      | 8.90E-06             | 0.0012                  | 0.078  | 0.075          | <b>0.078</b>                  |
| Greenhouse Gas as CO2e* |                      |                         |  |                |                               |
| CO2                     | 0.20                 | 28.00                   | 1,752  | 1,752          | <b>1,752</b>                  |
| Hazardous Air Pollutant |                      |                         |  |                |                               |
| Formaldehyde            | 2.60E-08             | 3.50E-06                | 2.28E-04   | 2.19E-04       | <b>2.28E-04</b>               |
| Acenaphthene            |                      | 5.30E-07                |  | 3.32E-05       | <b>3.32E-05</b>               |
| Acenaphthylene          |                      | 2.00E-07                |  | 1.25E-05       | <b>1.25E-05</b>               |
| Anthracene              |                      | 1.80E-07                |  | 1.13E-05       | <b>1.13E-05</b>               |
| Benzo(b)fluoranthene    |                      | 1.00E-07                |  | 6.26E-06       | <b>6.26E-06</b>               |
| Fluoranthene            |                      | 4.40E-08                |  | 2.75E-06       | <b>2.75E-06</b>               |
| Fluorene                |                      | 3.20E-08                |  | 2.00E-06       | <b>2.00E-06</b>               |
| Naphthalene             |                      | 1.70E-05                |  | 1.06E-03       | <b>1.06E-03</b>               |
| Phenanthrene            |                      | 4.90E-06                |  | 3.07E-04       | <b>3.07E-04</b>               |
| Pyrene                  |                      | 3.20E-08                |  | 2.00E-06       | <b>2.00E-06</b>               |
| <b>Total HAPs</b>       |                      |                         |  |                | <b>1.67E-03</b>               |
| <b>Worst Single HAP</b> |                      |                         |  |                | <b>1.06E-03 (Naphthalene)</b> |

**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  
Asphalt Load-Out, Silo Filling, and Yard Emissions**

**Company Name: Wabash Valley Asphalt  
Source Address: 2000 E CR 800 S, Cloverdale, IN 46120  
Permit Number: F133-33494-05321  
Reviewer: Tamera Wessel**

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

|                                     |           |         |
|-------------------------------------|-----------|---------|
| Asphalt Temperature, T =            | 325       | F       |
| Asphalt Volatility Factor, V =      | -0.5      |         |
| Maximum Annual Asphalt Production = | 2,628,000 | 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           | 0.69   | 0.77         | NA           | 1.46  |
| Organic PM | 3.4E-04                          | 2.5E-04      | NA           | 0.45   | 0.334        | NA           | 0.78  |
| TOC        | 0.004                            | 0.012        | 0.001        | 5.46   | 16.01        | 1.445        | 22.9  |
| CO         | 0.001                            | 0.001        | 3.5E-04      | 1.77   | 1.550        | 0.463        | 3.79  |

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

|                         |                |                |                |                |
|-------------------------|----------------|----------------|----------------|----------------|
| <b>PM/HAPs</b>          | <b>0.032</b>   | <b>0.038</b>   | <b>0</b>       | <b>0.069</b>   |
| <b>VOC/HAPs</b>         | <b>0.081</b>   | <b>0.204</b>   | <b>0.021</b>   | <b>0.306</b>   |
| <b>non-VOC/HAPs</b>     | <b>4.2E-04</b> | <b>4.3E-05</b> | <b>1.1E-04</b> | <b>5.8E-04</b> |
| <b>non-VOC/non-HAPs</b> | <b>0.40</b>    | <b>0.23</b>    | <b>0.10</b>    | <b>0.73</b>    |

|                         |             |              |              |                       |
|-------------------------|-------------|--------------|--------------|-----------------------|
| <b>Total VOCs</b>       | <b>5.14</b> | <b>16.01</b> | <b>1.4</b>   | <b>22.5</b>           |
| <b>Total HAPs</b>       | <b>0.11</b> | <b>0.24</b>  | <b>0.021</b> | <b>0.38</b>           |
| <b>Worst Single HAP</b> |             |              |              | <b>0.117</b>          |
|                         |             |              |              | <b>(formaldehyde)</b> |

**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: Wabash Valley Asphalt  
Source Address: 2000 E CR 800 S, Cloverdale, IN 46120  
Permit Number: F133-33494-05321  
Reviewer: Tamera Wessel

**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        |
| <b>PAH HAPs</b>                 |          |          |          |            |  |   |  |              |             |              |
| Acenaphthene                    | 83-32-9  | PM/HAP   | POM      | Organic PM | 0.26%  | 0.47%   | 1.2E-03  | 1.6E-03      | NA          | 2.7E-03      |
| Acenaphthylene                  | 208-96-8 | PM/HAP   | POM      | Organic PM | 0.028%   | 0.014%  | 1.3E-04  | 4.7E-05      | NA          | 1.7E-04      |
| Anthracene                      | 120-12-7 | PM/HAP   | POM      | Organic PM | 0.07%  | 0.13%   | 3.1E-04  | 4.3E-04      | NA          | 7.5E-04      |
| Benzo(a)anthracene              | 56-55-3  | PM/HAP   | POM      | Organic PM | 0.019%   | 0.056%  | 8.5E-05  | 1.9E-04      | NA          | 2.7E-04      |
| Benzo(b)fluoranthene            | 205-99-2 | PM/HAP   | POM      | Organic PM | 0.0076%  | 0   | 3.4E-05  | 0            | NA          | 3.4E-05      |
| Benzo(k)fluoranthene            | 207-08-9 | PM/HAP   | POM      | Organic PM | 0.0022%  | 0   | 9.9E-06  | 0            | NA          | 9.9E-06      |
| Benzo(g,h,i)perylene            | 191-24-2 | PM/HAP   | POM      | Organic PM | 0.0019%  | 0   | 8.5E-06  | 0            | NA          | 8.5E-06      |
| Benzo(a)pyrene                  | 50-32-8  | PM/HAP   | POM      | Organic PM | 0.0023%  | 0   | 1.0E-05  | 0            | NA          | 1.0E-05      |
| Benzo(e)pyrene                  | 192-97-2 | PM/HAP   | POM      | Organic PM | 0.0078%  | 0.0095%   | 3.5E-05  | 3.2E-05      | NA          | 6.7E-05      |
| Chrysene                        | 218-01-9 | PM/HAP   | POM      | Organic PM | 0.103%   | 0.21%   | 4.6E-04  | 7.0E-04      | NA          | 1.2E-03      |
| Dibenz(a,h)anthracene           | 53-70-3  | PM/HAP   | POM      | Organic PM | 0.00037%   | 0   | 1.7E-06  | 0            | NA          | 1.7E-06      |
| Fluoranthene                    | 206-44-0 | PM/HAP   | POM      | Organic PM | 0.05%  | 0.15%   | 2.2E-04  |              | NA          | 2.2E-04      |
| Fluorene                        | 86-73-7  | PM/HAP   | POM      | Organic PM | 0.77%  | 1.01%   | 3.4E-03  | 3.4E-03      | NA          | 6.8E-03      |
| Indeno(1,2,3-cd)pyrene          | 193-39-5 | PM/HAP   | POM      | Organic PM | 0.00047%   | 0   | 2.1E-06  | 0            | NA          | 2.1E-06      |
| 2-Methylnaphthalene             | 91-57-6  | PM/HAP   | POM      | Organic PM | 2.38%  | 5.27%   | 1.1E-02  | 1.8E-02      | NA          | 0.028        |
| Naphthalene                     | 91-20-3  | PM/HAP   | POM      | Organic PM | 1.25%  | 1.82%   | 5.6E-03  | 6.1E-03      | NA          | 1.2E-02      |
| Perylene                        | 198-55-0 | PM/HAP   | POM      | Organic PM | 0.022%   | 0.03%   | 9.9E-05  | 1.0E-04      | NA          | 2.0E-04      |
| Phenanthrene                    | 85-01-8  | PM/HAP   | POM      | Organic PM | 0.81%  | 1.80%   | 3.6E-03  | 6.0E-03      | NA          | 9.6E-03      |
| Pyrene                          | 129-00-0 | PM/HAP   | POM      | Organic PM | 0.15%  | 0.44%   | 6.7E-04  | 1.5E-03      | NA          | 2.1E-03      |
| <b>Total PAH HAPs</b>           |          |          |          |            |  |   | <b>0.027</b>                                       | <b>0.038</b> | <b>NA</b>   | <b>0.064</b> |
| <b>Other semi-volatile HAPs</b> |          |          |          |            |  |   |  |              |             |              |
| Phenol                          |          | PM/HAP   | ---      | Organic PM | 1.18%  | 0   | 5.3E-03  | 0            | 0           | 5.3E-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        |
| <b>VOC</b>                         |           | VOC             | ---      | TOC    | 94%   | 100%   | <b>5.14</b>  | <b>16.01</b> | <b>1.36</b>  | <b>22.51</b> |
| non-VOC/non-HAPS                   |           |                 |          |        |   |  |  |              |              |              |
| Methane                            | 74-82-8   | non-VOC/non-HAP | ---      | TOC    | 6.50%   | 0.26%  | 3.6E-01  | 4.2E-02      | 9.4E-02      | 0.491        |
| Acetone                            | 67-64-1   | non-VOC/non-HAP | ---      | TOC    | 0.046%  | 0.055%   | 2.5E-03  | 8.8E-03      | 6.6E-04      | 0.012        |
| Ethylene                           | 74-85-1   | non-VOC/non-HAP | ---      | TOC    | 0.71%   | 1.10%  | 3.9E-02  | 1.8E-01      | 1.0E-02      | 0.225        |
| <b>Total non-VOC/non-HAPS</b>      |           |                 |          |        | <b>7.30%</b>                                  | <b>1.40%</b>   | <b>0.399</b>                                       | <b>0.224</b> | <b>0.106</b> | <b>0.73</b>  |
| Volatile organic HAPs              |           |                 |          |        |   |  |  |              |              |              |
| Benzene                            | 71-43-2   | VOC/HAP         | ---      | TOC    | 0.052%  | 0.032%   | 2.8E-03  | 5.1E-03      | 7.5E-04      | 8.7E-03      |
| Bromomethane                       | 74-83-9   | VOC/HAP         | ---      | TOC    | 0.0096%                                       | 0.0049%  | 5.2E-04  | 7.8E-04      | 1.4E-04      | 1.4E-03      |
| 2-Butanone                         | 78-93-3   | VOC/HAP         | ---      | TOC    | 0.049%  | 0.039%   | 2.7E-03  | 6.2E-03      | 7.1E-04      | 9.6E-03      |
| Carbon Disulfide                   | 75-15-0   | VOC/HAP         | ---      | TOC    | 0.013%  | 0.016%   | 7.1E-04  | 2.6E-03      | 1.9E-04      | 3.5E-03      |
| Chloroethane                       | 75-00-3   | VOC/HAP         | ---      | TOC    | 0.00021%                                      | 0.004%   | 1.1E-05  | 6.4E-04      | 3.0E-06      | 6.6E-04      |
| Chloromethane                      | 74-87-3   | VOC/HAP         | ---      | TOC    | 0.015%  | 0.023%   | 8.2E-04  | 3.7E-03      | 2.2E-04      | 4.7E-03      |
| Cumene                             | 92-82-8   | VOC/HAP         | ---      | TOC    | 0.11%   | 0  | 6.0E-03  | 0            | 1.6E-03      | 7.6E-03      |
| Ethylbenzene                       | 100-41-4  | VOC/HAP         | ---      | TOC    | 0.28%   | 0.038%   | 1.5E-02  | 6.1E-03      | 4.0E-03      | 0.025        |
| Formaldehyde                       | 50-00-0   | VOC/HAP         | ---      | TOC    | 0.088%  | 0.69%  | 4.8E-03  | 1.1E-01      | 1.3E-03      | 0.117        |
| n-Hexane                           | 100-54-3  | VOC/HAP         | ---      | TOC    | 0.15%   | 0.10%  | 8.2E-03  | 1.6E-02      | 2.2E-03      | 0.026        |
| Isooctane                          | 540-84-1  | VOC/HAP         | ---      | TOC    | 0.0018%                                       | 0.00031%   | 9.8E-05  | 5.0E-05      | 2.6E-05      | 1.7E-04      |
| Methylene Chloride                 | 75-09-2   | non-VOC/HAP     | ---      | TOC    | 0   | 0.00027%   | 0  | 4.3E-05      | 0            | 4.3E-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%  | 4.0E-04  | 8.6E-04      | 1.1E-04      | 1.4E-03      |
| Tetrachloroethene                  | 127-18-4  | non-VOC/HAP     | ---      | TOC    | 0.0077%                                       | 0  | 4.2E-04  | 0            | 1.1E-04      | 5.3E-04      |
| Toluene                            | 100-88-3  | VOC/HAP         | ---      | TOC    | 0.21%   | 0.062%   | 1.1E-02  | 9.9E-03      | 3.0E-03      | 0.024        |
| 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  | 7.1E-05  | 0            | 1.9E-05      | 9.0E-05      |
| m-/p-Xylene                        | 1330-20-7 | VOC/HAP         | ---      | TOC    | 0.41%   | 0.20%  | 2.2E-02  | 3.2E-02      | 5.9E-03      | 0.060        |
| o-Xylene                           | 95-47-6   | VOC/HAP         | ---      | TOC    | 0.08%   | 0.057%   | 4.4E-03  | 9.1E-03      | 1.2E-03      | 1.5E-02      |
| <b>Total volatile organic HAPs</b> |           |                 |          |        | <b>1.50%</b>                                  | <b>1.30%</b>   | <b>0.082</b>                                       | <b>0.208</b> | <b>0.022</b> | <b>0.312</b> |

**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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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.

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

where  $E_f$  = emission factor (lb/acre/day)  
 $s$  = silt content (wt %)  
 $p$  =  days of rain greater than or equal to 0.01 inches  
 $f$  =  % 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          | 1.1                  | 1.27                          | 0.33                                    | 0.077               | 0.027                       |
| Stone         | 1                    | 1.16                          | 1.32                                    | 0.279               | 0.098                       |
| RAP           | 0.2                  | 0.23                          | 1.65                                    | 0.070               | 0.024                       |
| Gravel        | 0.9                  | 1.04                          | 0.50                                    | 0.095               | 0.033                       |
| Shingles      | 0.5                  | 0.58                          | 0.33                                    | 0.035               | 0.012                       |
| Slag          | 0.8                  | 0.93                          | 0.16                                    | 0.027               | 0.009                       |
| <b>Totals</b> |                      |                               |   | <b>0.58</b>         | <b>0.20</b>                 |

**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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

**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 $\leq 100$ $\mu$ m)  |
| $k$ (PM10) =    | 0.35     | = particle size multiplier (0.35 assumed for aerodynamic diameter $\leq 10$ $\mu$ m)   |
| $k$ (PM2.5) =   | 0.053    | = particle size multiplier (0.053 assumed for aerodynamic diameter $\leq 2.5$ $\mu$ m) |
| $U$ =           | 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)            |
| $E_f$ (PM) =    | 2.27E-03 | lb PM/ton of material handled  |
| $E_f$ (PM10) =  | 1.07E-03 | lb PM10/ton of material handled  |
| $E_f$ (PM2.5) = | 1.62E-04 | lb PM2.5/ton of material handled   |

|  |           |         |
|--|-----------|---------|
| Maximum Annual Asphalt Production =        | 2,628,000 | tons/yr |
| Percent Asphalt Cement/Binder (weight %) = | 5.0%      |         |
| Maximum Material Handling Throughput =     | 2,496,600 | 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            | 2.83                                       | 1.34   | 0.20  |
| Front-end loader dumping of materials into feeder bins     | 2.83                                       | 1.34   | 0.20  |
| Conveyor dropping material into dryer/mixer or batch tower | 2.83                                       | 1.34   | 0.20  |
| <b>Total (tons/yr)</b>                                     | <b>8.49</b>                                | <b>4.02</b>                                  | <b>0.61</b>                                   |

**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   | 6.74                                       | 3.00   |
| Screening                                      | 0.025  | 0.0087   | 31.21                                      | 10.86  |
| Conveying                                      | 0.003  | 0.0011   | 3.74                                       | 1.37   |
| <b>Unlimited Potential to Emit (tons/yr) =</b> |  |  | <b>41.69</b>                               | <b>15.23</b>   |

**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  $\mu$ m)  
 PM2.5 = Particulate matter (< 2.5  $\mu$ m)  
 PTE = Potential to Emit

**Appendix A.1: Unlimited Emissions Calculations  
Unpaved Roads**

**Company Name: Wabash Valley Asphalt**  
**Source Address: 2000 E CR 800 S, Cloverdale, IN 46120**  
**Permit Number: F133-33494-05321**  
**Reviewer: Tamera Wessel**

**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 =        | 2,628,000 | tons/yr    |
| Percent Asphalt Cement/Binder (weight %) = | 5.0%      |            |
| Maximum Material Handling Throughput =     | 2,496,600 | tons/yr    |
| Maximum Asphalt Cement/Binder Throughput = | 131,400   | tons/yr    |
| Maximum No. 2 Fuel Oil Usage =             | 6,006,857 | 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)      | 15.0                             | 20.0                          | 35.0   | 1.2E+05                          | 4.4E+06                               | 500                                  | 0.095                              | 11,821                           |
| Aggregate/RAP Truck Leave Empty         | Dump truck (16 CY)      | 15.0                             | 0                             | 15.0   | 1.2E+05                          | 1.9E+06                               | 500                                  | 0.095                              | 11,821                           |
| Asphalt Cement/Binder Truck Enter Full  | Tanker truck (6000 gal) | 12.0                             | 26.0                          | 38.0   | 5.1E+03                          | 1.9E+05                               | 500                                  | 0.095                              | 479                              |
| Asphalt Cement/Binder Truck Leave Empty | Tanker truck (6000 gal) | 12.0                             | 0                             | 12.0   | 5.1E+03                          | 6.1E+04                               | 500                                  | 0.095                              | 479                              |
| Fuel Oil Truck Enter Full               | Tanker truck (6000 gal) | 12.0                             | 32.0                          | 44.0   | 6.3E+02                          | 2.8E+04                               | 500                                  | 0.095                              | 60                               |
| Fuel Oil Truck Leave Empty              | Tanker truck (6000 gal) | 12.0                             | 0                             | 12.0   | 6.3E+02                          | 7.6E+03                               | 500                                  | 0.095                              | 60                               |
| Aggregate/RAP Loader Full               | Front-end loader (3 CY) | 15.0                             | 10.0                          | 25.0   | 2.5E+05                          | 6.2E+06                               | 300                                  | 0.057                              | 14,185                           |
| Aggregate/RAP Loader Empty              | Front-end loader (3 CY) | 15.0                             | 0                             | 15.0   | 2.5E+05                          | 3.7E+06                               | 300                                  | 0.057                              | 14,185                           |
| Asphalt Concrete Truck Leave Full       | Dump truck (16 CY)      | 15.0                             | 20.0                          | 35.0   | 1.3E+05                          | 4.6E+06                               | 500                                  | 0.095                              | 12,443                           |
| Asphalt Concrete Truck Enter Empty      | Dump truck (16 CY)      | 15.0                             | 0                             | 15.0   | 1.3E+05                          | 2.0E+06                               | 500                                  | 0.095                              | 12,443                           |
| <b>Total</b>                            |                         |                                  |                               |  |                                  | <b>1.0E+06</b>                        | <b>2.3E+07</b>                       |                                    | <b>7.8E+04</b>                   |

|                                   |       |            |
|-----------------------------------|-------|------------|
| Average Vehicle Weight Per Trip = | 22.6  | tons/trip  |
| Average Miles Per Trip =          | 0.076 | miles/trip |

Unmitigated Emission Factor,  $E_f = k \cdot [(s/12)^a] \cdot [(W/3)^b]$  (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 =       | 22.6 | 22.6 | 22.6  | 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,  $E_{ext} = E \cdot [(365 - P)/365]$   
 Mitigated Emission Factor,  $E_{ext} = E \cdot [(365 - P)/365]$   
 where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

|  | PM   | PM10 | PM2.5 |   |
|--|------|------|-------|---|
| Unmitigated Emission Factor, $E_f =$   | 6.40 | 1.63 | 0.16  | lb/mile   |
| Mitigated Emission Factor, $E_{ext} =$ | 4.21 | 1.07 | 0.11  | 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)      | 37.81                           | 9.64                              | 0.96                               | 24.86                         | 6.34                            | 0.63                             | 12.43                          | 3.17                             | 0.32                              |
| Aggregate/RAP Truck Leave Empty         | Dump truck (16 CY)      | 37.81                           | 9.64                              | 0.96                               | 24.86                         | 6.34                            | 0.63                             | 12.43                          | 3.17                             | 0.32                              |
| Asphalt Cement/Binder Truck Enter Full  | Tanker truck (6000 gal) | 1.531                           | 0.390                             | 0.04                               | 1.007                         | 0.257                           | 0.03                             | 0.503                          | 0.128                            | 0.01                              |
| Asphalt Cement/Binder Truck Leave Empty | Tanker truck (6000 gal) | 1.531                           | 0.390                             | 0.04                               | 1.007                         | 0.257                           | 0.03                             | 0.503                          | 0.128                            | 0.01                              |
| Fuel Oil Truck Enter Full               | Tanker truck (6000 gal) | 0.192                           | 0.049                             | 0.00                               | 0.126                         | 0.032                           | 0.00                             | 0.063                          | 0.016                            | 0.00                              |
| Fuel Oil Truck Leave Empty              | Tanker truck (6000 gal) | 0.192                           | 0.049                             | 0.00                               | 0.126                         | 0.032                           | 0.00                             | 0.063                          | 0.016                            | 0.00                              |
| Aggregate/RAP Loader Full               | Front-end loader (3 CY) | 45.37                           | 11.56                             | 1.16                               | 29.83                         | 7.60                            | 0.76                             | 14.92                          | 3.80                             | 0.38                              |
| Aggregate/RAP Loader Empty              | Front-end loader (3 CY) | 45.37                           | 11.56                             | 1.16                               | 29.83                         | 7.60                            | 0.76                             | 14.92                          | 3.80                             | 0.38                              |
| Asphalt Concrete Truck Leave Full       | Dump truck (16 CY)      | 39.80                           | 10.14                             | 1.01                               | 26.17                         | 6.67                            | 0.67                             | 13.08                          | 3.33                             | 0.33                              |
| Asphalt Concrete Truck Enter Empty      | Dump truck (16 CY)      | 39.80                           | 10.14                             | 1.01                               | 26.17                         | 6.67                            | 0.67                             | 13.08                          | 3.33                             | 0.33                              |
| <b>Totals</b>                           |                         | <b>249.40</b>                   | <b>63.56</b>                      | <b>6.36</b>                        | <b>163.99</b>                 | <b>41.80</b>                    | <b>4.18</b>                      | <b>82.00</b>                   | <b>20.90</b>                     | <b>2.09</b>                       |

**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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

**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 =        | 2,628,000 | tons/yr    |
| Percent Asphalt Cement/Binder (weight %) = | 5.0%      |            |
| Maximum Material Handling Throughput =     | 2,496,600 | tons/yr    |
| Maximum Asphalt Cement/Binder Throughput = | 131,400   | tons/yr    |
| Maximum No. 2 Fuel Oil Usage =             | 6,006,857 | 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)      | 15.0                             | 22.4                          | 37.40  | 1.1E+05                          | 4.2E+06                              | 500                                  | 0.095                              | 10554.5                          |
| Aggregate/RAP Truck Leave Empty         | Dump truck (16 CY)      | 15.0                             | 0                             | 15.00  | 1.1E+05                          | 1.7E+06                              | 500                                  | 0.095                              | 10554.5                          |
| Asphalt Cement/Binder Truck Enter Full  | Tanker truck (6000 gal) | 12.0                             | 36.0                          | 48.00  | 3.7E+03                          | 1.8E+05                              | 500                                  | 0.095                              | 345.6                            |
| Asphalt Cement/Binder Truck Leave Empty | Tanker truck (6000 gal) | 12.0                             | 0                             | 12.00  | 3.7E+03                          | 4.4E+04                              | 500                                  | 0.095                              | 345.6                            |
| Fuel Oil Truck Enter Full               | Tanker truck (6000 gal) | 12.0                             | 32.0                          | 44.00  | 6.3E+02                          | 2.8E+04                              | 500                                  | 0.095                              | 60.1                             |
| Fuel Oil Truck Leave Empty              | Tanker truck (6000 gal) | 12.0                             | 0                             | 12.00  | 6.3E+02                          | 7.6E+03                              | 500                                  | 0.095                              | 60.1                             |
| Aggregate/RAP Loader Full               | Front-end loader (3 CY) | 15.0                             | 4.2                           | 19.20  | 5.9E+05                          | 1.1E+07                              | 300                                  | 0.057                              | 33774.4                          |
| Aggregate/RAP Loader Empty              | Front-end loader (3 CY) | 15.0                             | 0                             | 15.00  | 5.9E+05                          | 8.9E+06                              | 300                                  | 0.057                              | 33774.4                          |
| Asphalt Concrete Truck Leave Full       | Dump truck (16 CY)      | 15.0                             | 24.0                          | 39.00  | 1.1E+05                          | 4.3E+06                              | 500                                  | 0.095                              | 10369.3                          |
| Asphalt Concrete Truck Enter Empty      | Dump truck (16 CY)      | 15.0                             | 0                             | 15.00  | 1.1E+05                          | 1.6E+06                              | 500                                  | 0.095                              | 10369.3                          |
| <b>Total</b>                            |                         |                                  |                               |  | <b>1.6E+06</b>                   | <b>3.2E+07</b>                       |                                      |                                    | <b>1.1E+05</b>                   |

|                                   |       |            |
|-----------------------------------|-------|------------|
| Average Vehicle Weight Per Trip = | 19.7  | tons/trip  |
| Average Miles Per Trip =          | 0.067 | 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 =       | 19.7  | 19.7   | 19.7    | tons = average vehicle weight (provided by source)   |
| sL =      | 0.6   | 0.6    | 0.6     | g/m <sup>2</sup> = Ubitiguous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months) |

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor,  $E_{ext} = E_f * [1 - (p/4N)]$

|  |   |
|--|---|
| Mitigated Emission Factor, $E_{ext} =$ | $E_f * [1 - (p/4N)]$  |
| 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, $E_f =$   | 0.14 | 0.03 | 0.01  | lb/mile   |
| Mitigated Emission Factor, $E_{ext} =$ | 0.13 | 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)      | 0.76                            | 0.15                              | 0.04                               | 0.70                          | 0.14                            | 0.03                             | 0.35                           | 0.07                             | 0.02                              |
| Aggregate/RAP Truck Leave Empty         | Dump truck (16 CY)      | 0.76                            | 0.15                              | 0.04                               | 0.70                          | 0.14                            | 0.03                             | 0.35                           | 0.07                             | 0.02                              |
| Asphalt Cement/Binder Truck Enter Full  | Tanker truck (6000 gal) | 0.025                           | 0.005                             | 1.2E-03                            | 0.023                         | 0.005                           | 1.1E-03                          | 0.011                          | 2.3E-03                          | 5.6E-04                           |
| Asphalt Cement/Binder Truck Leave Empty | Tanker truck (6000 gal) | 0.025                           | 0.005                             | 1.2E-03                            | 0.023                         | 0.005                           | 1.1E-03                          | 0.011                          | 2.3E-03                          | 5.6E-04                           |
| Fuel Oil Truck Enter Full               | Tanker truck (6000 gal) | 4.3E-03                         | 8.7E-04                           | 2.1E-04                            | 4.0E-03                       | 7.9E-04                         | 2.0E-04                          | 2.0E-03                        | 4.0E-04                          | 9.8E-05                           |
| Fuel Oil Truck Leave Empty              | Tanker truck (6000 gal) | 4.3E-03                         | 8.7E-04                           | 2.1E-04                            | 4.0E-03                       | 7.9E-04                         | 2.0E-04                          | 2.0E-03                        | 4.0E-04                          | 9.8E-05                           |
| Aggregate/RAP Loader Full               | Front-end loader (3 CY) | 2.44                            | 0.49                              | 0.12                               | 2.23                          | 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                               | 2.23                          | 0.45                            | 0.11                             | 1.12                           | 0.22                             | 0.05                              |
| Asphalt Concrete Truck Leave Full       | Dump truck (16 CY)      | 0.75                            | 0.15                              | 0.04                               | 0.69                          | 0.14                            | 0.03                             | 0.34                           | 0.07                             | 0.02                              |
| Asphalt Concrete Truck Enter Empty      | Dump truck (16 CY)      | 0.75                            | 0.15                              | 0.04                               | 0.69                          | 0.14                            | 0.03                             | 0.34                           | 0.07                             | 0.02                              |
| <b>Totals</b>                           |                         | <b>7.97</b>                     | <b>1.59</b>                       | <b>0.39</b>                        | <b>7.29</b>                   | <b>1.46</b>                     | <b>0.36</b>                      | <b>3.65</b>                    | <b>0.73</b>                      | <b>0.18</b>                       |

**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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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 =        | 2,628,000 | 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                  |
| <b>Worst Case PTE of VOC =</b>  |  |  |                                     | <b>0.0</b>           |

**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        |
| <b>PTE of Total HAPs (tons/yr) =</b>                       | <b>0.00</b>         |
| <b>PTE of Single HAP (tons/yr) =</b>                       | <b>0.00 Xylenes</b> |

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

| Volatile Organic HAP      | CAS#      | Hazardous Air Pollutant (HAP) Content (% by weight)*<br>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%       | 5.00E-5%        |
| Benzene                   | 71-43-2   | 1.90%  |                    | 2.90E-4%             |                |                 |
| Benzo(a)anthracene        | 56-55-3   |  |                    | 9.60E-7%             | 4.50E-7%       | 5.50E-4%        |
| Benzo(a)pyrene            | 50-32-8   |  |                    | 2.20E-6%             | 2.10E-7%       | 4.40E-5%        |
| Benzo(g,h,i)perylene      | 191-24-2  |  |                    | 1.20E-7%             | 5.70E-8%       |                 |
| Biphenyl                  | 92-52-4   |  |                    | 6.30E-4%             | 7.20E-5%       |                 |
| Chrysene                  | 218-01-9  |  |                    | 4.50E-7%             | 1.40E-6%       | 6.90E-4%        |
| Ethylbenzene              | 100-41-4  | 1.70%  |                    | 0.07%                | 3.40E-4%       |                 |
| Fluoranthene              | 206-44-0  |  | 7.10E-6%           | 5.90E-5%             | 1.40E-5%       | 2.40E-4%        |
| Fluorene                  | 86-73-7   |  | 4.20E-5%           | 8.60E-4%             | 1.90E-4%       |                 |
| Indeno(1,2,3-cd)pyrene    | 193-39-5  |  |                    | 1.60E-7%             |                | 1.00E-4%        |
| Methyl-tert-butylether    | 1634-04-4 | 0.33%  |                    |                      |                |                 |
| Naphthalene               | 91-20-3   | 0.25%  | 0.31%              | 0.26%                | 0.22%          | 4.20E-5%        |
| n-Hexane                  | 110-54-3  | 2.40%  |                    |                      |                |                 |
| Phenanthrene              | 85-01-8   |  | 8.60E-6%           | 8.80E-4%             | 7.90E-4%       | 2.10E-4%        |
| Pyrene                    | 129-00-0  |  | 2.40E-6%           | 4.60E-5%             | 2.90E-5%       | 2.30E-5%        |
| Toluene                   | 108-88-3  | 8.10%  |                    | 0.18%                | 6.20E-4%       |                 |
| Total Xylenes             | 1330-20-7 | 9.00%  |                    | 0.50%                | 0.23%          |                 |
| <b>Total Organic HAPs</b> |           | <b>26.08%</b>  | <b>0.33%</b>       | <b>1.29%</b>         | <b>0.68%</b>   | <b>0.19%</b>    |
| <b>Worst Single HAP</b>   |           | <b>9.00%</b>   | <b>0.31%</b>       | <b>0.50%</b>         | <b>0.23%</b>   | <b>0.07%</b>    |
|                           |           | <b>Xylenes</b>   | <b>Naphthalene</b> | <b>Xylenes</b>       | <b>Xylenes</b> | <b>Chrysene</b> |

**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:** Wabash Valley Asphalt  
**Source Address:** 2000 E CR 800 S, Cloverdale, IN 46120  
**Permit Number:** F133-33494-05321  
**Reviewer:** Tamera Wessel

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                  |
| <b>Total</b>                                      |   | <b>0.00</b>           |

**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        |
| <b>Limited PTE of Total HAPs (tons/yr) =</b>               | <b>0.00</b>         |
| <b>Limited PTE of Single HAP (tons/yr) =</b>               | <b>0.00 Xylenes</b> |

**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

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**Michael R. Pence**  
*Governor*

**Thomas W. Easterly**  
*Commissioner*

## SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Dan Conley  
Wabash Valley Asphalt  
PO Box 9778  
Terre Haute, Indiana 47808

DATE: March 24, 2014

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

SUBJECT: Final Decision  
FESOP – Renewal  
133-33494-05321

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](mailto:jbrush@idem.IN.gov).

Final Applicant Cover letter.dot 6/13/2013



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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**Michael R. Pence**  
*Governor*

**Thomas W. Easterly**  
*Commissioner*

March 24, 2014

TO: Putnam County Library

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

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

**Applicant Name: Wabash Valley Asphalt**  
**Permit Number: 133-33494-05321**

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 6/13/2013

# Mail Code 61-53

|                            |   |   |   |  |
|----------------------------|---|---|---|--|
| IDEM Staff                 | AWELLS 3/24/2014<br>Wabash Valley Asphalt 133-33494-05321 Final                   |   | Type of Mail:<br><br><b>CERTIFICATE OF MAILING ONLY</b> | AFFIX STAMP<br>HERE IF<br>USED AS<br>CERTIFICATE<br>OF MAILING |
| Name and address of Sender |  | Indiana Department of Environmental Management<br>Office of Air Quality – Permits Branch<br>100 N. Senate<br>Indianapolis, IN 46204 |   |  |

| 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    |                | Dan Conley Wabash Valley Asphalt PO Box 9778 Terre Haute IN 47808 (Source CAATS) confirmed delivery |         |                 |                            |               |                 |          |          |          |                |         |
| 2    |                | Cloverdale Town Council P.O. Box 222 Cloverdale IN 46120 (Local Official)                           |         |                 |                            |               |                 |          |          |          |                |         |
| 3    |                | Putnam County Commissioners One West Washington Street Greencastle IN 46135 (Local Official)        |         |                 |                            |               |                 |          |          |          |                |         |
| 4    |                | Putnam Co Public Library 103 E Poplar Street Greencastle IN 46135-0116 (Library)                    |         |                 |                            |               |                 |          |          |          |                |         |
| 5    |                | Putnam County Health Department P.O. Box 507 Greencastle IN 46135-0507 (Health Department)          |         |                 |                            |               |                 |          |          |          |                |         |
| 6    |                | Mr. Richard Monday 545 E. Margaret Dr. Terre Haute IN 47801 (Affected Party)                        |         |                 |                            |               |                 |          |          |          |                |         |
| 7    |                | J.P. Roehm PO Box 303 Clinton IN 47842 (Affected Party)   |         |                 |                            |               |                 |          |          |          |                |         |
| 8    |                |   |         |                 |                            |               |                 |          |          |          |                |         |
| 9    |                |   |         |                 |                            |               |                 |          |          |          |                |         |
| 10   |                |   |         |                 |                            |               |                 |          |          |          |                |         |
| 11   |                |   |         |                 |                            |               |                 |          |          |          |                |         |
| 12   |                |   |         |                 |                            |               |                 |          |          |          |                |         |
| 13   |                |   |         |                 |                            |               |                 |          |          |          |                |         |
| 14   |                |   |         |                 |                            |               |                 |          |          |          |                |         |
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