



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*  
Governor

*Thomas W. Easterly*  
Commissioner

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

TO: Interested Parties / Applicant

DATE: April 21, 2008

RE: Koors Contracting, Inc. / 031-25789-00031

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

## Notice of Decision: Approval - Effective Immediately

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

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

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

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

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

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

Enclosures  
FNPER.dot12/03/07



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## New Source Construction and Federally Enforceable State Operating Permit OFFICE OF AIR QUALITY

**Koors Contracting, Inc.  
1112 East Tiwaba Way  
Westport, Indiana 47283**

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

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

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

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

Operation Permit No.: F 031-25789-00031	
Issued by/Original Signed By:  Matthew Stuckey, Deputy Branch Chief Permits Branch Office of Air Quality	Issuance Date: April 21, 2008  Expiration Date: April 21, 2013

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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)]

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

Source Address:	1112 East Tiwaba Way, Westport, Indiana 47283
Mailing Address:	11240 South County Road 100 West, Westport, IN 47283
General Source Phone Number:	(812) 591-2797
SIC Code:	2951
County Location:	Decatur
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

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

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

- (a) One (1) Drum Mix Asphalt Plant, approved for construction in 2008, consisting of the following:
  - (1) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) dryer burner fueled primarily by No. 4 distillate fuel oil and using natural gas as backup, with a maximum rated capacity of 75 MM BTU per hr., and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A.  
  
Under NSPS subpart I, this is considered an affected hot-mix asphalt facility.
- (b) Material Handling and conveying operations, approved for construction in 2008, consisting of the following:
  - (1) Three (3) feeder conveyors;
  - (2) One (1) screen deck;
  - (3) One (1) Cold Feed system consisting of seven (7) compartments, each holding 30 (thirty) tons, for a total aggregate holding capacity of 210 tons;
  - (4) One (1) Recycled Asphalt Pavement (RAP) system, identified as RC-1, consisting of a RAP Bin, Shaker, and Conveyor;
  - (5) One (1) Hot Asphalt Bucket Elevator;
  - (6) One (1) Transfer Drag Slat to silo;

- (7) Two (2) Hot Mix Asphalt storage silos, including;
  - (A) One (1) silo with a maximum capacity of 100 tons; and
  - (B) One (1) silo with a maximum capacity of 70 tons capacity;
- (8) One (1) enclosed Aggregate Storage Area, with a maximum storage capacity of 35,000 tons;
- (9) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil primarily and using natural gas as back-up, exhausting to stack SV-B;
- (10) One (1) No. 4 Fuel Oil storage tank, identified as WO #1, approved for construction in 2008, with a maximum storage capacity of 30,000 gallons;
- (11) One (1) No. 2 Fuel Oil storage tank, identified as FO#1, with a maximum storage capacity of 5,000 gallons, and exhausting to stack SV-B;

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

This stationary source also includes the following insignificant activities:

- (a) Paved roads with limited public access [326 IAC 6-4];
- (b) Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.

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

This stationary source, otherwise required to have a Part 70 permit as described in 326 IAC 2-7-2(a), has applied to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) for 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 Revocation of Permits [326 IAC 2-1.1-9(5)]**

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Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

### **B.3 Affidavit of Construction [326 IAC 2-5.1-3(h)] [326 IAC 2-5.1-4][326 IAC 2-8]**

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This document shall also become the approval to operate pursuant to 326 IAC 2-5.1-4 and [326 IAC 2-8] when prior to the start of operation, the following requirements are met:

- (a) The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), verifying that the emission units were constructed as proposed in the application or the permit. The emission units covered in this permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM if constructed as proposed.
- (b) If actual construction of the emission units differs from the construction proposed in the application, the source may not begin operation until the permit has been revised pursuant to 326 IAC 2 and an Operation Permit Validation Letter is issued.
- (c) The Permittee shall attach the Operation Permit Validation Letter received from the Office of Air Quality (OAQ) to this permit.

### **B.4 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, F 031-25789-00031, is issued for a fixed term of five (5) 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.5 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.6 Enforceability [326 IAC 2-8-6]**

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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.7 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.8 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.9 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. The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). 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.10 Certification [326 IAC 2-8-3(d)][326 IAC 2-8-4(3)(C)(i)][326 IAC 2-8-5(1)]**

---

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an "authorized individual" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, 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.11 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. The initial certification shall cover the time period from the date of final permit issuance through December 31 of the same year. All subsequent 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 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 the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

B.12 Compliance Order Issuance [326 IAC 2-8-5(b)]

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

B.13 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)][326 IAC 2-8-5(a)(1)]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days after issuance of this permit, 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 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 the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) 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 or potential to emit. The PMPs do not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) 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.14 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 Section), or  
Telephone Number: 317-233-0178 (ask for Compliance Section)  
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 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 the certification 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.
- (h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

**B.15 Prior Permits Superseded [326 IAC 2-1.1-9.5]**

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- (a) All terms and conditions of permits established prior to F 031-25789-00031 and issued pursuant to permitting programs approved into the state implementation plan have been either:
  - (1) incorporated as originally stated,
  - (2) revised, or
  - (3) deleted.
- (b) All previous registrations and permits are superseded by this permit.

**B.16 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.17 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]**

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- (a) Deviations from any permit requirements (for emergencies see Section B - Emergency Provisions), the probable cause of such deviations, and any response steps or preventive measures taken shall be reported to:

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

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. 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.

The Quarterly Deviation and Compliance Monitoring Report does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

**B.18 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 the certification 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.19 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(40). The renewal application does require the certification 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  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

- (b) A timely renewal application is one that is:
- (1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and
  - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified in writing by IDEM, OAQ any additional information identified as being needed to process the application.

**B.20 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]**

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- (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  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

Any such application shall be certified 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.21 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]**

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

- (1) The changes are not modifications under any provision of Title I of the Clean Air Act;
- (2) Any approval required by 326 IAC 2-8-11.1 has been obtained;
- (3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
- (4) The Permittee notifies the:

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

and

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

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

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

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

- (b) Emission Trades [326 IAC 2-8-15(c)]  
The Permittee may trade emissions increases and decreases at the source, where the applicable SIP provides for such emission trades without requiring a permit revision, subject to the constraints of Section (a) of this condition and those in 326 IAC 2-8-15(c).
- (c) Alternative Operating Scenarios [326 IAC 2-8-15(d)]  
The Permittee may make changes at the source within the range of alternative operating scenarios that are described in the terms and conditions of this permit in accordance with 326 IAC 2-8-4(7). No prior notification of IDEM, OAQ, or U.S. EPA is required.
- (d) Backup fuel switches specifically addressed in, and limited under, Section D of this permit shall not be considered alternative operating scenarios. Therefore, the notification requirements of part (a) of this condition do not apply.

**B.22 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 and 326 IAC 2-8-11.1.

B.23 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]

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

- (a) Enter upon the Permittee's premises where a FESOP source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- (d) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.

B.24 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  
Permits Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251  
  
The application which shall be submitted by the Permittee does require the certification 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.25 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 within 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.26 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

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

## SECTION C

## SOURCE OPERATION CONDITIONS

Entire Source

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

#### C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]

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

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

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

(a) Pursuant to 326 IAC 2-8:

- (1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period.
- (2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
- (3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

(b) The 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. This limitation shall make the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) not applicable.

(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 5-1-3 (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 or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

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 plan submitted on January 24, 2008. The plan is included as 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  
Asbestos Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-52 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 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 Accredited 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 Accredited 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) Compliance testing on new emissions units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, 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 test protocol, except as provided elsewhere in this permit, shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, 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 certification 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 certification 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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Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, 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 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 the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

#### **C.12 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]**

---

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60, Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

#### **C.13 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]**

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- (a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.
- (b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

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

#### **C.14 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 prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.
- (b) These ERPs shall be submitted for approval to:

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

within 180 days from the date on which this source commences operation.

The ERP does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (c) If the ERP is disapproved by IDEM, OAQ, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.
- (d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.
- (e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (f) 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.15 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.16 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]**

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- (a) Upon detecting an excursion or exceedance, the Permittee shall 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 emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:
  - (1) initial inspection and evaluation;
  - (2) recording that operations returned 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 within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.

- (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 maintain the following records:
  - (1) monitoring data;
  - (2) monitor performance data, if applicable; and
  - (3) corrective actions taken.

C.17 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 take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred twenty (120) 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 the certification 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.18 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

- (a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.19 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

- (a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each

deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, 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) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (e) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

### **Stratospheric Ozone Protection**

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

---

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

- (a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.
- (b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.
- (c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

## SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

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

(a) One (1) Drum Mix Asphalt Plant, approved for construction in 2008, consisting of the following:

- (1) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) dryer burner, fueled primarily by No. 4 distillate fuel oil and using natural gas as backup, with a maximum rated capacity of 75 MM BTU per hr., and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A.

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

(b) Material Handling and conveying operations, approved for construction in 2008, consisting of the following:

- (1) Three (3) feeder conveyors;
- (2) One (1) screen deck;
- (3) One (1) Cold Feed system consisting of seven (7) compartments, each holding 30 (thirty) tons, for a total aggregate holding capacity of 210 tons;
- (4) One (1) Recycled Asphalt Pavement (RAP) system, identified as RC-1, consisting of a RAP Bin, Shaker, and Conveyor;
- (5) One (1) Hot Asphalt Bucket Elevator;
- (6) One (1) Transfer Drag Slat to silo;
- (7) Two (2) Hot Mix Asphalt storage silos, including:
  - (A) One (1) silo with a maximum capacity of 100 tons; and
  - (B) One (1) silo with a maximum capacity of 70 tons capacity;
- (8) One (1) enclosed Aggregate Storage Area, with a maximum storage capacity of 35,000 tons;
- (9) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil primarily and using natural gas as back-up, exhausting to stack SV-B;
- (10) One (1) No. 4 Fuel Oil storage tank, identified as WO #1, approved for construction in 2008, with a maximum storage capacity of 30,000 gallons;
- (11) One (1) No. 2 Fuel Oil storage tank, identified as FO#1, with a maximum storage capacity of 5,000 gallons, and exhausting to stack SV-B;

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

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

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

---

- (a) Pursuant to 326 IAC 2-8-4, the amount of asphalt processed shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM emissions from the dryer/mixer shall not exceed 0.445 pounds per ton of asphalt processed.

Compliance with these limitations, combined with the limits and emissions from other emission units at this source will render 326 IAC 2-7, Part 70, and 326 IAC 2-2, PSD, not applicable.

### **D.1.2 Particulate (PM<sub>10</sub>), and Carbon Monoxide (CO) [326 IAC 2-8-4] [326 IAC 2-2]**

---

- (a) Pursuant to 326 IAC 2-8-4, the amount of asphalt processed shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM<sub>10</sub> emissions from the dryer/mixer shall not exceed 0.180 pounds per ton of asphalt processed.
- (c) CO emissions from the dryer/mixer shall not exceed 0.195 pounds per ton of asphalt processed.

Compliance with these limitations, combined with the limits and emissions from other emission units at this source, will satisfy 326 IAC 2-8-4 (FESOP), and will render 326 IAC 2-7, Part 70, and 326 IAC 2-2, PSD, not applicable.

### **D.1.3 Fuel Limitations [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]**

---

The fuel combusted in the dryer/mixer burner and hot oil heating system shall be limited as follows:

- (a) The No. 4 fuel oil shall have a sulfur content less than or equal to 0.50 percent by weight, and
- (b) Single Fuel Usage Limitations:

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

- (1) Natural gas usage in the dryer/mixer burner and hot oil heating system shall not exceed 1,975 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month,
- (2) No. 4 fuel oil usage in the dryer/mixer burner only shall not exceed 2,635,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month,
- (c) Multiple Fuel Usage Limitation:

When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and hot oil heating system, emissions from the dryer/mixer and hot oil heating system shall be limited as follows:

- (1) Nitrogen oxides (NO<sub>x</sub>) emissions from the dryer/mixer and hot oil heating system shall be less than 100 tons per twelve (12) consecutive month period, with compliance determined at the end of each month, and
- (2) Sulfur dioxide (SO<sub>2</sub>) emissions from the dryer/mixer shall be less than 100 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limits, combined with the potential emissions from all other emission units at this source, shall limit the source-wide total potential to emit NO<sub>x</sub> and SO<sub>2</sub> to less than 100 tons per 12 consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

**D.1.4 Sulfur Dioxide (SO<sub>2</sub>) [326 IAC 7-1.1-1][326 IAC 7-2-1]**

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- (a) Pursuant to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations), 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 No. 4 fuel oil.
- (b) Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a calendar month average.

**D.1.5 Volatile Organic Compounds (VOC) [326 IAC 8-1-6]**

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In order to render the requirements of 326 IAC 8-1-6 not applicable, the dryer/mixer shall be limited as follows:

- (a) The dryer/mixer has a limited potential to emit of 21.00 tons per year of VOC, based on a limited throughput of 1,000,000 tons per twelve (12) consecutive month period and a VOC limit of 0.042 pound of VOC per ton of hot mix asphalt produced.

Compliance with these limits shall limit the potential to emit VOC from the dryer/mixer to less than twenty-five (25) tons per 12 consecutive month period and shall render 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities) not applicable.

**D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]**

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A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the RAP crushing, screening, and conveying operations and their control device(s), and for the dryer and drum mixer unit and its control device.

**Compliance Determination Requirements**

**D.1.7 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]**

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Within sixty (60) days after achieving maximum capacity, but not later than one hundred and eighty (180) days after startup, in order to demonstrate compliance with Conditions D.1.1 and D.1.2(b), the Permittee shall perform PM and PM<sub>10</sub> testing of the dryer/mixer utilizing methods approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM<sub>10</sub> includes filterable and condensable PM<sub>10</sub>. Testing shall be conducted in accordance with Section C - Performance Testing.

**D.1.8 Particulate Control**

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- (a) In order to comply with Conditions D.1.1 and D.1.2(b), the baghouse for the dryer/mixer shall be in operation and control emissions from the dryer/mixer at all times when the dryer/mixer is in operation.
- (b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units

will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

#### D.1.9 Multiple Fuel Usage Limitation

---

- (a) In order to comply with Condition D.1.3(c) 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 limit fuel usage in the dryer/mixer burner and hot oil heating system according to the following formulas:

- (1) Nitrogen oxide emission calculation

$$N = \frac{G(E_G) + F(E_F)}{2,000 \text{ lbs/ton}}$$

where:

N = tons of nitrogen oxide emissions for a 12-month consecutive period

G = million cubic feet of natural gas used in the last 12 months

F = gallons of No. 4 fuel oil used for last 12 months

Emission Factors for Nitrogen Oxide

$E_G = 100 \text{ lb/million cubic feet of natural gas}$

$E_F = 20 \text{ pounds/1000 gallons of No. 4 fuel oil}$

- (2) Sulfur dioxide emission calculation

$$S = \frac{G(E_G) + F(E_F)}{2,000 \text{ lbs/ton}}$$

where:

S = tons of sulfur dioxide emissions for 12-month consecutive period

G = million cubic feet of natural gas used in last 12 months

F = gallons of No. 4 fuel oil used in last 12 months with less than or equal to 0.5% sulfur content

Emission Factors for Sulfur dioxide

$E_G = 0.6 \text{ pounds/million cubic feet of natural gas}$

$E_F = 75 \text{ pounds/1000 gallons of No. 4 fuel oil}$

#### D.1.10 Sulfur Dioxide (SO<sub>2</sub>) Emissions and Sulfur Content

---

Compliance with the sulfur dioxide emissions and sulfur content limitations in Conditions D.1.3(a), and D.1.4 shall be determined utilizing one of the following options:

- (a) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate compliance with sulfur dioxide emissions and sulfur content limitations by:
- (1) Providing vendor analysis of heat content and sulfur content 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.
- (b) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the dryer/mixer, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

A determination of noncompliance pursuant to any of the methods specified in (a) or (b) 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.1.11 Visible Emissions Notations**

---

- (a) Visible emission notations of the conveyors, screens, material transfer points, and dryer/mixer stack (SV-A) exhaust shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

#### **D.1.12 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

---

- (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 of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, 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 at least once every six (6) months.

#### **D.1.13 Broken or Failed Bag Detection**

---

- (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)] [326 IAC 2-8-16]**

### D.1.14 Record Keeping Requirements

- (a) To document compliance with Conditions D.1.1 and D.1.2 and D.1.5 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 compliance with Conditions D.1.3 and D.1.4, the Permittee shall maintain records in accordance with (1) through (7) 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) 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; andIf the fuel supplier certification is used to demonstrate compliance, the following, as a minimum, shall be maintained:
  - (5) Fuel supplier certifications;
  - (6) The name of the fuel supplier; and
  - (7) A statement from the fuel supplier that certifies the sulfur content of the No. 4 fuel oil.

The Permittee shall maintain records of all recording/monitoring data and support information in accordance with Section C - General Record Keeping Requirements, of this permit. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit.

- (c) To document compliance with Conditions D.1.3(c) and D.1.9 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 nitrogen oxides and sulfur dioxide emission rates for each fuel used at the source per month.
- (d) To document compliance with Condition D.1.11, the Permittee shall maintain daily records of the visible emission notations from each of the conveyors, screens, material transfer points, and dryer/mixer stack (SV-A) 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 plant did not operate that day).

- (e) To document compliance with Condition D.1.12, the Permittee shall maintain the following:
  - (1) 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) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

#### D.1.15 Reporting Requirements

- (a) A quarterly summary of the information to document compliance with Conditions D.1.1, D.1.2(a), D.1.2(b), D.1.2(c), D.1.3(b), D.1.3(c), D.1.5 and D.1.9 shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

## SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

**Emissions Unit Description:** Insignificant Activities

- (a) Paved roads with limited public access [326 IAC 6-4].

(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 PM and PM10 Emissions [326 IAC 2-8-4] [326 IAC 6-5]

---

Pursuant to 326 IAC 2-8 and 326 IAC 6-5, the Permittee shall control PM and PM10 emissions from paved and unpaved roads according to the fugitive dust plan submitted on January 24, 2008, which is included in Section C - Fugitive Particulate Matter Emission Limitations, of this permit.

## SECTION E.1 FACILITY OPERATION CONDITIONS

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

- (a) One (1) Drum Mix Asphalt Plant, approved for construction in 2008, consisting of the following:
- (1) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) dryer burner, fueled primarily by No. 4 distillate fuel oil and using natural gas as backup, with a maximum rated capacity of 75 MM BTU per hr., and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A.

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 NSPS Subpart I Requirements - Standards of Performance for Hot Mix Asphalt Facilities [40 CFR Part 60, Subpart I] [326 IAC 12-1]

Pursuant to CFR Part 60, Subpart I, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart I, which are incorporated by reference as 326 IAC 12-1 for the asphalt plant as specified as follows. Pursuant to 40 CFR 60.90(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.

#### § 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 (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**

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

Source Name: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way, Westport, Indiana 47283  
Mailing Address: 11240 South County Road 100 West, Westport, IN 47283  
FESOP Permit No.: F 031-25789-00031

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

Please check what document is being certified:

- Annual Compliance Certification Letter
- Test Result (specify)\_\_\_\_\_
- Report (specify)\_\_\_\_\_
- Notification (specify)\_\_\_\_\_
- Affidavit (specify)\_\_\_\_\_
- Other (specify)\_\_\_\_\_

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

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE 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: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way, Westport, Indiana 47283  
Mailing Address: 11240 South County Road 100 West, Westport, IN 47283  
FESOP Permit No.: F 031-25789-00031

**This form consists of 2 pages**

**Page 1 of 2**

- |  |
|--|
| <p><input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12)</p> <ul style="list-style-type: none"><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 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: \_\_\_\_\_

A certification is not required for this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION  
MC-61-53 IGCN 1003**

**FESOP Quarterly Report**

Source Name: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way, Westport, Indiana 47283  
Mailing Address: 11240 South County Road 100 West, Westport, IN 47283  
FESOP Permit No.: F 031-25789-00031  
Facility: One (1) dryer/mixer  
Parameter: Asphalt processed  
Limit: 1,000,000 tons per twelve (12) consecutive month period,  
with compliance determined at the end of each month

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

Month	Asphalt processed (tons)	Asphalt processed (tons)	Asphalt processed (tons)
	This Month	Previous 11 Months	12 Month Total

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.  
Deviation has been reported on \_\_\_\_\_

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

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

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

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

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

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE DATA SECTION**

**Multiple Fuel Quarterly Report - SO<sub>2</sub>**

**Page 1 of 2**

Source Name: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way, Westport, Indiana 47283  
Mailing Address: 11240 South County Road 100 West, Westport, IN 47283  
FESOP No.: F 031-25789-00031  
Facilities: Dryer/mixer burner and hot oil heating system  
Parameters: Nitrogen Oxides (NOx) and Sulfur Dioxide (SO<sub>2</sub>) Emissions

Limit: Nitrogen oxides (NOx) emissions shall be less than 100 tons per twelve (12) consecutive month period based on the following equation:

$$N = \frac{G(E_G) + F(E_F)}{2,000 \text{ lbs/ton}}$$

where: N = tons of nitrogen oxide emissions for a 12-month consecutive period  
G = million cubic feet of natural gas used in the last 12 months  
F = gallons of No. 4 fuel oil used for last 12 months  
E<sub>G</sub> = 100 lb/million cubic feet of natural gas  
E<sub>F</sub> = 20 pounds/1000 gallons of No. 4 fuel oil

Limit: Sulfur dioxide (SO<sub>2</sub>) emissions shall be less than 100 tons per twelve (12) consecutive month period based on the following equation:

$$S = \frac{G(E_G) + F(E_F)}{2,000 \text{ lbs/ton}}$$

where: S = tons of sulfur dioxide emissions for 12-month consecutive period  
G = million cubic feet of natural gas used in last 12 months  
F = gallons of No. 4 fuel oil used in last 12 months with less than or equal to 0.5% sulfur content  
E<sub>G</sub> = 0.6 pounds/million cubic feet of natural gas  
E<sub>F</sub> = 75 pounds/1000 gallons of No. 4 fuel oil

**Multiple Fuel Quarterly Report**

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

Month	Fuel Types (units)	Column 1	Column 2		Column 1 + Column 2	Equation Results
		Usage This Month	Usage Previous 11 Months		Usage 12 Month Total	Emissions (tons per 12 months)
Month 1	Natural Gas (million cubic feet)			G		Nitrogen Oxides
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	Natural Gas (million cubic feet)			G		Sulfur Dioxide
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
Month 2	Natural Gas (million cubic feet)			G		Nitrogen Oxides
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	Natural Gas (million cubic feet)			G		Sulfur Dioxide
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
Month 3	Natural Gas (million cubic feet)			G		Nitrogen Oxides
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	Natural Gas (million cubic feet)			G		Sulfur Dioxide
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		

No deviation occurred in this reporting period.

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

Deviation/s occurred in this reporting period.

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

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

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

Attach a signed certification to complete this report.

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

Source Name: Koors Contracting, Inc.  
 Source Address: 1112 East Tiwaba Way, Westport, Indiana 47283  
 Mailing Address: 11240 South County Road 100 West, Westport, IN 47283  
 FESOP Permit No.: F 031-25789-00031

**Months:** \_\_\_\_\_ **to** \_\_\_\_\_ **Year:** \_\_\_\_\_

<p>This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, 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: \_\_\_\_\_

Attach a signed certification to complete this report.

Mail to: Permit Administration & Development Section  
Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

Koors Contracting, Inc.  
1112 East Tiwaba Way  
Westport, Indiana 47283

### Affidavit of Construction

I, \_\_\_\_\_, being duly sworn upon my oath, depose and say:  
(Name of the Authorized Representative)

1. I live in \_\_\_\_\_ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of \_\_\_\_\_ for \_\_\_\_\_.  
(Title) (Company Name)
3. By virtue of my position with \_\_\_\_\_, I have personal  
(Company Name)  
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of \_\_\_\_\_.  
(Company Name)
4. I hereby certify that Koors Contracting, Inc. 1112 East Tiwaba Way, Westport, Indiana 47283, completed construction of the drum hot-mix asphalt plant on \_\_\_\_\_ in conformity with the requirements and intent of the construction permit application received by the Office of Air Quality on **Reviewer: Insert date application received at IDEM** and as permitted pursuant to New Source Construction Permit and Federally Enforceable State Operating Permit No. F 031-25789-00031, Plant ID No. 03-00031 issued on \_\_\_\_\_.
5. **Permittee, please cross out the following statement if it does not apply:** Additional (operations/facilities) were constructed/substituted as described in the attachment to this document and were not made in accordance with the construction permit.

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature \_\_\_\_\_

Date \_\_\_\_\_

STATE OF INDIANA)  
)SS

COUNTY OF \_\_\_\_\_ )

Subscribed and sworn to me, a notary public in and for \_\_\_\_\_ County and State of Indiana  
on this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_. My Commission expires: \_\_\_\_\_.

Signature \_\_\_\_\_

Name \_\_\_\_\_ (typed or printed)

**ATTACHMENT A**  
**KOORS CONTRACTING INC.**  
**ASPHALT PLANT SITE FUGITIVE DUST CONTROL PLAN**

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

6. Fugitive particulate matter (dust) emissions from the loading and unloading of aggregates shall be controlled by one or more of the following measures:
  - A. Reduce free fall distance to a minimum.
  - B. Reduce the rate of discharge of the aggregate.
  - C. Spray the aggregate with water on an as-needed basis.

DEFINITIONS:

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

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

Addendum to the Technical Support Document (ATSD) for a  
New Source Construction and Federally Enforceable  
State Operating Permit (FESOP)

**Source Background and Description**

**Source Name:** Koors Contracting, Inc.  
**Source Location:** 1112 East Tiwaba Way, Westport, IN 47283  
**County:** Decatur  
**SIC Code:** 5032  
**Operation Permit No.:** F 031-25789-00031  
**Permit Reviewer:** Hannah L. Desrosiers

On March 10, 2008, the Office of Air Quality (OAQ) had a notice published in The Greensburg Daily News, in Greensburg, Indiana, stating that Koors Contracting, Inc. had applied for a new source construction, and FESOP to construct and operate a new stationary drum hot-mix asphalt plant. The notice also stated that the OAQ proposed to issue a new source construction, and FESOP for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

**Comments and Responses**

No comments were received during the public notice period.

**Additional Changes**

IDEM, OAQ has decided to make additional revisions to the permit. Since the OAQ prefers that all Technical Support Documents reflect the permit that was on public notice, no change will be made to the TSD, or Appendix A of the TSD. This addendum and Appendix A of this addendum are being used to document the indicated revisions as described below, with deleted language as ~~strikeouts~~ and new language **bolded**.

1. The following permit conditions have been revised for clarification and to correctly limit the source's actual emissions, which will in turn limit their potential emissions and make the limitation federally enforceable, as follows:

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

...

- (b) ~~The potential to emit PM~~ **emissions** from the dryer/mixer shall ~~be less than~~ **not exceed** 0.445 pounds per ton of asphalt processed.

...

D.1.2 Particulate (PM<sub>10</sub>), and Carbon Monoxide (CO) [326 IAC 2-8-4] [326 IAC 2-2]

...

- (b) ~~The potential to emit PM<sub>10</sub>~~ **emissions** from the dryer/mixer shall ~~be less than~~ **not exceed** 0.180 pounds per ton of asphalt processed.

- (c) ~~The potential to emit CO~~ **emissions** from the dryer/mixer shall ~~be less than~~ **not exceed** 0.195 pounds per ton of asphalt processed.

...

2. The following permit condition has been removed from the permit because it is not applicable to this source, since they do not have the ability to burn waste oil, as follows:

D.1.3 Fuel Limitations [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]

...

Compliance with these limits, combined with the potential emissions from all other emission units at this source, shall limit the source-wide total potential to emit NO<sub>x</sub> and SO<sub>2</sub> to less than 100 tons per 12 consecutive month period, each, ~~HCl to less than 10 tons per 12 consecutive month period, and any combination of HAPs to less than 25 tons per 12 consecutive month period,~~ and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

3. The following permit condition has been removed from the permit because it is not applicable to this type of source and its emission units, as follows:

D.1.12 Baghouse Parametric Monitoring [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

...

~~(b) The Permittee shall record the inlet temperature to 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 inlet temperature to the baghouse is outside the normal range of 200 and 400 degrees Fahrenheit or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. This is required to prevent overheating of the bags and to prevent low temperatures from mudding up the bags. A temperature reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.~~

...

**(be)** 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 at least once every six (6) months.

4. The following permit condition has been revised to correctly include the recordkeeping required to ensure compliance with condition D.1.5 Volatile Organic Compounds (VOC) [326 IAC 8-1-6], as follows:

D.1.14 Record Keeping Requirements

(a) To document compliance with Conditions D.1.1 and D.1.2 and ~~D.1.5 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.

5. Pages 5, 6, 25 - 28, 30, 31, 32, 39, and 40 of 44, of the permit are being revised to address fuel usage inconsistencies in the draft permit and supporting documents

Extensive consultation and collaboration with the source was necessary to clarify the fuel types and accompanying fuel storage equipment to be used by the source in the dryer/mixer and hot oil heating system. The findings of this re-evaluation are as follows:

- (a) The primary fuel to be used in the dryer/mixer will be No. 4 distillate fuel oil, and using natural gas as backup. The No. 4 distillate fuel oil will be stored in a 30,000 gallon storage tank and the natural gas will be piped in if needed.
- (b) The primary fuel to be used in the hot oil heating system's hot oil heater will be No. 2 distillate fuel oil, and using natural gas as backup. The No. 2 distillate fuel oil will be stored in a 5,000 gallon storage tank and the natural gas will be piped in if needed.

- (c) Propane will not be used in any of the facilities at this source.

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

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

- (a) One (1) Drum Mix Asphalt Plant, approved for construction in 2008, consisting of the following:
  - (1) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) ~~No. 4 Fuel Oil-fired~~ dryer burner **fueled primarily by No. 4 distillate fuel oil and using natural gas as backup**, with a maximum rated capacity of 75 MM BTU per hr., and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A.

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

- (b) Material Handling and conveying operations, approved for construction in 2008, consisting of the following:
  - ...
  - (9) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil, **primarily and using natural gas as back-up**, exhausting to stack SV-B;
  - ...

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

This stationary source also includes the following insignificant activities:

- ...
- (b) **Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.**
- ...

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Hot-Mix Asphalt Plant

- (a) One (1) Drum Mix Asphalt Plant, approved for construction in 2008, consisting of the following:
  - (1) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) ~~No. 4 Fuel Oil-fired~~ dryer burner **fueled primarily by No. 4 distillate fuel oil and using natural gas as backup**, with a maximum rated capacity of 75 MM BTU per hr., and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A.

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

- (b) Material Handling and conveying operations, approved for construction in 2008, consisting of the following:

- ...
- (9) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil, **and using natural gas as backup**, exhausting to stack SV-B;
- ...

(The information describing the process contained in this emissions unit description box is descriptive

information and does not constitute enforceable conditions.)

D.1.3 Fuel Limitations [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]

The fuel combusted in the dryer/mixer burner and **hot oil heating system** ~~all other combustion equipment~~ shall be limited as follows:

(a) ~~The No. 2 and No. 4 fuel oils shall each~~ have a sulfur content less than or equal to 0.50 percent by weight, and

(b) Single Fuel Usage Limitations:

When combusting only one type of fuel per twelve (12) consecutive month period in the dryer/mixer burner and **hot oil heating system** ~~all other combustion equipment~~, the usage of fuel shall be limited as follows:

~~(1) Propane usage shall not exceed 10,400,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month,~~

(12) Natural gas usage **in the dryer/mixer burner and hot oil heating system** shall not exceed 1,975 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month,

~~(3) No. 2 fuel oil usage shall not exceed 2,775,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month,~~

(24) No. 4 fuel oil usage in the **dryer/mixer burner only** shall not exceed 2,635,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month,

(c) Multiple Fuel Usage Limitation:

When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and **hot oil heating system** ~~all other combustion equipment~~, emissions from the dryer/mixer and **hot oil heating system** ~~all other combustion equipment~~ shall be limited as follows:

(1) Nitrogen oxides (NOx) emissions from the dryer/mixer and **hot oil heating system** ~~all other combustion equipment~~ shall be less than 100 tons per twelve (12) consecutive month period, with compliance determined at the end of each month, and

(2) Sulfur dioxide (SO<sub>2</sub>) emissions from the dryer/mixer ~~and all other combustion equipment~~ shall be less than 100 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

...

D.1.4 Sulfur Dioxide (SO<sub>2</sub>) [326 IAC 7-1.1-1][326 IAC 7-2-1]

(a) Pursuant to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations), 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 (including No. 2 fuel oil, No. 4 fuel oil, and diesel fuel oil).~~

...

~~Compliance with Condition D.1.3 will also satisfy Condition D.1.4.~~

...

D.1.9 Multiple Fuel Usage Limitation

(a) In order to comply with Condition D.1.3(c) when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and **hot oil heating system** ~~all other combustion equipment~~, the Permittee shall limit fuel usage in the dryer/mixer burner and **hot oil heating system** ~~all other combustion equipment~~ according

to the following formulas:

(1) Nitrogen oxide emission calculation

$$N = \frac{G(E_G) + O(E_O) + F(E_F) + P(E_P)}{2,000 \text{ lbs/ton}}$$

where:

N = tons of nitrogen oxide 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~~

F = gallons of No. 4 fuel oil used for last 12 months

~~P = gallons of propane used in the last 12 months~~

Emission Factors for Nitrogen Oxide

E<sub>G</sub> = 100 lb/million cubic feet of natural gas

~~E<sub>O</sub> = 20 pounds/1000 gallons of No. 2 fuel oil~~

E<sub>F</sub> = 20 pounds/1000 gallons of No. 4 fuel oil

~~E<sub>P</sub> = 19 pounds/1000 gallons of propane~~

(2) Sulfur dioxide emission calculation

$$S = \frac{G(E_G) + O(E_O) + F(E_F) + (P)(E_P)}{2,000 \text{ lbs/ton}}$$

where:

S = tons of sulfur dioxide emissions for 12-month consecutive period

G = million cubic feet of natural gas used in last 12 months

~~O = gallons of No. 2 fuel oil used in last 12 months with less than or equal to 0.5% sulfur content~~

F = gallons of No. 4 fuel oil used in last 12 months with less than or equal to 0.5% sulfur content

~~P = gallons of propane used in the last 12 months~~

Emission Factors for Sulfur dioxide

E<sub>G</sub> = 0.6 pounds/million cubic feet of natural gas

~~E<sub>O</sub> = 71 pounds/1000 gallons of No. 2 fuel oil~~

E<sub>F</sub> = 75 pounds/1000 gallons of No. 4 fuel oil

~~E<sub>P</sub> = 0.02 pounds/1000 gallons of propane~~

...

D.1.14 Record Keeping Requirements

---

...

- (b) To document compliance with Conditions D.1.3 and D.1.4, the Permittee shall maintain records in accordance with (1) through (7) below.

...

- (7) A statement from the fuel supplier that certifies the sulfur content of ~~No. 2 and the~~ No. 4 fuel oils.

...

- (c) To document compliance with Conditions D.1.3(c) and D.1.9 when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and **hot oil heating system** ~~all other combustion equipment~~, the Permittee shall maintain records of actual fuel usage, and equivalent nitrogen oxides and sulfur dioxide emission rates for each fuel used at the source per month.

...

- (e) To document compliance with Condition D.1.12, the Permittee shall maintain the

following:

...

- (2) ~~Records of the inlet temperature at the baghouse during normal operation once per day. The Permittee shall include in its daily record when a temperature reading is not taken and the reason for the lack of a temperature reading, (e.g., the dryer/mixer did not operate that day).~~

...

## SECTION E.1 FACILITY OPERATION CONDITIONS

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

- (a) One (1) Drum Mix Asphalt Plant, approved for construction in 2008, consisting of the following:

- (1) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) ~~No. 4 Fuel Oil~~-fired dryer burner  **fueled primarily by No. 4 distillate fuel oil and using natural gas as backup**, with a maximum rated capacity of 75 MM BTU per hr., and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A.

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.)

...

## INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF AIR QUALITY COMPLIANCE DATA SECTION

### Multiple Fuel Quarterly Report - SO<sub>2</sub>

Page 1 of 2

Source Name: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way, Westport, Indiana 47283  
Mailing Address: 11240 South County Road 100 West, Westport, IN 47283  
FESOP No.: F 031-25789-00031  
Facilities: Dryer/mixer burner and **hot oil heating system** ~~all other combustion equipment~~  
Parameters: Nitrogen Oxides (NOx) and Sulfur Dioxide (SO<sub>2</sub>) Emissions

Limit: Nitrogen oxides (NOx) emissions shall be less than 100 tons per twelve (12) consecutive month period based on the following equation:

$$N = \frac{G(E_G) + O(E_O) + F(E_F) + P(E_P)}{2,000 \text{ lbs/ton}}$$

where: N = tons of nitrogen oxide 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~~  
F = gallons of No. 4 fuel oil used for last 12 months  
~~P = gallons of propane used in the last 12 months~~

E<sub>G</sub> = 100 lb/million cubic feet of natural gas  
~~E<sub>O</sub> = 20 pounds/1000 gallons of No. 2 fuel oil~~  
E<sub>F</sub> = 20 pounds/1000 gallons of No. 4 fuel oil  
~~E<sub>P</sub> = 19 pounds/1000 gallons of propane~~

Limit: Sulfur dioxide (SO<sub>2</sub>) emissions shall be less than 100 tons per twelve (12) consecutive month period based on the following equation:

$$S = \frac{G(E_G) + O(E_O) + F(E_F) + (P)(E_P)}{2,000 \text{ lbs/ton}}$$

where: S = tons of sulfur dioxide emissions for 12-month consecutive period  
G = million cubic feet of natural gas used in last 12 months  
~~O = gallons of No. 2 fuel oil used in last 12 months with less than or equal to 0.5% sulfur content~~  
F = gallons of No. 4 fuel oil used in last 12 months with less than or equal to 0.5% sulfur content  
~~P = gallons of propane used in the last 12 months~~

E<sub>G</sub> = 0.6 pounds/million cubic feet of natural gas  
E<sub>O</sub> = 71 pounds/1000 gallons of No. 2 fuel oil  
E<sub>F</sub> = 75 pounds/1000 gallons of No. 4 fuel oil  
E<sub>P</sub> = 0.02 pounds/1000 gallons of propane

*\*Continued on next page...*

**Multiple Fuel Quarterly Report**

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

Month	Fuel Types (units)	Column 1	Column 2		Column 1 + Column 2	Equation Results
		Usage This Month	Usage Previous 11 Months		Usage 12 Month Total	Emissions (tons per 12 months)
Month 1	Natural Gas (million cubic feet)			G		Nitrogen Oxides
	<del>No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)</del>			Ø		
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	<del>Propane (gallons)</del>			P		
	Natural Gas (million cubic feet)			G		Sulfur Dioxide
	<del>No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)</del>			Ø		
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	<del>Propane (gallons)</del>			P		
Month 2	Natural Gas (million cubic feet)			G		Nitrogen Oxides
	<del>No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)</del>			Ø		
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	<del>Propane (gallons)</del>			P		
	Natural Gas (million cubic feet)			G		Sulfur Dioxide
	<del>No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)</del>			Ø		
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	<del>Propane (gallons)</del>			P		
Month 3	Natural Gas (million cubic feet)			G		Nitrogen Oxides
	<del>No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)</del>			Ø		
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	<del>Propane (gallons)</del>			P		
	Natural Gas (million cubic feet)			G		Sulfur Dioxide
	<del>No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)</del>			Ø		
	No. 4 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			F		
	<del>Propane (gallons)</del>			P		

No deviation occurred in this reporting period.

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

Deviation/s occurred in this reporting period.

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

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

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

Attach a signed certification to complete this report.

The emissions calculations from the TSD Appendix A, have been revised to reflect the preceding revisions, and as noted previously are documented in Appendix A of this addendum, as follows:

- (a) Pages 1, 2, 11, and 12 of 19 (Emissions Summary, Fuel Combustion, Limited Emissions Summary and Limited Fuel Combustion) have been revised to reflect the removal of the No. 2 fuel oil usage and limitations. The No. 2 fuel oil limitations have been removed from the permit because the No. 2 fuel oil will only be used in the Hot Oil Heating System, and the process and combustion emissions from this facility are already inherently limited by the annual asphalt production limitation.
- (b) All references to No. 2 fuel oil usage in the dryer/mixer have been revised to reflect the change to No. 4 fuel oil.

On pages 2, 3, 12 & 14 of 19 (Fuel Combustion, Dryer/Mixer, Limited Fuel Combustion and Limited Dryer/Mixer worksheets), since there are no specific AP-42 emission factors for HAP emissions from the combustion of No. 4 fuel oil, a "worst case" scenario is being assumed where HAP emissions from the combustion of No. 4 fuel oil are equal to the combustion of residual or No. 6 fuel oil.

Consequently, the emission factors have been revised to include the "worst case" use of the No. 6 fuel oil factors where needed and appropriate documentation has been added to each associated page.

- (c) The Fuel Combustion worksheet has been revised to break out the remaining fuels as used by each emission unit and maximum fuel input rate. There will be one (1) worksheet for the Natural Gas usage in the dryer/mixer burner and hot oil heating system, one (1) worksheet for the No. 4 fuel oil usage in the dryer/mixer burner, and one (1) worksheet for the No. 2 fuel oil usage in the hot oil heating system. The Limited Fuel Combustion worksheet has been revised to break out the Natural Gas in the dryer/mixer burner and hot oil heating system, and No. 4 fuel oil usage in the dryer/mixer burner. The "worst case" emissions are still summarized on the Emissions Summary and Limited Emissions Summary pages, though the values have been updated to reflect the revised fuel usage rates.
- (d) The Unlimited Paved Roads and Limited Paved Roads worksheets, pages 10 and 19 of 19, have been revised to indicate the change from No. 2 fuel oil to No. 4 fuel oil.

- 6. The Air Pollution Control Board footnote in the County Attainment Status table of the TSD, Page 1 of 14, was erroneously included. While no change has been made to the TSD because the OAQ prefers that the Technical Support Document reflect the permit that was on public notice, this addendum is being used to indicate that this information should be stricken, as follows;

The following attainment status designations are applicable to Decatur County:

Pollutant	Designation
PM <sub>10</sub>	Unclassifiable effective November 15, 1990.
PM <sub>2.5</sub>	Unclassifiable or attainment.
SO <sub>2</sub>	Better than national standards.
NO <sub>2</sub>	Cannot be classified or better than national standards.
O <sub>3</sub>	Unclassifiable or attainment effective June 15, 2004, for the 8-hour ozone standard. <sup>1</sup>
CO	Unclassifiable or attainment effective November 15, 1990.
Pb	Not designated.

<sup>1</sup>Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.

(Air Pollution Control Board; 326 IAC 1-4-17; filed Dec 26, 2007, 1:43 p.m.; 20080123-IR-326070308FRA)

7. Upon further review, IDEM, OAQ has decided to provide further clarification of information contained within Appendix A: Calculations of the TSD, and documented in Appendix A: Calculations of the TSD Addendum, as follows:
- (a) On page 3 & 14 of 19 (Volatile Organic Compounds and Hazardous Air Pollutants for the Dryer/Mixer worksheets), the footnote that says “Emissions of PM, PM10, SO2, NOx, and CO from Drum-Mix Plants are included with the emission calculations for fuel combustion”, and its accompanying asterisk, is being deleted because the method of calculating asphalt plant emissions has changed and the language no longer applies.
  - (b) On page 7 of 19, the Hot Oil and Asphalt Heaters worksheet has been revised to correctly reflect the fact that the “fugitive” emissions from the “hot oil and asphalt heaters” are actually “fugitive” emissions from the “hot oil system” (fugitives emanating from the hot oil used in the hot oil heat exchange system). The AP-42 figures 11.1-1 through 11.1-3 refer to the emission as “process fugitive emissions”. The emissions are not coming from the heater, they are “emanating” from the liquid asphalt cement storage tank. Note: the heater is called a “hot oil heater”, because the liquid asphalt is heated using a heat exchange system that uses oil as the heat exchange solvent (the heater heats the oil, and the hot oil heats the asphalt).
  - (c) On page 13 of 19, the fuel equivalency methodology section has been updated to reflect the No. 4 fuel oil as the primary fuel used at this source. Additionally, the No. 2 fuel oil has been stricken from the table since its insignificant emissions from usage in the Hot Oil Heating System will be inherently limited through the annual asphalt production limitation.
  - (d) Throughout, references for fuel types not used by this source have been deleted to avoid confusion.

<b>IDEM Contact</b>
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- (a) Questions regarding this proposed New Source Construction and FESOP can be directed to Hannah Desrosiers 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) 234-5374 or toll free at 1-800-451-6027 extension 4-5374.
- (b) A copy of the permit 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: Emissions Calculations Emission Summary

Company Name: Koors Contracting, Inc.  
 Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
 Permit Number: F 031-25789-00031  
 Reviewer: Hannah L. Desrosiers  
 Application Date: December 26, 2007

Maximum Capacity

Maximum Hourly Asphalt Production =	250	ton/hr
Maximum Annual Asphalt Production =	2,190,000	ton/yr
Maximum Fuel Input Rate =	75.76	MMBtu/hr
Equivalent Natural Gas Usage =	666.662	MMCF/yr
Equivalent Propane Usage =	7,317,746	gal/yr, and 0.29 gr/100 ft <sup>3</sup> sulfur
Equivalent No. 2 Fuel Oil Usage =	4,730,400	gal/yr, and 0.50 % sulfur
Equivalent No. 4 Fuel Oil Usage =	4692,857 4730400	gal/yr, and 0.50 % sulfur

Unlimited/Uncontrolled Emissions

Process Description	Unlimited/Uncontrolled Potential to Emit (tons/year)								
	Criteria Pollutants						Hazardous Air Pollutants		
	PM	PM10	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP	
<b>Ducted Emissions</b>									
Fuel Combustion (worst case)	16.43 16.56	19.48 19.63	175.98 177.39	46.93 69.52	1.83	27.96 27.81	0.63 1.02	0.60	(Hexane)
Dryer/Mixer	30,660.00	7,117.50	12.05	60.23	35.04	142.35	11.67 9.65	3.39	(formaldehyde)
Worst Case Emissions	30,660.00	7,117.50	175.98 177.39	60.23 69.52	35.04	142.35	11.67 9.65	---	
<b>Fugitive Emissions</b>									
Asphalt Load-Out and On-Site Yard	0.57	0.57	0	0	5.41	1.86	0.11	0.02	(m-p-Xylene)
Hot Oil Heating System and Asphalt Heaters	0	0	0	0	0.00	0.04	0.001	0.001	(naphthalene)
Material Storage Piles	0.85	0.30	0	0	0	0	0	0	
Material Processing and Handling	7.07	3.35	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	29.13	10.19	0	0	0	0	0	0	
Paved Roads (worst case)	14.30	2.78	0	0	0	0	0	0	
Volatile Organic Liquid Storage Vessels					negl.		negl.	negl.	
<b>Total Fugitive Emissions</b>	51.92	17.19	0.00	0.00	5.41	1.90	0.11	---	
<b>Totals Unlimited/Uncontrolled PTE</b>	30,711.92	7,134.69	175.98 177.39	60.23 69.52	40.45	144.25	11.78 9.76	3.39	(formaldehyde)

negl = negligible

### Appendix A: Emissions Calculations Fuel Combustion - Dryer/Mixer & Hot Oil System

Company Name: Koors Contracting, Inc.  
 Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
 Permit Number: F 031-25789-00031  
 Reviewer: Hannah L. Desrosiers  
 Application Date: December 26, 2007

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 all other fuel combustion sources at the source - Hot Oil Heating System.

**Maximum Capacity**

Maximum Annual Asphalt Production =	2,190,000	ton/yr
Maximum Fuel Input Rate =	76	MMBtu/hr
Equivalent Natural Gas Usage =	666,662	MMCF/yr
Equivalent Propane Usage =	7,317,746	gal/yr, and
Equivalent No. 2 Fuel Oil Usage =	4,730,400	gal/yr, and
Equivalent No. 4 Fuel Oil Usage =	4,730,400	gal/yr, and
	0.20	gr/100 ft <sup>3</sup> sulfur
	0.50	% sulfur
	0.50	% sulfur

**Unlimited/Uncontrolled Emissions**

Criteria Pollutant	Emission Factor (units)				Unlimited/Uncontrolled Potential to Emit (tons/yr)				Worse Case Fuel (tons/yr)
	Natural Gas (lb/MMCF)	Propane (lb/kgal)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	Propane (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	
PM	1.90	0.60	2.00	7	0.63	2.20	4.73	46.56	46.56
PM10	7.60	0.60	3.30	8.3	2.53	2.52	7.81	19.63	19.63
SO2	0.60	0.02	71.00	75.0	0.20	0.07	167.93	177.39	177.39
NOx	100.00	19.00	20.00	20.0	33.29	33.11	69.52	47.30	69.52
VOC	5.50	0.50	0.20	0.20	1.83	1.83	0.47	0.47	1.83
CO	84.00	3.20	5.00	5.0	27.82	27.84	11.74	11.83	27.84
<b>Hazardous Air Pollutant</b>									
HCl	0	0	0	0	0	0	0	0	0
Antimony	0	0	0	5.25E-03	0	0	0	0.04	0.04
Arsenic	2.0E-04	0	5.6E-04	1.32E-03	6.6E-05	0	1.32E-03	3.12E-03	3.12E-03
Beryllium	1.2E-05	0	4.2E-04	2.78E-05	4.0E-06	0	9.93E-04	6.58E-05	9.93E-04
Cadmium	1.1E-03	0	4.2E-04	3.98E-04	3.6E-04	0	9.93E-04	9.41E-04	9.93E-04
Chromium	1.4E-03	0	4.2E-04	8.45E-04	4.6E-04	0	9.93E-04	2.00E-03	2.00E-03
Cobalt	8.4E-05	0	0	6.02E-03	2.8E-05	0	0	0.04	0.04
Lead	5.0E-04	0	1.3E-03	1.51E-03	1.7E-04	0	2.98E-03	3.57E-03	3.57E-03
Manganese	3.8E-04	0	8.4E-04	3.00E-03	1.3E-04	0	1.99E-03	7.10E-03	7.10E-03
Mercury	2.6E-04	0	4.2E-04	1.13E-04	8.6E-05	0	9.93E-04	2.67E-04	9.93E-04
Nickel	2.1E-03	0	4.2E-04	8.45E-02	7.0E-04	0	9.93E-04	0.20	0.20
Selenium	2.4E-05	0	2.1E-03	6.83E-04	7.9E-06	0	4.97E-03	1.62E-03	4.97E-03
1.1.1-Trichloroethane	0	0	0	2.36E-04	0	0	0	5.58E-04	5.58E-04
1,3-Butadiene	0	0	0	0	0	0	0	0	0
Acetaldehyde	0	0	0	0	0	0	0	0	0
Acrolein	0	0	0	0	0	0	0	0	0
Benzene	2.1E-03	0	0	2.14E-04	7.0E-04	0	0	5.06E-04	6.95E-04
Bis(2-ethylhexyl)phthalate	0	0	0	0	0	0	0	0	0
Dichlorobenzene	1.2E-03	0	0	0	4.0E-04	0	0	0	3.97E-04
Ethylbenzene	0	0	0	6.36E-05	0	0	0	1.50E-04	1.50E-04
Formaldehyde	7.5E-02	0	6.10E-02	3.30E-02	0.02	0	0.14	0.08	0.14
Hexane	1.8E+00	0	0	0	0.60	0	0	0	0.60
Phenol	0	0	0	0	0	0	0	0	0
Toluene	3.4E-03	0	0	6.20E-03	1.1E-03	0	0	0.04	0.04
Total PAH Haps	negl	0	0	1.13E-03	negl	0	0	2.67E-03	2.7E-03
Polycyclic Organic Matter	0	0	3.30E-03	0	0	0	7.81E-03	0	7.81E-03
Xylene	0	0	0	1.09E-04	0	0	0	2.58E-04	2.58E-04
Total HAPs					0.63	0	0.17	0.34	1.02
Worst Single HAP					0.60	0	0.14	0.20	0.60 (Hexane)

**Abbreviations**

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

**Methodology**

Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Natural Gas Usage (MMCF/yr)) \* (Emission Factor (lb/MMCF)) \* (ton/2000 lbs)

All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Fuel Usage (gals/yr)) \* (Emission Factor (lb/kgal)) \* (kgal/1000 gal) \* (ton/2000 lbs)

Sources of AP-42 Emission Factors for fuel combustion:

- Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
- No. 2, No. 4, and No. 6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
- Propane and Butane: AP-42 Chapter 1.5 (dated 10/96), Tables 1.5-1 (assuming PM = PM10)
- Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5
- Diesel Engine Oil: AP-42 Chapter 3.3 (dated 10/96), Tables 3.3-1 and 3.3-2

### Appendix A: Emissions Calculations Fuel Combustion - Dryer/Mixer only

Company Name: Koors Contracting, Inc.  
 Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
 Permit Number: F 031-25789-00031  
 Reviewer: Hannah L. Desrosiers  
 Application Date: December 26, 2007

The following calculations determine the Unlimited/Uncontrolled emissions created from the combustion of #4 fuel oil, in the dryer/mixer.

#### Maximum Capacity

Maximum Annual Asphalt Production =	2,190,000	ton/yr
Maximum Fuel Input Rate =	75	MMBtu/hr
Equivalent No. 4 Fuel Oil Usage =	4,692,857	gal/yr, and 0.50 % sulfur

#### Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)	Unlimited/Uncontrolled Potential to Emit (tons/yr)
	No. 4 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (tons/yr)
PM	7	16.43
PM10	8.3	19.48
SO2	75.0	175.98
NOx	20.0	46.93
VOC	0.20	0.47
CO	5.0	11.73
<b>Hazardous Air Pollutant</b>		
HCl		0
Antimony	5.25E-03	0.01
Arsenic	1.32E-03	3.10E-03
Beryllium	2.78E-05	6.52E-05
Cadmium	3.98E-04	9.34E-04
Chromium	8.45E-04	1.98E-03
Cobalt	6.02E-03	0.01
Lead	1.51E-03	3.54E-03
Manganese	3.00E-03	7.04E-03
Mercury	1.13E-04	2.65E-04
Nickel	8.45E-02	0.20
Selenium	6.83E-04	1.60E-03
1,1,1-Trichloroethane	2.36E-04	5.54E-04
1,3-Butadiene	0	0
Acetaldehyde	0	0
Acrolein	0	0
Benzene	2.14E-04	5.02E-04
Bis(2-ethylhexyl)phthalate	0	0
Dichlorobenzene	0	0
Ethylbenzene	6.36E-05	1.49E-04
Formaldehyde	3.30E-02	0.08
Hexane	0	0
Phenol	0	0
Toluene	6.20E-03	0.01
Total PAH Haps	1.13E-03	2.65E-03
Polycyclic Organic Matter	0	0
Xylene	1.09E-04	2.56E-04

Total HAPs 0.34  
 Worst Single HAP 0.20 (Nickel)

#### Abbreviations

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

#### Methodology

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:

No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11

#### Notes

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

## Appendix A: Emissions Calculations Fuel Combustion - Hot Oil System only

Company Name: Koors Contracting, Inc.  
 Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
 Permit Number: 1112 East Tiwaba Way,  
 Westport, IN 47283  
 Reviewer: Hannah L. Desrosiers  
 Application Date: December 26, 2007

The following calculations determine the Unlimited/Uncontrolled emissions created from the combustion of natural #2 fuel oil in the Hot Oil Heating System.

### Maximum Capacity

Maximum Annual Asphalt Production =	2,190,000	ton/yr
Maximum Fuel Input Rate =	1	MMBtu/hr
Equivalent No. 2 Fuel Oil Usage =	62,571	gal/yr, and <span style="border: 1px solid black; padding: 2px;">0.50</span> % sulfur

### Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)	Unlimited/Uncontrolled Potential to Emit (tons/yr)
	No. 2 Fuel Oil (lb/kgal)	No. 2 Fuel Oil (tons/yr)
PM	2.00	0.06
PM10	3.30	0.10
SO2	71.00	2.22
NOx	20.00	0.63
VOC	0.20	0.01
CO	5.00	0.16
<b>Hazardous Air Pollutant</b>		
HCl	0	0
Antimony	0	0
Arsenic	5.6E-04	1.75E-05
Beryllium	4.2E-04	1.31E-05
Cadmium	4.2E-04	1.31E-05
Chromium	4.2E-04	1.31E-05
Cobalt		0
Lead	1.3E-03	3.94E-05
Manganese	8.4E-04	2.63E-05
Mercury	4.2E-04	1.31E-05
Nickel	4.2E-04	1.31E-05
Selenium	2.1E-03	6.57E-05
1,1,1-Trichloroethane	0	0
1,3-Butadiene	0	0
Acetaldehyde	0	0
Acrolein	0	0
Benzene	0	0
Bis(2-ethylhexyl)phthalate	0	0
Dichlorobenzene	0	0
Ethylbenzene	0	0
Formaldehyde	6.10E-02	1.91E-03
Hexane	0	0
Phenol	0	0
Toluene	0	0
Total PAH Haps	0	0
Polycyclic Organic Matter	3.30E-03	1.03E-04
Xylene	0	0
Total HAPs		2.23E-03
Worst Single HAP		1.91E-03 (Formaldehyde)

### Abbreviations

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

### Methodology

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:

No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11

Appendix A: Emissions Calculations  
Dryer/Mixer  
Volatile Organic Compounds and Hazardous Air Pollutants

Company Name: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
Permit Number: F 031-25789-00031  
Reviewer: Hannah L. Desrosiers  
Application Date: December 26, 2007

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

Maximum Annual Asphalt Production = 2,190,000 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. 4 Fuel Oil	Natural Gas	No. 4 Fuel Oil	
PM	28	28	30660	30660	30,660.0
PM10	6.5	6.5	7117.5	7117.5	7,117.5
SO2	0.0034	0.058	3.7	63.5	63.5
NOx	0.026	0.055	28.5	60.2	60.2
VOC	0.032	0.032	35.0	35.0	35.0
CO	0.13	0.13	142.4	142.4	142.4
<b>Hazardous Air Pollutant</b>					
HCl	0	2.10E-04	0	0.23	0.23
Antimony	1.80E-07	1.80E-07	1.97E-04	1.97E-04	1.97E-04
Arsenic	5.60E-07	5.60E-07	6.13E-04	6.13E-04	6.13E-04
Beryllium	negl	negl	negl	negl	negl
Cadmium	4.10E-07	4.10E-07	4.49E-04	4.49E-04	4.49E-04
Chromium	5.50E-06	5.50E-06	6.02E-03	6.02E-03	6.02E-03
Cobalt	2.60E-08	2.60E-08	2.85E-05	2.85E-05	2.85E-05
Lead	6.20E-07	1.50E-05	6.79E-04	0.02	0.02
Manganese	7.70E-06	7.70E-06	8.43E-03	8.43E-03	8.43E-03
Mercury	2.40E-07	2.60E-06	2.63E-04	2.85E-03	2.85E-03
Nickel	6.30E-05	6.30E-05	0.07	0.07	0.07
Selenium	3.50E-07	3.50E-07	3.83E-04	3.83E-04	3.83E-04
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	0.04	0.04	0.04
Acetaldehyde	0	1.30E-03	0	1.42	1.42
Acrolein	0	2.60E-05	0	0.03	0.03
Benzene	3.90E-04	3.90E-04	0.43	0.43	0.43
Ethylbenzene	2.40E-04	2.40E-04	0.26	0.26	0.26
Formaldehyde	3.10E-03	3.10E-03	3.39	3.39	3.39
Hexane	9.20E-04	9.20E-04	1.01	1.01	1.01
Methyl chloroform	4.80E-05	4.80E-05	0.05	0.05	0.05
MEK	0	2.00E-5	0	0.02	0.02
Propionaldehyde	0	1.30E-04	0	0.14	0.14
Quinone	0	1.60E-04	0	0.18	0.18
Toluene	1.50E-04	2.90E-03	0.16	3.18	3.18
Total PAH Haps	1.90E-04	8.80E-04	0.21	0.96	0.96
Xylene	2.00E-04	2.00E-04	0.22	0.22	0.22
Total HAPs					11.67
Worst Single HAP					3.39 (formaldehyde)

**Abbreviations**

VOC - Volatile Organic Compounds  
HCl = Hydrogen Chloride

SO2 = Sulfur Dioxide  
HAP = Hazardous Air Pollutant

PAH = Polyaromatic Hydrocarbon

**Methodology**

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

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-3, 11.1-7, 11.1-8, 11.1-10, and 11.1-12

\*Emission of PM, PM10, SO2, NOx, and CO from Drum-Mix Plants are included with the emission calculations for fuel combustion.

**Notes**

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

## Appendix A: Emissions Calculations Hot Oil Heating System and Asphalt Heaters

Company Name: Koors Contracting, Inc.  
 Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
 Permit Number: F 031-25789-00031  
 Reviewer: Hannah L. Desrosiers  
 Application Date: December 26, 2007

The following calculations determine the unlimited/uncontrolled fugitive emissions from heating of the oil used in the the hot oil heating system. The following calculations determine the unlimited/uncontrolled fugitive emissions from the hot oil and asphalt heaters-

Maximum Fuel Input Rate = 1.0 MMBtu/hr  
 Maximum No. 2 Fuel Oil Usage = 62,571 gal/yr

Criteria Pollutant	Emission Factors (lb/gal)	Unlimited/Uncontrolled Potential to Emit (tons/yr)	Worse Case PTE
	No. 2 Fuel Oil	No. 2 Fuel Oil	
VOC	2.65E-05	0.001	0.001
CO	0.0012	0.04	0.04
Hazardous Air Pollutant			
Formaldehyde:	3.50E-06	1.10E-04	1.10E-04
Acenaphthene	5.30E-07	1.66E-05	1.66E-05
Acenaphthylene	2.00E-07	6.26E-06	6.26E-06
Anthracene	1.80E-07	5.63E-06	5.63E-06
Benzo(b)fluoranthene	1.00E-07	3.13E-06	3.13E-06
Fluoranthene	4.40E-08	1.38E-06	1.38E-06
Fluorene	3.20E-08	1.00E-06	1.00E-06
Naphthalene	1.70E-05	5.32E-04	5.32E-04
Phenanthrene	4.90E-06	1.53E-04	1.53E-04
Pyrene	3.20E-08	1.00E-06	1.00E-06

Total HAPs **0.001** 8.30E-04  
 Worst Single HAP **0.001** 5.32E-04 (Naphthalene)

Abbreviations  
 CO = Carbon Monoxide  
 VOC = Volatile Organic Compound

Methodology  
 No. 2 Fuel Oil: Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum No. 2 Fuel Oil Usage (gals/yr))\*(Emission Factor (lb/gal))\*(ton/2000 lbs)  
 Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Table 11.1-13

**Appendix A: Emissions Calculations**  
**Fugitive Dust Emissions - Paved Roads**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

**Paved Roads at Industrial Site**

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

Maximum Annual Asphalt Production =	2,190,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	2,080,500	tons/yr
Maximum Asphalt Cement/Binder Throughput =	109,500	tons/yr
<b>Maximum No. 4 Fuel Oil Usage</b> =	<b>4,692,857</b>	<b>gallons/yr</b>

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	12.5	22.5	35.00	9.2E+04	3.2E+06	300	0.057	5,253.8
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	12.5	0	12.50	9.2E+04	1.2E+06	300	0.057	5,253.8
Asphalt Cement/Binder Truck Enter Full	Tanker truck (8000 gal)	15.0	25.0	40.00	4.4E+03	1.8E+05	300	0.057	248.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (8000 gal)	15.0	0.0	15.00	4.4E+03	6.6E+04	300	0.057	248.9
Fuel Oil Truck Enter Full	Tanker truck (8000 gal)	15.0	25.0	40.00	6.3E+02	2.5E+04	300	0.057	36.0
Fuel Oil Truck Leave Empty	Tanker truck (8000 gal)	15.0	0.0	15.00	6.3E+02	9.5E+03	300	0.057	36.0
Aggregate/RAP Loader Full	Front-end loader (4 CY)	20.0	4.0	24.00	5.2E+05	1.2E+07	300	0.057	29,552.6
Aggregate/RAP Loader Empty	Front-end loader (4 CY)	20.0	0	20.00	5.2E+05	1.0E+07	300	0.057	29,552.6
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.5	22.5	35.00	9.7E+04	3.4E+06	300	0.057	5,530.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.5	0.0	12.50	9.7E+04	1.2E+06	300	0.057	5,530.3
<b>Totals</b>					<b>1.4E+06</b>	<b>3.2E+07</b>			<b>8.1E+04</b>

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

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

	PM	PM10	
where k =	0.082	0.016	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	22.5	22.5	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	0.6	0.6	g/m <sup>2</sup> = Ubiquitous Baseline Soil Loading Values of paved roads (Table 13.2.1-3 for summer months)

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

Mitigated Emission Factor, $E_{ext} = E_f * [1 - (p/4N)]$		
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	
Unmitigated Emission Factor, $E_f =$	0.77	0.15	lb/mile
Mitigated Emission Factor, $E_{ext} =$	0.70	0.14	lb/mile
Dust Control Efficiency =	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)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	2.02	0.39	1.85	0.36	0.92	0.18
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	2.02	0.39	1.85	0.36	0.92	0.18
Asphalt Cement/Binder Truck Enter Full	Tanker truck (8000 gal)	0.096	0.019	0.088	0.017	0.044	8.5E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (8000 gal)	0.096	0.019	0.088	0.017	0.044	8.5E-03
Fuel Oil Truck Enter Full	Tanker truck (8000 gal)	0.01	2.7E-03	0.01	2.5E-03	6.3E-03	1.2E-03
Fuel Oil Truck Leave Empty	Tanker truck (8000 gal)	0.01	2.7E-03	0.01	2.5E-03	6.3E-03	1.2E-03
Aggregate/RAP Loader Full	Front-end loader (4 CY)	11.37	2.21	10.40	2.02	5.20	1.01
Aggregate/RAP Loader Empty	Front-end loader (4 CY)	11.37	2.21	10.40	2.02	5.20	1.01
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	2.13	0.41	1.95	0.38	0.97	0.19
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	2.13	0.41	1.95	0.38	0.97	0.19
<b>Totals</b>		<b>31.27</b>	<b>6.09</b>	<b>28.59</b>	<b>5.56</b>	<b>14.30</b>	<b>2.78</b>

**Abbreviations**

PM = Particulate Matter  
 PM10 = Particulate Matter (<10 um)  
 PTE = Potential to Emit

**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)

### Appendix A: Emissions Calculations Limited Emission Summary

Company Name: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
Permit Number: F 031-25789-00031  
Reviewer: Hannah L. Desrosiers  
Application Date: December 26, 2007

#### Production and Fuel Limitations

Annual Asphalt Production Limitation =	1,000,000	ton/yr	
Natural Gas Limitation =	1,975	MMCF/yr	
Propane Limitation =	10,400,000	gal/yr, and	0.20 gr/100 ft <sup>3</sup> sulfur
No. 2 Fuel Oil Limitation =	2,775,000	gal/yr, and	0.50 % sulfur
No. 4 Fuel Oil Limitation =	2,635,000	gal/yr, and	0.50 % sulfur
PM Dryer/Mixer Limitation =	0.445	lb/ton of asphlt production	
PM10 Dryer/Mixer Limitation =	0.180	lb/ton of asphlt production	
CO Dryer/Mixer Limitation =	0.195	lb/ton of asphlt production	
VOC Dryer/Mixer Limitation =	0.042	lb/ton of asphlt production	

#### Limited/Controlled Emissions

Process Description	Limited/Controlled Potential Emissions (tons/year)							
	Criteria Pollutants						Hazardous Air Pollutants	
	PM	PM10	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO	Total HAPs	Worst Case HAP
<b>Ducted Emissions</b>								
Fuel Combustion (worst case)	9.22	10.94	98.81	<del>98.80</del> <b>98.75</b>	5.43	82.95	<del>1.86</del> <del>2.02</del> <b>5.33</b> <del>4.44</del>	1.78 (hexane)
Dryer/Mixer	222.50	90.00	5.50	27.50	21.00	97.50	<del>5.33</del> <del>4.44</del> <b>5.33</b> <del>4.44</del>	1.55 (formaldehyde)
Worst Case Emissions	222.50	90.00	98.81	<del>98.80</del> <b>98.75</b>	21.00	97.50	<del>5.33</del> <del>4.44</del> <b>5.33</b> <del>4.44</del>	---
<b>Fugitive Emissions</b>								
Asphalt Load-Out and On-Site Yard	0.26	0.26	0	0	2.47	0.85	0.05	0.01 (m-/p-xylene)
Hot Oil Heating System and Asphalt Heaters	0	0	0	0	0.001	0.04	0.001	0.001 (naphthalene)
Material Storage Piles	0.85	0.30	0	0	0	0	0	0
Material Processing and Handling	3.23	1.53	0	0	0	0	0	0
Material Screening and Conveying	13.30	4.66	0	0	0	0	0	0
Paved Roads (worst case)	6.53	1.27	0	0	0	0	0	0
Volatile Organic Liquid Storage Vessels					negl		negl	negl
Total Fugitive Emissions	24.18	8.01	0	0	2.47	0.89	0.05	---
<b>Totals Limited/Controlled Emissions</b>	<b>246.68</b>	<b>98.01</b>	<b>98.81</b>	<del><b>98.80</b></del> <b>98.75</b>	<b>23.47</b>	<b>98.39</b>	<del><b>5.38</b></del> <del><b>4.46</b></del> <b>5.33</b> <del>4.44</del>	1.78 (formaldehyde)

negl = negligible

### Appendix A: Emissions Calculations Limited Emissions Fuel Combustion - Dryer/Mixer & Hot Oil System

Company Name: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
Permit Number: F 031-25789-00031  
Reviewer: Hannah L. Desrosiers  
Application Date: December 26, 2007

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 and all other fuel combustion sources at the source Hot Oil Heating System.

**Production and Fuel Limitations**

Maximum Hourly Asphalt Production =	250	ton/hr
Annual Asphalt Production Limitation =	1,000,000	ton/yr
Natural Gas Limitation =	1,975	MMCF/yr
Propane Limitation =	40,400,000	gal/yr, and
No. 2 Fuel Oil Limitation =	2,775,000	gal/yr, and
No. 4 Fuel Oil Limitation =	2,635,000	gal/yr, and
	0.20	gr/100 ft <sup>3</sup> sulfur
	0.50	% sulfur
	0.50	% sulfur

**Limited Emissions**

Criteria Pollutant	Emission Factor (units)				Limited Potential to Emit (tons/yr)				Worse Case Fuel (tons/yr)
	Natural Gas (lb/MMCF)	Propane (lb/kgal)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil* (lb/kgal)	Natural Gas (tons/yr)	Propane (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	
PM	1.9	0.6	2	7	1.88	3.120	2.78	9.22	9.22
PM10	7.6	0.6	3.3	8.3	7.51	3.120	4.58	40.94	40.94
SO2	0.6	0.020	71.0	75.0	0.59	0.104	98.51	98.81	98.81
NOx	100	19.0	29.0	29.0	98.75	98.80	27.75	26.35	98.80
VOC	5.5	0.50	0.20	0.20	5.43	2.60	0.28	0.26	5.43
CO	84	3.2	5.0	5.0	82.95	46.64	6.94	6.59	82.95
<b>Hazardous Air Pollutant</b>									
HCl	0	0	0	0	0	0	0	0	0
Antimony	0	0	0	5.25E-03	0	0	0	0.01	6.92E-03
Arsenic	2.0E-04	0	5.6E-04	1.32E-03	2.0E-04	0	7.77E-04	1.74E-03	1.74E-03
Beryllium	1.2E-05	0	4.2E-04	2.78E-05	1.2E-05	0	5.83E-04	3.66E-05	5.83E-04
Cadmium	1.1E-03	0	4.2E-04	3.98E-04	1.1E-03	0	5.83E-04	5.24E-04	1.09E-03
Chromium	1.4E-03	0	4.2E-04	8.45E-04	1.4E-03	0	5.83E-04	1.11E-03	1.38E-03
Cobalt	8.4E-05	0	0	6.02E-03	8.3E-05	0	0	0.0079314	7.93E-03
Lead	5.0E-04	0	1.3E-03	1.51E-03	4.9E-04	0	1.75E-03	1.99E-03	1.99E-03
Manganese	3.8E-04	0	8.4E-04	3.00E-03	3.8E-04	0	1.17E-03	0.00	3.95E-03
Mercury	2.6E-04	0	4.2E-04	1.13E-04	2.6E-04	0	5.83E-04	1.49E-04	5.83E-04
Nickel	2.1E-03	0	4.2E-04	0.08	2.1E-03	0	5.83E-04	0.11	0.11
Selenium	2.4E-05	0	2.1E-03	6.83E-04	2.4E-05	0	2.91E-03	9.00E-04	2.91E-03
1,1,1-Trichloroethane	0	0	0	2.36E-04	0	0	0	3.11E-04	3.11E-04
1,3-Butadiene	0	0	0	0	0	0	0	0	0
Acetaldehyde	0	0	0	0	0	0	0	0	0
Acrolein	0	0	0	0	0	0	0	0	0
Benzene	2.1E-03	0	0	2.14E-04	2.1E-03	0	0	2.82E-04	2.07E-03
Bis(2-ethylhexyl)phthalate	0	0	0	0	0	0	0	0	0
Dichlorobenzene	1.2E-03	0	0	0	1.2E-03	0	0	0	1.19E-03
Ethylbenzene	0	0	0	6.36E-05	0	0	0	8.38E-05	8.38E-05
Formaldehyde	0.08	0	0.06	0.03	0.07	0	0.08	0.04	0.08
Hexane	1.80	0	0	0	1.78	0	0	0	1.78
Phenol	0	0	0	0	0	0	0	0	0
Toluene	3.4E-03	0	0	6.20E-03	3.4E-03	0	0	0.01	8.17E-03
Total PAH Haps	negl	0	0	1.13E-03	negl	0	0	1.49E-03	1.49E-03
Polycyclic Organic Matter	0	0	3.30E-03	0	0	0	4.58E-03	0	4.58E-03
Xylene	0	0	0	1.09E-04	0	0	0	1.44E-04	1.44E-04
Total HAPs					1.86	0	0.10	0.19	2.02
Worst Single HAP					1.78	0	0.08	0.11	1.78

(Hexane)

**Abbreviations**

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

**Methodology**

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

- Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
- No. 2, No. 4, and No. 6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
- Propane and Butane: AP-42 Chapter 1.5 (dated 10/96), Tables 1.5-1 (assuming PM = PM10)
- Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5
- Diesel Engine Oil: AP-42 Chapter 3.3 (dated 10/96), Tables 3.3-1 and 3.3-2

**Appendix A: Emissions Calculations  
Limited Emissions  
Fuel Combustion - Dryer/Mixer only**

Company Name: Koors Contracting, Inc.  
Source Address: 1112 East Tiwaba Way,  
Westport, IN 47283  
Permit Number: F 031-25789-00031  
Reviewer: Hannah L. Desrosiers  
Application Date: December 26, 2007

The following calculations determine the limited emissions created from the combustion of #4 fuel oil in the dryer/mixer.

**Production and Fuel Limitations**

Maximum Hourly Asphalt Production =	#REF!	ton/hr
Annual Asphalt Production Limitation =	#REF!	ton/yr
No. 4 Fuel Oil Limitation =	#REF!	gal/yr, and #REF! % sulfur

**Limited Emissions**

Criteria Pollutant	Emission Factor (units)	Limited Potential to Emit (tons/yr)
	No. 4 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (tons/yr)
PM	7	#REF!
PM10	8.3	#REF!
SO2	75.0	#REF!
NOx	20.0	#REF!
VOC	0.20	#REF!
CO	5.0	#REF!
<b>Hazardous Air Pollutant</b>		
HCl		#REF!
Antimony	5.25E-03	#REF!
Arsenic	1.32E-03	#REF!
Beryllium	2.78E-05	#REF!
Cadmium	3.98E-04	#REF!
Chromium	8.45E-04	#REF!
Cobalt	6.02E-03	#REF!
Lead	1.51E-03	#REF!
Manganese	3.00E-03	#REF!
Mercury	1.13E-04	#REF!
Nickel	0.08	#REF!
Selenium	6.83E-04	#REF!
1,1,1-Trichloroethane	2.36E-04	#REF!
1,3-Butadiene		#REF!
Acetaldehyde		#REF!
Acrolein		#REF!
Benzene	2.14E-04	#REF!
Bis(2-ethylhexyl)phthalate		#REF!
Dichlorobenzene		#REF!
Ethylbenzene	6.36E-05	#REF!
Formaldehyde	0.03	#REF!
Hexane		#REF!
Phenol		#REF!
Toluene	6.20E-03	#REF!
Total PAH Haps	1.13E-03	#REF!
Polycyclic Organic Matter		#REF!
Xylene	1.09E-04	#REF!

Total HAPs #REF!  
Worst Single HAP #REF! (Nickel)

**Abbreviations**

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

**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:

No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11

**Notes**

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

Appendix A: Emissions Calculations  
 Fuel Equivalency Calculations

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

Fuel Type	Limited Fuel Usage	Fuel Usage Units	SO2 Equivalency					NOx Equivalency				
			Limited Sulfur Content	Limited Sulfur Content Units	AP-42 Emission Factor	Emission Factor Units	Fuel Equivalency	Fuel Equivalency Units	AP-42 Emission Factor	Emission Factor Units	Fuel Equivalency	Fuel Equivalency Units
Natural Gas	1,975	MMCF/yr	NA	NA	0.6	lb/MMCF	125.00	MMCF natural gas / 1000 gal No.4 fuel oil	100.0	lb/MMCF	0.20	MMCF natural gas / 1000 gal No.4 fuel oil
Propane	10,400,000	gal/yr	0.20	gr/100 lb sulfur	0.020	lb/kgal	3,750.00	gal Propane / gal No.4 fuel oil	49.0	lb/kgal	4.05	gal Propane / gal No.4 fuel oil
No. 2 Fuel Oil	2,775,000	gal/yr	0.50	% by weight	74.00	lb/kgal	4.06	gal No. 2 fuel oil / gal No.4 fuel oil	20.0	lb/kgal	4.00	gal No. 2 fuel oil / gal No.4 fuel oil
No. 4 Fuel Oil	2,635,000	gal/yr	0.50	% by weight	75.00	lb/kgal	1.00	gal No.4 fuel oil / gal No.4 fuel oil	20.0	lb/kgal	1.00	gal No.4 fuel oil / gal No.4 fuel oil

Methodology

NG Fuel Equivalency = [AP-42 Emission Factor for # 4 Fuel Oil Propane (lb/kgal)] / [AP-42 Emission Factor for Natural Gas any fuel type (lb/kgal or lb/MMCF)]

All Other Fuel Equivalency = [AP-42 Emission Factor for # 4 Fuel Oil Propane (lb/kgal)] / [AP-42 Emission Factor for any fuel type (lb/kgal or lb/MMCF)] \* 1000

Sources of AP-42 Emission Factors for fuel combustion:

- Natural Gas (boiler < 100 MMBtu/hr): AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1 and 1.4-2
- No. 2, No.4, and residual fuel oil (industrial boiler < 100 MMBtu/hr): AP-42 Chapter 1.3 (dated 9/98), Table 1.3-1
- Propane and Butane (industrial boiler 10 to 100 MMBtu/hr): AP-42 Chapter 1.5 (dated 10/96), Table 1.5-1
- Waste Oil (small boiler): AP-42 Chapter 1.11 (dated 10/96), Table 1.11-2
- Diesel Engine Oil: AP-42 Chapter 3.3 (dated 10/96), Table 3.3-1

**Appendix A: Emissions Calculations**  
**Limited Emissions**  
**Dryer/Mixer**  
**Volatile Organic Compounds and Hazardous Air Pollutants**

Company Name: Koors Contracting, Inc.  
 Source Address: 1112 East Tiwaba Way, Westport, IN 47283  
 Permit Number: F 031-25789-00031  
 Reviewer: Hannah L. Desrosiers  
 Application Date: December 26, 2007

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

Annual Asphalt Production Limitation =	1,000,000	ton/yr
PM Dryer/Mixer Limitation =	0.445	lb/ton of asphlt production
PM10 Dryer/Mixer Limitation =	0.180	lb/ton of asphlt production
CO Dryer/Mixer Limitation =	0.195	lb/ton of asphlt production
VOC Dryer/Mixer Limitation =	0.042	lb/ton of asphlt production

Criteria Pollutant*	Emission Factor or Limitation (lb/ton)		Limited/Controlled Potential to Emit (tons/yr)		
	Drum-Mix Plant (dryer/mixer, controlled by fabric filter)		Drum-Mix Plant (dryer/mixer, controlled by fabric filter)		
	Natural Gas	No. 4 2 Fuel Oil	Natural Gas	No. 4 2 Fuel Oil	Worse Case PTE
PM	0.445	0.445	222.5	222.5	222.5
PM10	0.18	0.18	90.0	90.0	90.0
SO2	0.0034	0.058	1.7	29.0	29.0
NOx	0.026	0.055	13.0	27.5	27.5
VOC	0.042	0.042	21.0	21.0	21.0
CO	0.195	0.195	97.5	97.5	97.5
<b>Hazardous Air Pollutant</b>					
HCl	0	2.10E-04	0	0.011	0.011
Antimony	1.80E-07	1.80E-07	9.00E-05	9.00E-05	9.00E-05
Arsenic	5.60E-07	5.60E-07	2.80E-04	2.80E-04	2.80E-04
Beryllium	negl	negl	negl	negl	negl
Cadmium	4.10E-07	4.10E-07	2.05E-04	2.05E-04	2.05E-04
Chromium	5.50E-06	5.50E-06	2.75E-03	2.75E-03	2.75E-03
Cobalt	2.60E-08	2.60E-08	1.30E-05	1.30E-05	1.30E-05
Lead	6.20E-07	1.50E-05	3.10E-04	7.50E-03	7.50E-03
Manganese	7.70E-06	7.70E-06	3.85E-03	3.85E-03	3.85E-03
Mercury	2.40E-07	2.60E-06	1.20E-04	1.30E-03	1.30E-03
Nickel	6.30E-05	6.30E-05	0.03	0.03	0.03
Selenium	3.50E-07	3.50E-07	1.75E-04	1.75E-04	1.75E-04
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	0.02	0.02	0.02
Acetaldehyde	0	1.30E-03	0	0.65	0.65
Acrolein	0	2.60E-05	0	0.01	0.01
Benzene	3.90E-04	3.90E-04	0.20	0.20	0.20
Ethylbenzene	2.40E-04	2.40E-04	0.12	0.12	0.12
Formaldehyde	3.10E-03	3.10E-03	1.55	1.55	1.55
Hexane	9.20E-04	9.20E-04	0.46	0.46	0.46
Methyl chloroform	4.80E-05	4.80E-05	0.02	0.02	0.02
MEK	0	2.00E-5	0	0.01	0.01
Propionaldehyde	0	1.30E-04	0	0.07	0.07
Quinone	0	1.60E-04	0	0.08	0.08
Toluene	1.50E-04	2.90E-03	0.08	1.45	1.45
Total PAH Haps	1.90E-04	8.80E-04	0.10	0.44	0.44
Xylene	2.00E-04	2.00E-04	0.10	0.10	0.10

Total HAPs	5.33
Worst Single HAP	1.55 (formaldehyde)

**Abbreviations**

VOC - Volatile Organic Compounds  
 HCl = Hydrogen Chloride  
 SO2 = Sulfur Dioxide

HAP = Hazardous Air Pollutant  
 PAH = Polyaromatic Hydrocarbon

**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, 11.1-7, 11.1-8, 11.1-10, and 11.1-12

‡Emission of PM, PM10, SO2, NOx, and, CO from Drum-Mix Plants are included with the emission calculations for fuel combustion.

**Notes**

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

**Appendix A: Emissions Calculations  
Limited Emissions  
Fugitive Dust Emissions - Paved Roads**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

**Paved Roads at Industrial Site**

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

Annual Asphalt Production Limitation = 1,000,000 tons/yr  
 Percent Asphalt Cement/Binder (weight %) = 5.0%  
 Maximum Material Handling Throughput = 950,000 tons/yr  
 Maximum Asphalt Cement/Binder Throughput = 50,000 tons/yr  
**Maximum No. 4 Fuel Oil Usage** **Maximum No. 2 Fuel Oil Usage** = 2,635,000 gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	12.5	22.5	35.00	4.2E+04	1.5E+06	300	0.057	2399.0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	12.5	0	12.50	4.2E+04	5.3E+05	300	0.057	2399.0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (8000 gal)	15.0	25.0	40.00	2.0E+03	8.0E+04	300	0.057	113.6
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (8000 gal)	15.0	0.0	15.00	2.0E+03	3.0E+04	300	0.057	113.6
Fuel Oil Truck Enter Full	Tanker truck (8000 gal)	15.0	25.0	40.00	3.6E+02	1.4E+04	300	0.057	20.2
Fuel Oil Truck Leave Empty	Tanker truck (8000 gal)	15.0	0.0	15.00	3.6E+02	5.3E+03	300	0.057	20.2
Aggregate/RAP Loader Full	Front-end loader (4 CY)	20.0	4.0	24.00	2.4E+05	5.7E+06	300	0.057	13494.3
Aggregate/RAP Loader Empty	Front-end loader (4 CY)	20.0	0	20.00	2.4E+05	4.8E+06	300	0.057	13494.3
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.5	22.5	35.00	4.4E+04	1.6E+06	300	0.057	2525.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.5	0.0	12.50	4.4E+04	5.6E+05	300	0.057	2525.3
<b>Totals</b>					<b>6.5E+05</b>	<b>1.5E+07</b>			<b>3.7E+04</b>

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

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

	PM	PM10	
where k =	0.082	0.016	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	22.5	22.5	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	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,  $E_{ext} = E * [1 - (p/4N)]$

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	
Unmitigated Emission Factor, $E_f =$	0.77	0.15	lb/mile
Mitigated Emission Factor, $E_{ext} =$	0.70	0.14	lb/mile
Dust Control Efficiency =	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)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	0.92	0.18	0.84	0.16	0.42	0.08
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.92	0.18	0.84	0.16	0.42	0.08
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.044	0.009	0.040	0.008	0.020	3.9E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.044	0.009	0.040	0.008	0.020	3.9E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	7.8E-03	1.5E-03	7.1E-03	1.4E-03	3.6E-03	6.9E-04
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	7.8E-03	1.5E-03	7.1E-03	1.4E-03	3.6E-03	6.9E-04
Aggregate/RAP Loader Full	Front-end loader (3 CY)	5.19	1.01	4.75	0.92	2.37	0.46
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	5.19	1.01	4.75	0.92	2.37	0.46
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.97	0.19	0.89	0.17	0.44	0.09
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.97	0.19	0.89	0.17	0.44	0.09
<b>Totals</b>		<b>14.28</b>	<b>2.78</b>	<b>13.06</b>	<b>2.54</b>	<b>6.53</b>	<b>1.27</b>

**Abbreviations**

PM = Particulate Matter  
 PM10 = Particulate Matter (<10 um)  
 PTE = Potential to Emit

**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)

## Indiana Department of Environmental Management Office of Air Quality

### Technical Support Document (TSD) for a New Source Construction and Federally Enforceable State Operating Permit (FESOP)

#### Source Description and Location

**Source Name:** Koors Contracting, Inc.  
**Source Location:** 1112 East Tiwaba Way, Westport, IN 47283  
**County:** Decatur  
**SIC Code:** 5032  
**Operation Permit No.:** F 031-25789-00031  
**Permit Reviewer:** Hannah L. Desrosiers

On December 26, 2007, the Office of Air Quality (OAQ) has received an application from Koors Contracting, Inc. related to the construction and operation of a new stationary drum hot-mix asphalt plant.

#### Existing Approvals

There have been no previous approvals issued to this source.

#### County Attainment Status

The source is located in Decatur County.

The following attainment status designations are applicable to Decatur County:

Pollutant	Designation
PM <sub>10</sub>	Unclassifiable effective November 15, 1990.
PM <sub>2.5</sub>	Unclassifiable or attainment.
SO <sub>2</sub>	Better than national standards.
NO <sub>2</sub>	Cannot be classified or better than national standards.
O <sub>3</sub>	Unclassifiable or attainment effective June 15, 2004, for the 8-hour ozone standard. <sup>1</sup>
CO	Unclassifiable or attainment effective November 15, 1990.
Pb	Not designated.
<sup>1</sup> Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.	

*(Air Pollution Control Board; 326 IAC 1-4-17; filed Dec 26, 2007, 1:43 p.m.: 20080123-IR-326070308FRA)*

(a) Ozone Standards

- (1) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.
- (2) On September 6, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Allen, Clark, Elkhart, Floyd, LaPorte, and St. Joseph as attainment for the 8-hour ozone standard.
- (3) On November 9, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Boone, Clark, Elkhart, Floyd, LaPorte, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Shelby, and St. Joseph as attainment for the 8-hour ozone standard.

- (4) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) 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 NOx emissions are considered when evaluating the rule applicability relating to ozone. Decatur County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) PM2.5  
Decatur County has been classified as attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM2.5 emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as a surrogate for PM2.5 emissions.
- (c) Other Criteria Pollutants  
Decatur 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.

### **Background and Description of New Source Construction**

The Office of Air Quality (OAQ) has reviewed an application, submitted by Koors Contracting, Inc. on December 26, 2007, relating to the construction and operation of a new stationary drum hot-mix asphalt plant.

The following is a list of the new emission unit(s) and pollution control device(s):

- (a) One (1) Drum Mix Asphalt Plant, approved for construction in 2008, consisting of the following:
- (1) One (1) aggregate rotary dryer and drum hot-mix unit (dryer/mixer), identified as emission unit No. 2, with a maximum capacity of 250 tons per hour, equipped with one (1) No. 4 Fuel Oil-fired dryer burner with a maximum rated capacity of 75 MM BTU per hr., and one (1) jet-pulse baghouse for air pollution control, exhausting at one (1) stack identified as SV-A.
- Under NSPS subpart I, this is considered an affected hot-mix asphalt facility.
- (2) Material handling and conveying operations, approved for construction in 2008, consisting of the following:
- (A) Three (3) feeder conveyors;
- (B) One (1) screen deck;
- (C) One (1) Cold Feed system consisting of seven (7) compartments, each holding 30 (thirty) tons, for a total aggregate holding capacity of 210 tons;
- (D) One (1) Recycled Asphalt Pavement (RAP) system, identified as RC-1, consisting of a RAP Bin, Shaker, and Conveyor;

- (E) One (1) Hot Asphalt Bucket Elevator;
  - (F) One (1) Transfer Drag Slat to silo;
  - (G) Two (2) Hot-Mix Asphalt storage silos, including:
    - (i) One (1) silo with a maximum capacity of 100 tons; and
    - (ii) One (1) silo with a maximum capacity of 70 tons capacity;
  - (H) One (1) enclosed Aggregate Storage Area, with a maximum storage capacity of 35,000 tons;
  - (I) One (1) Liquid Asphalt storage tank, identified as Tank B with a maximum storage capacity of 30,000 gallons, and including one (1) hot oil heater, rated at 1.0 million British thermal units per hour (MMBtu/hr), firing No. 2 Fuel Oil, exhausting to stack SV-B;
  - (J) One (1) No. 4 Fuel Oil storage tank, identified as WO #1, approved for construction in 2008, with a maximum storage capacity of 30,000 gallons;
  - (K) One (1) No. 2 Fuel Oil storage tank, identified as FO#1, with a maximum storage capacity of 5,000 gallons, and exhausting to stack SV-B;
- (b) Insignificant activities consisting of the following:
- (1) Paved roads with limited public access [326 IAC 6-4]; and

**Enforcement Issues**

IDEM is aware that equipment has been constructed prior to receipt of the proper permit. IDEM is reviewing this matter and will take the appropriate action. This proposed approval is intended to satisfy the requirements of the construction permit rules.

**Emission Calculations**

See Appendix A of this TSD for detailed emission calculations.

Fugitive emissions from the one (1) 30,000 gallon Liquid Asphalt storage tank, the one (1) 30,000 gallon No. 4 Fuel Oil storage tank, and the one (1) 5,000 gallon No. 2 Fuel Oil storage tank were calculated using the EPA Tanks 4.0.9d program and were determined to be negligible.

**Permit Level Determination – FESOP**

The following table reflects the unlimited potential to emit (PTE) of the entire source before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	30,711.92
PM10 <sup>(1)</sup>	7,134.69
SO <sub>2</sub>	177.39
NO <sub>x</sub>	69.52
VOC	40.45
CO	144.25

HAPs <sup>(2)</sup>	9.76
---------------------	------

- (1) Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM<sub>10</sub>), not particulate matter (PM), is considered as a "regulated air pollutant". US EPA has directed states to regulate PM<sub>10</sub> emissions as surrogate for PM<sub>2.5</sub> emissions.
- (2) HAPs include benzene, ethylbenzene, formaldehyde, methyl chloroform, naphthalene, toluene, xylene; arsenic, cadmium, chromium, manganese, mercury, and nickel compounds.
- (a) The potential to emit (PTE) (as defined in 326 IAC 2-7-1(29)) of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> and CO is greater than one hundred (100) tons per year. The PTE of all other regulated criteria pollutants are less than one hundred (100) tons per year. The source would have been subject to the provisions of 326 IAC 2-7. However, the source will be issued a New Source Construction Permit (326 IAC 2-5.1-3) and a Federally Enforceable State Operating Permit (FESOP) (326 IAC 2-8), because the source will limit emissions to less than the Title V major source threshold levels.
- (b) The potential to emit (PTE) (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is an area source under Section 112 of the Clean Air Act (CAA).

**PTE of the Entire Source After Issuance of the FESOP**

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

Process/Emission Unit	Potential To Emit of the Entire Source After Issuance of FESOP (tons/year)							
	PM	PM10*	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO	Total HAPs	Worst Single HAP
<b>Ducted Emissions</b>								
Fuel Combustion (worst case) <sup>(1)</sup>	9.22	10.94	98.81	98.80	5.43	82.95	2.02	1.78 (hexane)
Dryer/Mixer <sup>(1)</sup>	222.50	90.00	5.50	27.50	21.00	97.50	4.41	1.55 (formaldehyde)
<b>Worst Case PTE</b>	<b>222.50</b>	<b>90.00</b>	<b>98.81</b>	<b>98.80</b>	<b>21.00</b>	<b>97.50</b>	<b>4.41</b>	<b>1.55 (formaldehyde)</b>
<b>Fugitive Emissions</b>								
Asphalt Load-Out and On-Site Yard <sup>(1)</sup>	0.26	0.26	0	0	2.47	0.85	0.05	0.01 (m-/p-xylene)
Hot Oil and Asphalt Heaters	0	0	0	0	0.001	0.04	0.001	0.001 (naphthalene)
Material Storage Piles	0.85	0.30	0	0	0	0	0	0
Material Processing and Handling <sup>(1)</sup>	3.23	1.53	0	0	0	0	0	0

Process/Emission Unit	Potential To Emit of the Entire Source After Issuance of FESOP (tons/year)							
	PM	PM10*	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO	Total HAPs	Worst Single HAP
Material Screening, and Conveying <sup>(1)</sup>	13.30	4.66	0	0	0	0	0	0
Paved Roads <sup>(1)</sup>	6.53	1.27	0	0	0	0	0	0
Volatile Organic Liquid Storage Vessels **	0	0	0	0	negl.	0	negl.	negl.
<b>Total Fugitive Emissions</b>	<b>24.18</b>	<b>8.01</b>	<b>0</b>	<b>0</b>	<b>2.47</b>	<b>0.89</b>	<b>0.05</b>	<b>0.01 (m-/p-xylene)</b>
<b>Total PTE of Entire Source</b>	<b>246.68</b>	<b>98.01</b>	<b>98.81</b>	<b>98.80</b>	<b>23.47</b>	<b>98.39</b>	<b>4.46</b>	<b>1.78 (hexane)</b>
Title V Major Source Thresholds	NA	100	100	100	100	100	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	NA	NA
Emission Offset Major Source Thresholds	NA	NA	NA	NA	NA	NA	NA	NA
(1) PTE after Production Limitation. negl. = negligible * Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant". US EPA has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions. ** Fugitive emissions from each of the volatile organic liquid storage tanks were calculated using the EPA Tanks 4.0.9d program and were determined to be negligible.								

(a) FESOP Status

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

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

- (1) The SO<sub>2</sub> emissions from the dryer/mixer burner shall be limited as follows:
  - (A) The usage of No. 4 Fuel Oil for the 75 MMBtu per hour dryer/mixer burner shall be limited to less than 2,635,000 gallons or equivalent per twelve (12) consecutive month period, with compliance determined at the end of each month.

For the purpose of determining compliance with this limit:

- (i) Every 125 million cubic feet of Natural Gas shall be equivalent to one thousand (1000) gallons of No. 4 fuel oil. However, the Natural Gas usage shall in no case exceed 1,975 million cubic feet per twelve (12) consecutive month period.

- (ii) Every 3,750 gallons of Propane shall be equivalent to one (1) gallon of No. 4 fuel oil. However, the Propane usage shall in no case exceed 10,400,000 gallons per twelve (12) consecutive month period.
  - (iii) Every 1.06 gallons of No. 2 fuel oil shall be equivalent to one (1) gallon of No. 4 fuel oil. However, the No. 2 fuel oil usage shall in no case exceed 2,775,000 gallons per twelve (12) consecutive month period.
- (B) The sulfur content of the No. 2, and No. 4, fuel oils shall not exceed 0.5% by weight.

Compliance with these limits, combined with the SO<sub>2</sub> emissions from other units at the source, will limit source-wide SO<sub>2</sub> emissions to less than 100 tons per twelve (12) consecutive month period. Compliance with these limits will render 326 IAC 2-7 (Part 70 Permit Program) and 326 IAC 2-2 (PSD) not applicable.

See pages 11 and 13 of Appendix A for the detailed calculations.

- (2) Pursuant to 326 IAC 2-8-4, the NO<sub>x</sub> emissions from the dryer/mixer burner shall be limited as follows:
- (A) The usage of No. 4 Fuel Oil for the 75 MMBtu per hour dryer/mixer burner shall be limited to less than 2,635,000 gallons or equivalent per twelve (12) consecutive month period, with compliance determined at the end of each month.

For the purpose of determining compliance with this limit:

- (i) Every 0.20 million cubic feet of Natural Gas shall be equivalent to one thousand (1000) gallons of No. 4 fuel oil. However, the Natural Gas usage shall in no case exceed 1,975 million cubic feet per twelve (12) consecutive month period.
- (ii) Every 1.05 gallons of Propane shall be equivalent to one (1) gallon of No. 4 fuel oil. However, the Propane usage shall in no case exceed 10,400,000 gallons per twelve (12) consecutive month period.
- (iii) Every 1.00 gallons of No. 2 fuel oil shall be equivalent to one (1) gallon of No. 4 fuel oil. However, the No. 2 fuel oil usage shall in no case exceed 2,775,000 gallons per twelve (12) consecutive month period.

Compliance with these limits, combined with the NO<sub>x</sub> emissions from other units at the source, will limit source-wide NO<sub>x</sub> emissions to less than 100 tons per twelve (12) consecutive month period. Compliance with these limits will render 326 IAC 2-7 (Part 70 Permit Program), 326 IAC 2-2 (PSD), and 326 IAC 2-3 (Emission Offset) not applicable.

See pages 11 and 13 of Appendix A for the detailed calculations.

- (3) Pursuant to 326 IAC 2-8-4, the emissions of PM<sub>10</sub>, and CO from the dryer/mixer shall be limited as follows:
- (A) The asphalt production rate shall be limited to less than 1,000,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (B) PM<sub>10</sub> emissions from the dryer/mixer shall be limited to less than 0.180 pounds of PM<sub>10</sub> per ton of asphalt produced.

- (C) CO emissions from the dryer/mixer shall be limited to less than 0.195 pounds of CO per ton of asphalt produced.

Compliance with these limits, combined with the emissions from all other emission units at this source, will render 326 IAC 2-7 (Part 70 Permit Program), and 326 IAC 2-2 (PSD) not applicable.

See page 14 of Appendix A for the detailed calculations.

- (4) Pursuant to 326 IAC 2-8, the Permittee shall control PM and PM<sub>10</sub> emissions from the paved roads according to the fugitive dust plan submitted on January 24, 2008, which is included as Attachment A to the permit.
- (b) PSD Minor Source  
This new 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 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) Particulate matter emissions from the dryer/mixer shall not exceed 0.445 pounds of PM per ton of asphalt mix based on a maximum throughput of 1,000,000 tons of asphalt mix per twelve (12) consecutive month period. This is equivalent to 222.50 tons per year and will limit source wide PM emissions to less than 246.68 tons per year.

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.

See page 14 of Appendix A for the detailed calculations.

### **Federal Rule Applicability Determination**

#### New Source Performance Standards (NSPS)

- (a) 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.
- (b) The requirements of the New Source Performance Standard for Asphalt Processing and Asphalt Roofing Manufacture, 40 CFR 60, Subpart UU (326 IAC 12), are not included in the permit, 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.
- (c) The requirements of the New Source Performance Standard for Nonmetallic Mineral Processing Plants (40 CFR 60, Subpart OOO) (326 IAC 12), are not included in the permit, since the Recycled Asphalt Pavement (RAP) system does not contain a crusher or grinding mill. The source will be receiving pre-crushed/pre-sized RAP materials, therefore, pursuant to 40 CFR 60.670(a)(2) stand-alone screening operations at plants without crushers or grinding mills are exempt.
- (d) The requirements of the New Source Performance Standard for Calciners and Dryers in Mineral Industries, 40 CFR 60, Subpart UUU (326 IAC 12), are not included in the permit, since stationary drum hot-mix asphalt plant is not a mineral processing plant, meaning that it does not process or produce any of the following minerals, their concentrates or any mixture of which the majority (>50 percent) is any of the following minerals or a combination of these minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite.
- (e) The one (1) 30,000 gallon liquid asphalt storage tank, identified as Tank B, and the one (1) 30,000 gallon No. 4 fuel oil storage tank, identified as WO#1, are each 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". Each 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), these tanks are exempt from this rule and the requirements of this rule are not included in the permit for these tanks.
- (f) The one (1) 5,000 gallon No. 2 fuel oil storage tank, identified as FO#1, 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". Although storage tank FO#1 will be constructed after July 23, 1984, it has a maximum capacity less than 75 m<sup>3</sup> (19,813 gallons). Therefore, pursuant to 40 CFR 60.110b(a), this tank is exempt from this rule and the requirements of this rule are not included in the permit for these tanks.
- (g) 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)

- (h) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart LLLLL (326 IAC 20-(number)), 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.

- (i) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in the permit.

### Compliance Assurance Monitoring (CAM)

- (j) 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.

<b>State Rule Applicability Determination</b>
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The following state rules are applicable to the source:

- (a) 326 IAC 2-2 (Prevention of Significant Deterioration(PSD))  
PSD applicability is discussed under the PTE of the Entire Source after Issuance of the FESOP section above.
- (b) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))  
The unlimited potential to emit of HAPs from the stationary drum hot-mix asphalt plant is 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 from the stationary drum hot-mix asphalt plant 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.
- (c) 326 IAC 2-6 (Emission Reporting)  
Pursuant to 326 IAC 2-6-1, this source is not subject to this rule, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), it is not located in Lake, Porter, or LaPorte County, and it does not emit lead into the ambient air at levels equal to or greater than 5 tons per year. Therefore, 326 IAC 2-6 does not apply.
- (d) 326 IAC 2-8-4 (FESOP)  
FESOP applicability is discussed under the PTE of the Entire Source after Issuance of the FESOP section above.
- (e) 326 IAC 5-1 (Opacity Limitations)  
Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:
- (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
  - (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.
- (f) 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.

- (g) 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 January 24, 2008, which is included as Attachment A to the permit.
- (h) 326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)  
The dryer/mixer burner, identified as emission unit No. 2, is subject to 326 IAC 7-1.1 because it has potential SO<sub>2</sub> emissions of greater than 25 tons per year (limited potential emissions are 98.44 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, and No. 4 fuel oil). This equates to a maximum allowable sulfur content of (0.5% by weight) for the distillate fuel oils.
- (i) 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.
- (j) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)  
(1) The unlimited VOC potential emissions from the dryer/mixer is greater than twenty-five (25) tons per year. However, the source shall limit the VOC potential emissions from the dryer/mixer to less than twenty-five (25) tons per year. Therefore, the requirements of 326 IAC 8-1-6 do not apply.
- In order to render the requirements of 326 IAC 8-1-6 not applicable, the dryer/mixer shall be limited as follows:
- (A) The dryer/mixer has a limited potential to emit of 21.00 tons per year of VOC, based on a limited throughput of 1,000,000 tons per twelve (12) consecutive month period and a VOC limit of 0.042 pound of VOC per ton of hot-mix asphalt produced.
- Compliance with these limits shall limit the potential to emit VOC from the dryer/mixer to less than twenty-five (25) tons per 12 consecutive month period and shall render 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities) not applicable.
- (2) Each liquid asphalt storage tank, and fuel oil storage tank is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each liquid asphalt storage tank and fuel oil storage tank is less than twenty-five (25) tons per year.
- (3) There are no other 326 IAC 8 Rules that are applicable to the stationary drum hot-mix asphalt plant.
- See page 14 of Appendix A for the detailed calculations.
- (k) 326 IAC 8-5-2 (Asphalt paving rules)  
This source does not have the capacity to produce cutback or emulsified asphalt. Therefore, the requirements of 326 IAC 8-5-2 are not included in the permit for this source.
- (l) 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. Tanks B, WO#1 and FO#1 each have maximum capacities less than 39,000 gallons. Therefore, the requirements of this rule are not applicable to these facilities and are not included in this permit.

- (m) 326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)  
 The one (1) No. 4 fuel oil storage tank, one (1) liquid asphalt storage tank and the one (1) No. 2 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.
- (n) 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) 75 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.
- (o) 326 IAC 12-1 (New Source Performance Standards)  
 (1) The hot-mix asphalt plant is required to comply with the requirements of 40 CFR 60.90, Subpart I, Standards of Performance for Hot-mix Asphalt Facilities, as described in the "Federal Rule Applicability" section of this TSD.
- (p) 326 IAC 20 (Hazardous Air Pollutants)  
 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 See Federal Rule Applicability Section of this TSD.

**Compliance Determination, Monitoring and Testing Requirements**

- (a) The compliance determination and monitoring requirements applicable to this source are as follows:

- (1) 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
Dryer/Mixer	jet-pulse baghouse	180 days	PM/PM <sub>10</sub>	Once every five (5) years	0.445 lb PM/ton of asphalt; and 0.180 lb PM <sub>10</sub> /ton of asphalt

- (A) Within sixty (60) days after achieving maximum capacity, but not later than one hundred and eighty (180) days after startup, in order to demonstrate compliance with 326 IAC 2-2, 326 IAC 6.5, and 326 IAC 2-8, the Permittee shall perform PM and PM<sub>10</sub> testing for the dryer/mixer utilizing methods as approved by the Commissioner. PM<sub>10</sub> includes filterable and condensable particulate matter.

This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM<sub>10</sub> includes filterable and condensable PM<sub>10</sub>. Testing shall be conducted according to the provisions of 326 IAC 3-6 (Source Sampling Procedures).

In order to comply with the PM and PM<sub>10</sub> limitations in the permit, the baghouse for the dryer/mixer shall be in operation and control emissions from the dryer/mixer at all times when the dryer/mixer is in operation. In the event that cyclone and/or 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.

- (B) Opacity testing utilizing 40 CFR Part 60 Appendix A, Method 9, is required to demonstrate compliance with the opacity limitation of 40 CFR 60, Subpart I.

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 Section C - Performance Testing.

The dryer/mixer is controlled by a jet-pulse baghouse. To render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-7 (Part 70 Permit Program) not applicable, the PM and PM<sub>10</sub> emissions from the dryer/mixer are limited to 0.445 and 0.180 pounds per ton of asphalt, respectively. PM and PM<sub>10</sub> testing is required in order to demonstrate with these limits.

- (C) Compliance with the SO<sub>2</sub> emission limitations shall be determined utilizing one of the following options.

- (i) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed five-tenths (0.5) pounds per million Btu input when operating on distillate oil (including No. 2 fuel oil, and No. 4 fuel oil).
- (a') Providing vendor analysis of fuel delivered, if accompanied by a vendor certification; or
- (b') Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
- (1') Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
- (2') If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.
- (ii) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the dryer/mixer 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 (i) or (ii) above shall not be refuted by evidence of compliance pursuant to the other method.

- (D) The Permittee shall demonstrate compliance with the NO<sub>x</sub>, VOC and CO emission limitations by keeping records of the annual asphalt production rate.

- (b) The compliance monitoring requirements applicable to this modification are as follows:

- (1) The dryer/mixer, baghouse stack exhaust, 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 (SV-A) exhaust	Visible Emissions	Daily	Normal-Abnormal	Response Steps
Baghouse for the dryer/mixer	Water Pressure Drop	Daily	3.0 to 6.0 inches	Response Steps
	Inlet Temperature		200 and 400 degrees Fahrenheit	

- (A) Visible emission notations of the dryer/mixer, baghouse stack exhaust, and the conveying, screening, and material transfer points 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 in accordance with Section C - Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.
- (F) 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 of 3.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.
  - (i) The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.
- (G) 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).

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

These monitoring conditions are necessary because the jet-pulse baghouse used in conjunction with the dryer/mixer must operate properly to ensure compliance with 40 CFR 60, Subpart I, 326 IAC 2-8 (FESOP), and the limits that render 326 IAC 2-2 (PSD) and 326 IAC 2-7 (Part 70 Permit Program) not applicable.

### **Conclusion and Recommendation**

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on December 26, 2007.

The construction and operation of this source shall be subject to the conditions of the attached proposed New Source Construction and FESOP No. 031-25789-00031. The staff recommends to the Commissioner that this New Source Construction and FESOP be approved.

### **IDEM Contact**

- (a) Questions regarding this proposed permit can be directed to Hannah Desrosiers 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) 234-5374 or toll free at 1-800-451-6027 extension 4-5374.
- (b) A copy of the findings is available on the Internet at: [www.in.gov/idem/permits/air/pending.html](http://www.in.gov/idem/permits/air/pending.html).
- (c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: [www.in.gov/idem/permits/guide/](http://www.in.gov/idem/permits/guide/).

## Appendix A: Emissions Calculations Emission Summary

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

### Maximum Capacity

Maximum Hourly Asphalt Production =	250	ton/hr	
Maximum Annual Asphalt Production =	2,190,000	ton/yr	
Maximum Fuel Input Rate =	76	MMBtu/hr	
Equivalent Natural Gas Usage =	662	MMCF/yr	
Equivalent Propane Usage =	7,317,746	gal/yr, and	0.20 gr/100 ft3 sulfur
Equivalent No. 2 Fuel Oil Usage =	4,730,400	gal/yr, and	0.50 % sulfur
Equivalent No. 4 Fuel Oil Usage =	4,730,400	gal/yr, and	0.50 % sulfur

### Unlimited/Uncontrolled Emissions

Process Description	Unlimited/Uncontrolled Potential to Emit (tons/year)							
	Criteria Pollutants						Hazardous Air Pollutants	
	PM	PM10	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP
<b>Ducted Emissions</b>								
Fuel Combustion (worst case)	16.56	19.63	177.39	69.52	1.83	27.81	1.02	0.60 (Hexane)
Dryer/Mixer	30,660.00	7,117.50	12.05	60.23	35.04	142.35	9.65	3.39 (formaldehyde)
<b>Worst Case Emissions</b>	<b>30,660.00</b>	<b>7,117.50</b>	<b>177.39</b>	<b>69.52</b>	<b>35.04</b>	<b>142.35</b>	<b>9.65</b>	<b>---</b>
<b>Fugitive Emissions</b>								
Asphalt Load-Out and On-Site Yard	0.57	0.57	0	0	5.41	1.86	0.11	0.02 (m-/p-Xylene)
Hot Oil and Asphalt Heaters	0	0	0	0	0.00	0.04	0.001	0.001 (naphthalene)
Material Storage Piles	0.85	0.30	0	0	0	0	0	0
Material Processing and Handling	7.07	3.35	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	29.13	10.19	0	0	0	0	0	0
Paved Roads (worst case)	14.30	2.78	0	0	0	0	0	0
Volatile Organic Liquid Storage Vessels					negl.		negl.	negl.
<b>Total Fugitive Emissions</b>	<b>51.92</b>	<b>17.19</b>	<b>0.00</b>	<b>0.00</b>	<b>5.41</b>	<b>1.90</b>	<b>0.11</b>	<b>---</b>
<b>Totals Unlimited/Uncontrolled PTE</b>	<b>30,711.92</b>	<b>7,134.69</b>	<b>177.39</b>	<b>69.52</b>	<b>40.45</b>	<b>144.25</b>	<b>9.76</b>	<b>3.39 (formaldehyde)</b>

negl = negligible

## Appendix A: Emissions Calculations Fuel Combustion

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

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 and all other fuel combustion sources at the source.

### Maximum Capacity

Maximum Annual Asphalt Production =	2,190,000	ton/yr
Maximum Fuel Input Rate =	76	MMBtu/hr
Equivalent Natural Gas Usage =	662	MMCF/yr
Equivalent Propane Usage =	7,317,746	gal/yr, and
		0.20 gr/100 ft3 sulfur
Equivalent No. 2 Fuel Oil Usage =	4,730,400	gal/yr, and
		0.50 % sulfur
Equivalent No. 4 Fuel Oil Usage =	4,730,400	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)
	Natural Gas (lb/MMCF)	Propane (lb/kgal)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	Propane (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	
PM	1.90	0.60	2.00	7	0.63	2.20	4.73	16.56	16.56
PM10	7.60	0.60	3.30	8.3	2.52	2.20	7.81	19.63	19.63
SO2	0.60	0.02	71.00	75.0	0.20	0.07	167.93	177.39	177.39
NOx	100.00	19.00	20.00	20.0	33.11	69.52	47.30	47.30	69.52
VOC	5.50	0.50	0.20	0.20	1.82	1.83	0.47	0.47	1.83
CO	84.00	3.20	5.00	5.0	27.81	11.71	11.83	11.83	27.81
Hazardous Air Pollutant									
HCl	0	0	0		0	0	0	0	0
Antimony	0	0	0	5.25E-03	0	0	0	0.01	0.01
Arsenic	2.0E-04	0	5.6E-04	1.32E-03	6.6E-05	0	1.32E-03	3.12E-03	3.12E-03
Beryllium	1.2E-05	0	4.2E-04	2.78E-05	4.0E-06	0	9.93E-04	6.58E-05	9.93E-04
Cadmium	1.1E-03	0	4.2E-04	3.98E-04	3.6E-04	0	9.93E-04	9.41E-04	9.93E-04
Chromium	1.4E-03	0	4.2E-04	8.45E-04	4.6E-04	0	9.93E-04	2.00E-03	2.00E-03
Cobalt	8.4E-05	0		6.02E-03	2.8E-05	0	0	0.01	0.01
Lead	5.0E-04	0	1.3E-03	1.51E-03	1.7E-04	0	2.98E-03	3.57E-03	3.57E-03
Manganese	3.8E-04	0	8.4E-04	3.00E-03	1.3E-04	0	1.99E-03	7.10E-03	7.10E-03
Mercury	2.6E-04	0	4.2E-04	1.13E-04	8.6E-05	0	9.93E-04	2.67E-04	9.93E-04
Nickel	2.1E-03	0	4.2E-04	8.45E-02	7.0E-04	0	9.93E-04	0.20	0.20
Selenium	2.4E-05	0	2.1E-03	6.83E-04	7.9E-06	0	4.97E-03	1.62E-03	4.97E-03
1,1,1-Trichloroethane	0	0	0	2.36E-04	0	0	0	5.58E-04	5.58E-04
1,3-Butadiene	0	0	0	0	0	0	0	0	0
Acetaldehyde	0	0	0	0	0	0	0	0	0
Acrolein	0	0	0	0	0	0	0	0	0
Benzene	2.1E-03	0		2.14E-04	7.0E-04	0	0	5.06E-04	6.95E-04
Bis(2-ethylhexyl)phthalate	0	0	0	0	0	0	0	0	0
Dichlorobenzene	1.2E-03	0	0	0	4.0E-04	0	0	0	3.97E-04
Ethylbenzene	0	0	0	6.36E-05	0	0	0	1.50E-04	1.50E-04
Formaldehyde	7.5E-02	0	6.10E-02	3.30E-02	0.02	0	0.14	0.08	0.14
Hexane	1.8E+00	0	0	0	0.60	0	0	0	0.60
Phenol	0	0	0	0	0	0	0	0	0
Toluene	3.4E-03	0	0	6.20E-03	1.1E-03	0	0	0.01	0.01
Total PAH Haps	negl	0	0	1.13E-03	negl	0	0	2.67E-03	2.7E-03
Polycyclic Organic Matter	0	0	3.30E-03	0	0	0	7.81E-03	0	7.81E-03
Xylene	0	0	0	1.09E-04	0	0	0	2.58E-04	2.58E-04
<b>Total HAPs</b>					<b>0.63</b>	<b>0</b>	<b>0.17</b>	<b>0.34</b>	<b>1.02</b>
<b>Worst Single HAP</b>					<b>0.60</b>	<b>0</b>	<b>0.14</b>	<b>0.20</b>	<b>0.60 (Hexane)</b>

### Abbreviations

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

### Methodology

Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Natural Gas Usage (MMCF/yr)) \* (Emission Factor (lb/MMCF)) \* (ton/2000 lbs)

All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Fuel Usage (gals/yr)) \* (Emission Factor (lb/kgal)) \* (kgal/1000 gal) \* (ton/2000 lbs)

Sources of AP-42 Emission Factors for fuel combustion:

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4  
 No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11  
 Propane and Butane: AP-42 Chapter 1.5 (dated 10/96), Tables 1.5-1 (assuming PM = PM10)  
 Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5  
 Diesel Engine Oil: AP-42 Chapter 3.3 (dated 10/96), Tables 3.3-1 and 3.3-2

**Appendix A: Emissions Calculations**  
**Dryer/Mixer**  
**Volatile Organic Compounds and Hazardous Air Pollutants**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

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

Maximum Annual Asphalt Production = **2,190,000** 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	Natural Gas	No. 2 Fuel Oil	
PM	28	28	30660	30660	<b>30,660.0</b>
PM10	6.5	6.5	7117.5	7117.5	<b>7,117.5</b>
SO2	0.0034	0.011	3.7	12.0	<b>12.0</b>
NOx	0.026	0.055	28.5	60.2	<b>60.2</b>
VOC	0.032	0.032	35.0	35.0	<b>35.0</b>
CO	0.13	0.13	142.4	142.4	<b>142.4</b>
<b>Hazardous Air Pollutant</b>					
HCl	0	0	0	0	<b>0</b>
Antimony	1.80E-07	1.80E-07	1.97E-04	1.97E-04	<b>1.97E-04</b>
Arsenic	5.60E-07	5.60E-07	6.13E-04	6.13E-04	<b>6.13E-04</b>
Beryllium	negl	negl	negl	negl	<b>negl</b>
Cadmium	4.10E-07	4.10E-07	4.49E-04	4.49E-04	<b>4.49E-04</b>
Chromium	5.50E-06	5.50E-06	6.02E-03	6.02E-03	<b>6.02E-03</b>
Cobalt	2.60E-08	2.60E-08	2.85E-05	2.85E-05	<b>2.85E-05</b>
Lead	6.20E-07	1.50E-05	6.79E-04	0.02	<b>0.02</b>
Manganese	7.70E-06	7.70E-06	8.43E-03	8.43E-03	<b>8.43E-03</b>
Mercury	2.40E-07	2.60E-06	2.63E-04	2.85E-03	<b>2.85E-03</b>
Nickel	6.30E-05	6.30E-05	0.07	0.07	<b>0.07</b>
Selenium	3.50E-07	3.50E-07	3.83E-04	3.83E-04	<b>3.83E-04</b>
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	0.04	0.04	<b>0.04</b>
Acetaldehyde	0	0	0	0	<b>0</b>
Acrolein	0	0	0	0	<b>0</b>
Benzene	3.90E-04	3.90E-04	0.43	0.43	<b>0.43</b>
Ethylbenzene	2.40E-04	2.40E-04	0.26	0.26	<b>0.26</b>
Formaldehyde	3.10E-03	3.10E-03	3.39	3.39	<b>3.39</b>
Hexane	9.20E-04	9.20E-04	1.01	1.01	<b>1.01</b>
Methyl chloroform	4.80E-05	4.80E-05	0.05	0.05	<b>0.05</b>
MEK	0	0	0	0	<b>0</b>
Propionaldehyde	0	0	0	0	<b>0</b>
Quinone	0	0	0	0	<b>0</b>
Toluene	1.50E-04	2.90E-03	0.16	3.18	<b>3.18</b>
Total PAH Haps	1.90E-04	8.80E-04	0.21	0.96	<b>0.96</b>
Xylene	2.00E-04	2.00E-04	0.22	0.22	<b>0.22</b>

**Total HAPs 9.65**

**Worst Single HAP 3.39 (formaldehyde)**

**Abbreviations**

VOC - Volatile Organic Compounds  
HCl = Hydrogen Chloride

SO2 = Sulfur Dioxide  
HAP = Hazardous Air Pollutant

PAH = Polyaromatic Hydrocarbon

**Methodology**

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

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-3, 11.1-7, 11.1-8, 11.1-10, and 11.1-12

\*Emission of PM, PM10, SO2, NOx, and, CO from Drum-Mix Plants are included with the emission calculations for fuel combustion.

## Appendix A: Emissions Calculations Load-Out and On-Site Yard Emissions

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

The following calculations determine the unlimited/uncontrolled fugitive emissions from hot asphalt mix load-out 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 =	2,190,000	tons/yr

Pollutant	Emission Factor (lb/ton asphalt)		Unlimited/Uncontrolled to Emit (tons/yr)		Potential
	Load-Out	On-Site Yard	Load-Out	On-Site Yard	Total
Total PM	5.2E-04	NA	0.57	NA	0.57
Organic PM	3.4E-04	NA	0.37	NA	0.37
TOC	0.004	0.001	4.55	1.205	5.8
CO	0.001	3.5E-04	1.48	0.385	1.86

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

<b>PM/HAPs</b>	<b>0.027</b>	<b>0</b>	<b>0.027</b>
<b>VOC/HAPs</b>	<b>0.067</b>	<b>0.018</b>	<b>0.085</b>
<b>non-VOC/HAPs</b>	<b>3.5E-04</b>	<b>9.3E-05</b>	<b>4.4E-04</b>
<b>non-VOC/non-HAPs</b>	<b>0.33</b>	<b>0.09</b>	<b>0.42</b>

<b>Total VOCs</b>	<b>4.28</b>	<b>1.13</b>	<b>5.4</b>
<b>Total HAPs</b>	<b>0.09</b>	<b>0.018</b>	<b>0.11</b>
<b>Worst Single HAP</b>			<b>0.019</b> (m-/p-Xylene)

### Abbreviations

TOC = Total Organic Compounds

PM = Particulate Matter

VOC = Volatile Organic Compound

CO = Carbon Monoxide

HAP = Hazardous Air Pollutant

### 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 11.1-14, 11.1-15, and 11.1-16

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

$$\text{Total PM/PM}_{10} \text{ Ef} = 0.000181 + 0.00141(-V)e^{(0.0251)(T+460)-20.43}$$

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

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

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

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

**Appendix A: Emissions Calculations**  
**Load-Out and On-Site Yard Emissions (continued)**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

**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)	Load-out	Onsite Yard	Total
<b>PAH HAPs</b>								
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	9.7E-04	NA	9.7E-04
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	1.0E-04	NA	1.0E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	2.6E-04	NA	2.6E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	7.1E-05	NA	7.1E-05
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	2.8E-05	NA	2.8E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	8.2E-06	NA	8.2E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	7.1E-06	NA	7.1E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	8.6E-06	NA	8.6E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	2.9E-05	NA	2.9E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	3.8E-04	NA	3.8E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	1.4E-06	NA	1.4E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	1.9E-04	NA	1.9E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	2.9E-03	NA	2.9E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	1.8E-06	NA	1.8E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	8.9E-03	NA	0.009
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	4.7E-03	NA	4.7E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	8.2E-05	NA	8.2E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	3.0E-03	NA	3.0E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	5.6E-04	NA	5.6E-04
<b>Total PAH HAPs</b>						<b>0.022</b>	<b>NA</b>	<b>0.022</b>
<b>Other semi-volatile HAPs</b>								
Phenol		PM/HAP	---	Organic PM	1.18%	4.4E-03	0	4.4E-03

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

**Methodology**

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

**Abbreviations**

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

**Appendix A: General Asphalt FESOP Emissions Calculations  
Load-Out and On-Site 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)	Load-out	Onsite Yard	Total
<b>VOC</b>		VOC	---	TOC	94%	<b>4.28</b>	<b>1.13</b>	<b>5.41</b>
non-VOC/non-HAPS								
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	3.0E-01	7.8E-02	0.374
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	2.1E-03	5.5E-04	0.003
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	3.2E-02	8.6E-03	0.041
<b>Total non-VOC/non-HAPS</b>					<b>7.30%</b>	<b>0.332</b>	<b>0.088</b>	<b>0.42</b>
Volatile organic HAPs								
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	2.4E-03	6.3E-04	3.0E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	4.4E-04	1.2E-04	5.5E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	2.2E-03	5.9E-04	2.8E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	5.9E-04	1.6E-04	7.5E-04
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	9.6E-06	2.5E-06	1.2E-05
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	6.8E-04	1.8E-04	8.6E-04
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	5.0E-03	1.3E-03	6.3E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	1.3E-02	3.4E-03	0.016
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	4.0E-03	1.1E-03	0.005
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	6.8E-03	1.8E-03	0.009
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	8.2E-05	2.2E-05	1.0E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0	0	0
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	3.3E-04	8.8E-05	4.2E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	3.5E-04	9.3E-05	4.4E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	9.6E-03	2.5E-03	0.012
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	5.9E-05	1.6E-05	7.5E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	1.9E-02	4.9E-03	0.024
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	3.6E-03	9.6E-04	4.6E-03
<b>Total volatile organic HAPs</b>					<b>1.50%</b>	<b>0.068</b>	<b>0.018</b>	<b>0.086</b>

**Abbreviations**

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

**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

## Appendix A: Emissions Calculations Hot Oil and Asphalt Heaters

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

The following calculations determine the unlimited/uncontrolled fugitive emissions from the hot oil and asphalt heaters

Maximum Fuel Input Rate = 1.0 MMBtu/hr  
 Maximum No. 2 Fuel Oil Usage = 62,571 gal/yr

Criteria Pollutant	Emission Factors (lb/gal)	Unlimited/Uncontrolled Potential to Emit (tons/yr)	Worse Case PTE
	No. 2 Fuel Oil	No. 2 Fuel Oil	
VOC	2.65E-05	0.001	0.001
CO	0.0012	0.04	0.04
Hazardous Air Pollutant			
Formaldehyde:	3.50E-06	1.10E-04	1.10E-04
Acenaphthene	5.30E-07	1.66E-05	1.66E-05
Acenaphthylene	2.00E-07	6.26E-06	6.26E-06
Anthracene	1.80E-07	5.63E-06	5.63E-06
Benzo(b)fluoranthene	1.00E-07	3.13E-06	3.13E-06
Fluoranthene	4.40E-08	1.38E-06	1.38E-06
Fluorene	3.20E-08	1.00E-06	1.00E-06
Naphthalene	1.70E-05	5.32E-04	5.32E-04
Phenanthrene	4.90E-06	1.53E-04	1.53E-04
Pyrene	3.20E-08	1.00E-06	1.00E-06
<b>Total HAPs</b>			<b>8.30E-04</b>
<b>Worst Single HAP</b>			<b>5.32E-04 (Naphthalene)</b>

### Abbreviations

CO = Carbon Monoxide

VOC = Volatile Organic Compound

### Methodology

No. 2 Fuel Oil: Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum No. 2 Fuel Oil Usage (gals/yr))\*(Emission Factor (lb/gal))\*(ton/2000 lbs)

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Table 11.1-13

## Appendix A: Emissions Calculations Material Storage Piles

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

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 (tons/yr)
Sand	2.6	3.01	0.86	0.473	0.166
RAP	0.5	0.58	0.86	0.091	0.032
Gravel	1.6	1.85	0.86	0.291	0.102
<b>Totals</b>				<b>0.85</b>	<b>0.30</b>

### Abbreviations

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PTE = Potential to Emit

### Methodology

PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) \* (Maximum Pile Size (acres)) \* (ton/2000 lbs) \* (8760 hours/yr)

PTE of PM10 (tons/yr) = (Potential PM Emissions (tons/yr)) \* 35%

\*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)

\*\*Maximum pile size 0.861 acres anticipated for a source with an annual asphalt production of 1,000,000 tons/yr

### Appendix A: Emissions Calculations Material Processing and Handling Fugitive Dust

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

**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)

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

where:  $E_f$  = Emission factor (lb/ton)  
 $k$  (PM) = 0.74 = particle size multiplier (0.74 assumed for aerodynamic diameter  $\leq 1$ )  
 $k$  (PM10) = 0.35 = particle size multiplier (0.35 assumed for aerodynamic diameter  $\leq 1$ )  
 $U$  = 10.2 = worst case annual mean wind speed (Source: NOAA, 2006\*)  
 $M$  = 4.0 = material % moisture content of aggregate (Source: AP-42 Section 11)  
 $E_f$  (PM) = 2.27E-03 lb PM/ton of material handled  
 $E_f$  (PM10) = 1.07E-03 lb PM10/ton of material handled

Maximum Annual Asphalt Production = 2,190,000 tons/yr  
 Percent Asphalt Cement/Binder (weight %) = 5.0%  
 Maximum Material Handling Throughput = 2,080,500 tons/yr

Type of Activity	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)
Truck unloading of materials into storage piles	2.36	1.12
Front-end loader dumping of materials into feeder bins	2.36	1.12
Conveyor dropping material into dryer/mixer or batch tower	2.36	1.12
<b>Total (tons/yr)</b>	<b>7.07</b>	<b>3.35</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 limestone, sand, recycled asphalt pavement (RAP), gravel, slag, and other  
 \*Worst case annual mean wind speed (South Bend, 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 (tons/yr)
Screening	0.025	0.0087	26.01	9.05
Conveying	0.003	0.0011	3.12	1.14
<b>Limited Potential to Emit (tons/yr)</b>			<b>29.13</b>	<b>10.19</b>

**Abbreviations**

PTE = Potential to Emit

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

**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

**Appendix A: Emissions Calculations**  
**Fugitive Dust Emissions - Paved Roads**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

**Paved Roads at Industrial Site**

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

Maximum Annual Asphalt Production =	2,190,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	2,080,500	tons/yr
Maximum Asphalt Cement/Binder Throughput =	109,500	tons/yr
Maximum No. 2 Fuel Oil Usage =	4,730,400	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	12.5	22.5	35.00	9.2E+04	3.2E+06	300	0.057	5,253.8
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	12.5	0	12.50	9.2E+04	1.2E+06	300	0.057	5,253.8
Asphalt Cement/Binder Truck Enter Full	Tanker truck (8000 gal)	15.0	25.0	40.00	4.4E+03	1.8E+05	300	0.057	248.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (8000 gal)	15.0	0.0	15.00	4.4E+03	6.6E+04	300	0.057	248.9
Fuel Oil Truck Enter Full	Tanker truck (8000 gal)	15.0	25.0	40.00	6.4E+02	2.6E+04	300	0.057	36.3
Fuel Oil Truck Leave Empty	Tanker truck (8000 gal)	15.0	0.0	15.00	6.4E+02	9.6E+03	300	0.057	36.3
Aggregate/RAP Loader Full	Front-end loader (4 CY)	20.0	4.0	24.00	5.2E+05	1.2E+07	300	0.057	29,552.6
Aggregate/RAP Loader Empty	Front-end loader (4 CY)	20.0	0	20.00	5.2E+05	1.0E+07	300	0.057	29,552.6
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.5	22.5	35.00	9.7E+04	3.4E+06	300	0.057	5,530.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.5	0.0	12.50	9.7E+04	1.2E+06	300	0.057	5,530.3
<b>Totals</b>					<b>1.4E+06</b>	<b>3.2E+07</b>			<b>8.1E+04</b>

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

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

	PM	PM10	
where k =	0.082	0.016	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	22.5	22.5	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	0.6	0.6	g/m <sup>2</sup> = Ubiquitous Baseline Soil Loading Values of paved roads (Table 13.2.1-3 for summer months)

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

Mitigated Emission Factor, $E_{ext} = E_f * [1 - (p/4N)]$		
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	
Unmitigated Emission Factor, $E_f =$	0.77	0.15	lb/mile
Mitigated Emission Factor, $E_{ext} =$	0.70	0.14	lb/mile
Dust Control Efficiency =	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)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	2.02	0.39	1.85	0.36	0.92	0.18
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	2.02	0.39	1.85	0.36	0.92	0.18
Asphalt Cement/Binder Truck Enter Full	Tanker truck (8000 gal)	0.096	0.019	0.088	0.017	0.044	8.5E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (8000 gal)	0.096	0.019	0.088	0.017	0.044	8.5E-03
Fuel Oil Truck Enter Full	Tanker truck (8000 gal)	0.01	2.7E-03	0.01	2.5E-03	6.4E-03	1.2E-03
Fuel Oil Truck Leave Empty	Tanker truck (8000 gal)	0.01	2.7E-03	0.01	2.5E-03	6.4E-03	1.2E-03
Aggregate/RAP Loader Full	Front-end loader (4 CY)	11.37	2.21	10.40	2.02	5.20	1.01
Aggregate/RAP Loader Empty	Front-end loader (4 CY)	11.37	2.21	10.40	2.02	5.20	1.01
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	2.13	0.41	1.95	0.38	0.97	0.19
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	2.13	0.41	1.95	0.38	0.97	0.19
<b>Totals</b>		<b>31.27</b>	<b>6.09</b>	<b>28.59</b>	<b>5.56</b>	<b>14.30</b>	<b>2.78</b>

**Abbreviations**

PM = Particulate Matter  
 PM10 = Particulate Matter (<10 um)  
 PTE = Potential to Emit

**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)

## Appendix A: Emissions Calculations Limited Emission Summary

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

### Production and Fuel Limitations

Annual Asphalt Production Limitation =	1,000,000	ton/yr
Natural Gas Limitation =	1,975	MMCF/yr
Propane Limitation =	10,400,000	gal/yr, and 0.20 gr/100 ft3 sulfur
No. 2 Fuel Oil Limitation =	2,775,000	gal/yr, and 0.50 % sulfur
No. 4 Fuel Oil Limitation =	2,635,000	gal/yr, and 0.50 % sulfur
PM Dryer/Mixer Limitation =	0.445	lb/ton of asphlt production
PM10 Dryer/Mixer Limitation =	0.180	lb/ton of asphlt production
CO Dryer/Mixer Limitation =	0.195	lb/ton of asphlt production
VOC Dryer/Mixer Limitation =	0.042	lb/ton of asphlt production

### Limited/Controlled Emissions

Process Description	Limited/Controlled Potential Emissions (tons/year)							
	Criteria Pollutants						Hazardous Air Pollutants	
	PM	PM10	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP
<b>Ducted Emissions</b>								
Fuel Combustion (worst case)	9.22	10.94	98.81	98.80	5.43	82.95	2.02	1.78 (hexane)
Dryer/Mixer	222.50	90.00	5.50	27.50	21.00	97.50	4.41	1.55 (formaldehyde)
<b>Worst Case Emissions</b>	<b>222.50</b>	<b>90.00</b>	<b>98.81</b>	<b>98.80</b>	<b>21.00</b>	<b>97.50</b>	<b>4.41</b>	<b>---</b>
<b>Fugitive Emissions</b>								
Asphalt Load-Out and On-Site Yard	0.26	0.26	0	0	2.47	0.85	0.05	0.01 (m-/p-xylene)
Hot Oil and Asphalt Heaters	0	0	0	0	0.001	0.04	0.001	0.001 (naphthalene)
Material Storage Piles	0.85	0.30	0	0	0	0	0	0
Material Processing and Handling	3.23	1.53	0	0	0	0	0	0
Material Screening and Conveying	13.30	4.66	0	0	0	0	0	0
Paved Roads (worst case)	6.53	1.27	0	0	0	0	0	0
Volatile Organic Liquid Storage Vessels					negl		negl	negl
<b>Total Fugitive Emissions</b>	<b>24.18</b>	<b>8.01</b>	<b>0</b>	<b>0</b>	<b>2.47</b>	<b>0.89</b>	<b>0.05</b>	<b>---</b>
<b>Totals Limited/Controlled Emissions</b>	<b>246.68</b>	<b>98.01</b>	<b>98.81</b>	<b>98.80</b>	<b>23.47</b>	<b>98.39</b>	<b>4.46</b>	<b>1.78 (formaldehyde)</b>

negl = negligible

## Appendix A: Emissions Calculations Limited Emissions Fuel Combustion

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

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

### Production and Fuel Limitations

Maximum Hourly Asphalt Production =	250	ton/hr		
Annual Asphalt Production Limitation =	1,000,000	ton/yr		
Natural Gas Limitation =	1,975	MMCF/yr		
Propane Limitation =	10,400,000	gal/yr, and	0.20	gr/100 ft3 sulfur
No. 2 Fuel Oil Limitation =	2,775,000	gal/yr, and	0.50	% sulfur
No. 4 Fuel Oil Limitation =	2,635,000	gal/yr, and	0.50	% sulfur

### Limited Emissions

Criteria Pollutant	Emission Factor (units)				Limited Potential to Emit (tons/yr)				Worse Case Fuel (tons/yr)
	Natural Gas (lb/MMCF)	Propane (lb/kgal)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	Propane (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	
PM	1.9	0.6	2	7	1.88	3.120	2.78	9.22	9.22
PM10	7.6	0.6	3.3	8.3	7.51	3.120	4.58	10.94	10.94
SO2	0.6	0.020	71.0	75.0	0.59	0.104	98.51	98.81	98.81
NOx	100	19.0	20.0	20.0	98.75	98.80	27.75	26.35	98.80
VOC	5.5	0.50	0.20	0.20	5.43	2.60	0.28	0.26	5.43
CO	84	3.2	5.0	5.0	82.95	16.64	6.94	6.59	82.95
<b>Hazardous Air Pollutant</b>									
HCl	0	0	0		0	0	0	0	0
Antimony	0	0	0	5.25E-03	0	0	0	0.01	6.92E-03
Arsenic	2.0E-04	0	5.6E-04	1.32E-03	2.0E-04	0	7.77E-04	1.74E-03	1.74E-03
Beryllium	1.2E-05	0	4.2E-04	2.78E-05	1.2E-05	0	5.83E-04	3.66E-05	5.83E-04
Cadmium	1.1E-03	0	4.2E-04	3.98E-04	1.1E-03	0	5.83E-04	5.24E-04	1.09E-03
Chromium	1.4E-03	0	4.2E-04	8.45E-04	1.4E-03	0	5.83E-04	1.11E-03	1.38E-03
Cobalt	8.4E-05	0	0	6.02E-03	8.3E-05	0	0	0.0079314	7.93E-03
Lead	5.0E-04	0	1.3E-03	1.51E-03	4.9E-04	0	1.75E-03	1.99E-03	1.99E-03
Manganese	3.8E-04	0	8.4E-04	3.00E-03	3.8E-04	0	1.17E-03	0.00	3.95E-03
Mercury	2.6E-04	0	4.2E-04	1.13E-04	2.6E-04	0	5.83E-04	1.49E-04	5.83E-04
Nickel	2.1E-03	0	4.2E-04	0.08	2.1E-03	0	5.83E-04	0.11	0.11
Selenium	2.4E-05	0	2.1E-03	6.83E-04	2.4E-05	0	2.91E-03	9.00E-04	2.91E-03
1,1,1-Trichloroethane	0	0	0	2.36E-04	0	0	0	3.11E-04	3.11E-04
1,3-Butadiene	0	0	0		0	0	0	0	0
Acetaldehyde	0	0	0		0	0	0	0	0
Acrolein	0	0	0		0	0	0	0	0
Benzene	2.1E-03	0	0	2.14E-04	2.1E-03	0	0	2.82E-04	2.07E-03
Bis(2-ethylhexyl)phthalate	0	0	0		0	0	0	0	0
Dichlorobenzene	1.2E-03	0	0		1.2E-03	0	0	0	1.19E-03
Ethylbenzene	0	0	0	6.36E-05	0	0	0	8.38E-05	8.38E-05
Formaldehyde	0.08	0	0.06	0.03	0.07	0	0.08	0.04	0.08
Hexane	1.80	0	0		1.78	0	0	0	1.78
Phenol	0	0	0		0	0	0	0	0
Toluene	3.4E-03	0	0	6.20E-03	3.4E-03	0	0	0.01	8.17E-03
Total PAH Haps	negl	0	0	1.13E-03	negl	0	0	1.49E-03	1.49E-03
Polycyclic Organic Matter	0	0	3.30E-03		0	0	4.58E-03	0	4.58E-03
Xylene	0	0	0	1.09E-04	0	0	0	1.44E-04	1.44E-04
<b>Total HAPs</b>					<b>1.86</b>	<b>0</b>	<b>0.10</b>	<b>0.19</b>	<b>2.02</b>
<b>Worst Single HAP</b>					<b>1.78</b>	<b>0</b>	<b>0.08</b>	<b>0.11</b>	<b>1.78 (Hexane)</b>

### Abbreviations

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

### Methodology

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

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4  
 No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11  
 Propane and Butane: AP-42 Chapter 1.5 (dated 10/96), Tables 1.5-1 (assuming PM = PM10)  
 Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5  
 Diesel Engine Oil: AP-42 Chapter 3.3 (dated 10/96), Tables 3.3-1 and 3.3-2

**Appendix A: Emissions Calculations  
Fuel Equivalency Calculations**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

Fuel Type	Limited Fuel Usage	Fuel Usage Units	SO2 Equivalency					NOx Equivalency				
			Limited Sulfur Content	Limited Sulfur Content Units	AP-42 Emission Factor	Emission Factor Units	Fuel Equivalency	Fuel Equivalency Units	AP-42 Emission Factor	Emission Factor Units	Fuel Equivalency	Fuel Equivalency Units
Natural Gas	1,975	MMCF/yr	NA	NA	0.6	lb/MMCF	125.00	MMCF natural gas / 1000 gal No.4 fuel oil	100.0	lb/MMCF	0.20	MMCF natural gas / 1000 gal No.4 fuel oil
Propane	10,400,000	gal/yr	0.20	gr/100 lb sulfur	0.020	lb/kgal	3,750.00	gal Propane / gal No.4 fuel oil	19.0	lb/kgal	1.05	gal Propane / gal No.4 fuel oil
No. 2 Fuel Oil	2,775,000	gal/yr	0.50	% by weight	71.00	lb/kgal	1.06	gal No. 2 fuel oil / gal No.4 fuel oil	20.0	lb/kgal	1.00	gal No. 2 fuel oil / gal No.4 fuel oil
No. 4 Fuel Oil	2,635,000	gal/yr	0.50	% by weight	75.00	lb/kgal	1.00	gal No.4 fuel oil / gal No.4 fuel oil	20.0	lb/kgal	1.00	gal No.4 fuel oil / gal No.4 fuel oil

**Methodology**

NG Fuel Equivalency = [AP-42 Emission Factor for Propane (lb/kgal)] / [AP-42 Emission Factor for any fuel type (lb/kgal or lb/MMCF)]  
 All Other Fuel Equivalency = [AP-42 Emission Factor for Propane (lb/kgal)] / [AP-42 Emission Factor for any fuel type (lb/kgal or lb/MMCF)] \* 1000

Sources of AP-42 Emission Factors for fuel combustion:

- Natural Gas (boiler < 100 MMBtu/hr): AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1 and 1.4-2
- No. 2, No.4, and residual fuel oil (industrial boiler < 100 MMBtu/hr): AP-42 Chapter 1.3 (dated 9/98), Table 1.3-1
- Propane and Butane (industrial boiler 10 to 100 MMBtu/hr): AP-42 Chapter 1.5 (dated 10/96), Table 1.5-1
- Waste Oil (small boiler): AP-42 Chapter 1.11 (dated 10/96), Table 1.11-2
- Diesel Engine Oil: AP-42 Chapter 3.3 (dated 10/96), Table 3.3-1

**Appendix A: Emissions Calculations**  
**Limited Emissions**  
**Dryer/Mixer**  
**Volatile Organic Compounds and Hazardous Air Pollutants**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

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

Annual Asphalt Production Limitation =	1,000,000	ton/yr
PM Dryer/Mixer Limitation =	0.445	lb/ton of asphlt production
PM10 Dryer/Mixer Limitation =	0.180	lb/ton of asphlt production
CO Dryer/Mixer Limitation =	0.195	lb/ton of asphlt production
VOC Dryer/Mixer Limitation =	0.042	lb/ton of asphlt 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	Natural Gas	No. 2 Fuel Oil	
PM	0.445	0.445	222.5	222.5	222.5
PM10	0.18	0.18	90.0	90.0	90.0
SO2	0.0034	0.011	1.7	5.5	5.5
NOx	0.026	0.055	13.0	27.5	27.5
VOC	0.042	0.042	21.0	21.0	21.0
CO	0.195	0.195	97.5	97.5	97.5
<b>Hazardous Air Pollutant</b>					
HCl	0	0	0	0	0
Antimony	1.80E-07	1.80E-07	9.00E-05	9.00E-05	9.00E-05
Arsenic	5.60E-07	5.60E-07	2.80E-04	2.80E-04	2.80E-04
Beryllium	negl	negl	negl	negl	negl
Cadmium	4.10E-07	4.10E-07	2.05E-04	2.05E-04	2.05E-04
Chromium	5.50E-06	5.50E-06	2.75E-03	2.75E-03	2.75E-03
Cobalt	2.60E-08	2.60E-08	1.30E-05	1.30E-05	1.30E-05
Lead	6.20E-07	1.50E-05	3.10E-04	7.50E-03	7.50E-03
Manganese	7.70E-06	7.70E-06	3.85E-03	3.85E-03	3.85E-03
Mercury	2.40E-07	2.60E-06	1.20E-04	1.30E-03	1.30E-03
Nickel	6.30E-05	6.30E-05	0.03	0.03	0.03
Selenium	3.50E-07	3.50E-07	1.75E-04	1.75E-04	1.75E-04
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	0.02	0.02	0.02
Acetaldehyde					0
Acrolein					0
Benzene	3.90E-04	3.90E-04	0.20	0.20	0.20
Ethylbenzene	2.40E-04	2.40E-04	0.12	0.12	0.12
Formaldehyde	3.10E-03	3.10E-03	1.55	1.55	1.55
Hexane	9.20E-04	9.20E-04	0.46	0.46	0.46
Methyl chloroform	4.80E-05	4.80E-05	0.02	0.02	0.02
MEK					0
Propionaldehyde					0
Quinone					0
Toluene	1.50E-04	2.90E-03	0.08	1.45	1.45
Total PAH Haps	1.90E-04	8.80E-04	0.10	0.44	0.44
Xylene	2.00E-04	2.00E-04	0.10	0.10	0.10
<b>Total HAPs</b>					<b>4.41</b>
<b>Worst Single HAP</b>					<b>1.55 (formaldehyde)</b>

**Abbreviations**

VOC - Volatile Organic Compounds

HCl = Hydrogen Chloride

SO2 = Sulfur Dioxide

HAP = Hazardous Air Pollutant

PAH = Polyaromatic Hydrocarbon

**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, 11.1-7, 11.1-8, 11.1-10, and 11.1-12

\*Emission of PM, PM10, SO2, NOx, and, CO from Drum-Mix Plants are included with the emission calculations for fuel combustion.

## Appendix A: Emissions Calculations Limited Emissions Load-Out and On-Site Yard Emissions

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

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

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Annual Asphalt Production Limitation =	1,000,000	tons/yr

Pollutant	Emission Factor (lb/ton asphalt)		Limited Potential to Emit (tons/yr)		
	Load-Out	On-Site Yard	Load-Out	On-Site Yard	Total
Total PM	5.2E-04	NA	0.26	NA	<b>0.26</b>
Organic PM	3.4E-04	NA	0.17	NA	<b>0.17</b>
TOC	0.004	0.001	2.08	0.550	<b>2.6</b>
CO	0.001	3.5E-04	0.67	0.176	<b>0.85</b>

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

<b>PM/HAPs</b>	<b>0.012</b>	<b>0</b>	<b>0.012</b>
<b>VOC/HAPs</b>	<b>0.031</b>	<b>0.008</b>	<b>0.039</b>
<b>non-VOC/HAPs</b>	<b>1.6E-04</b>	<b>4.2E-05</b>	<b>2.0E-04</b>
<b>non-VOC/non-HAPs</b>	<b>0.15</b>	<b>0.04</b>	<b>0.19</b>

<b>Total VOCs</b>	<b>1.95</b>	<b>0.5</b>	<b>2.5</b>
<b>Total HAPs</b>	<b>0.04</b>	<b>0.008</b>	<b>0.05</b>
<b>Worst Single HAP</b>			<b>0.011</b> <b>(m-/p-Xylene)</b>

**Abbreviations**

TOC = Total Organic Compounds      PM = Particulate Matter      VOC = Volatile Organic Compound  
 CO = Carbon Monoxide                  HAP = Hazardous Air Pollutant

**Methodology**

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)::

$$\text{Total PM/PM}_{10} \text{ Ef} = 0.000181 + 0.00141(-V)e^{((0.0251)(T+460)-20.43)}$$

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

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

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

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

**Appendix A: Emissions Calculations**  
**Limited Emissions**  
**Load-Out and On-Site Yard Emissions (continued)**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

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)	Load-out	Onsite Yard	Total
<b>PAH HAPs</b>								
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	4.4E-04	NA	4.4E-04
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	4.8E-05	NA	4.8E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	1.2E-04	NA	1.2E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	3.2E-05	NA	3.2E-05
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	1.3E-05	NA	1.3E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	3.8E-06	NA	3.8E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	3.2E-06	NA	3.2E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	3.9E-06	NA	3.9E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	1.3E-05	NA	1.3E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	1.8E-04	NA	1.8E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	6.3E-07	NA	6.3E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	8.5E-05	NA	8.5E-05
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.3E-03	NA	1.3E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	8.0E-07	NA	8.0E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	4.1E-03	NA	0.004
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	2.1E-03	NA	2.1E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	3.8E-05	NA	3.8E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.4E-03	NA	1.4E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	2.6E-04	NA	2.6E-04
<b>Total PAH HAPs</b>						<b>0.010</b>	<b>NA</b>	<b>0.010</b>
<b>Other semi-volatile HAPs</b>								
Phenol		PM/HAP	---	Organic PM	1.18%	2.0E-03	0	2.0E-03

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

**Methodology**

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

**Abbreviations**

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

**Appendix A: General Asphalt FESOP Emissions Calculations**  
**Limited Emissions**  
**Load-Out and On-Site 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)	Load-out	Onsite Yard	Total
<b>VOC</b>		VOC	---	TOC	94%	<b>1.95</b>	<b>0.52</b>	<b>2.47</b>
non-VOC/non-HAPS								
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	1.4E-01	3.6E-02	0.171
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	9.6E-04	2.5E-04	0.001
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.5E-02	3.9E-03	0.019
<b>Total non-VOC/non-HAPS</b>					<b>7.30%</b>	<b>0.152</b>	<b>0.040</b>	<b>0.19</b>
Volatile organic HAPs								
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	1.1E-03	2.9E-04	1.4E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	2.0E-04	5.3E-05	2.5E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	1.0E-03	2.7E-04	1.3E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	2.7E-04	7.2E-05	3.4E-04
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	4.4E-06	1.2E-06	5.5E-06
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	3.1E-04	8.3E-05	3.9E-04
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	2.3E-03	6.1E-04	2.9E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	5.8E-03	1.5E-03	0.007
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	1.8E-03	4.8E-04	0.002
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	3.1E-03	8.3E-04	0.004
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	3.7E-05	9.9E-06	4.7E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0	0	0
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	1.5E-04	4.0E-05	1.9E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	1.6E-04	4.2E-05	2.0E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	4.4E-03	1.2E-03	0.006
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	2.7E-05	7.2E-06	3.4E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	8.5E-03	2.3E-03	0.011
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	1.7E-03	4.4E-04	2.1E-03
<b>Total volatile organic HAPs</b>					<b>1.50%</b>	<b>0.031</b>	<b>0.008</b>	<b>0.039</b>

**Abbreviations**

TOC = Total Organic Compounds  
HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound  
MTBE = Methyl tert butyl ether

**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

**Appendix A: Emissions Calculations**  
**Limited Emissions**  
**Fugitive Dust Emissions - Material Processing and Handling**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

**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.

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

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

$k$  (PM) = 0.74 = particle size multiplier (0.74 assumed for aerodynamic diameter  $\leq 100$  um)  
 $k$  (PM10) = 0.35 = particle size multiplier (0.35 assumed for aerodynamic diameter  $\leq 10$  um)  
 $U$  = 10.2 = worst case annual mean wind speed (Source: NOAA, 2005\*)  
 $M$  = 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

Annual Asphalt Production Limitation = 1,000,000 tons/yr  
 Percent Asphalt Cement/Binder (weight %) = 5.0%  
 Maximum Material Handling Throughput = 950,000 tons/yr

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)
Truck unloading of materials into storage piles	1.08	0.51
Front-end loader dumping of materials into feeder bins	1.08	0.51
Conveyor dropping material into dryer/mixer or batch tower	1.08	0.51
<b>Total (tons/yr)</b>	<b>3.23</b>	<b>1.53</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 limestone, sand, recycled asphalt pavement (RAP), gravel, slag, and other additives  
 \*Worst case annual mean wind speed (South Bend, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2005

**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 (tons/yr)
Screening	0.025	0.0087	11.88	4.13
Conveying	0.003	0.0011	1.43	0.52
<b>Limited Potential to Emit (tons/yr)</b>			<b>13.30</b>	<b>4.66</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).

**Abbreviations**

PM = Particulate Matter  
 PM10 = Particulate Matter (<10 um)  
 PTE = Potential to Emit

**Appendix A: Emissions Calculations  
Limited Emissions  
Fugitive Dust Emissions - Paved Roads**

**Company Name:** Koors Contracting, Inc.  
**Source Address:** 1112 East Tiwaba Way, Westport, IN 47283  
**Permit Number:** F 031-25789-00031  
**Reviewer:** Hannah L. Desrosiers  
**Application Date:** December 26, 2007

**Paved Roads at Industrial Site**

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

Annual Asphalt Production Limitation = 1,000,000 tons/yr  
 Percent Asphalt Cement/Binder (weight %) = 5.0%  
 Maximum Material Handling Throughput = 950,000 tons/yr  
 Maximum Asphalt Cement/Binder Throughput = 50,000 tons/yr  
 No. 2 Fuel Oil Limitation = 2,775,000 gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	12.5	22.5	35.00	4.2E+04	1.5E+06	300	0.057	2399.0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	12.5	0	12.50	4.2E+04	5.3E+05	300	0.057	2399.0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (8000 gal)	15.0	25.0	40.00	2.0E+03	8.0E+04	300	0.057	113.6
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (8000 gal)	15.0	0.0	15.00	2.0E+03	3.0E+04	300	0.057	113.6
Fuel Oil Truck Enter Full	Tanker truck (8000 gal)	15.0	25.0	40.00	3.8E+02	1.5E+04	300	0.057	21.3
Fuel Oil Truck Leave Empty	Tanker truck (8000 gal)	15.0	0.0	15.00	3.8E+02	5.6E+03	300	0.057	21.3
Aggregate/RAP Loader Full	Front-end loader (4 CY)	20.0	4.0	24.00	2.4E+05	5.7E+06	300	0.057	13494.3
Aggregate/RAP Loader Empty	Front-end loader (4 CY)	20.0	0	20.00	2.4E+05	4.8E+06	300	0.057	13494.3
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.5	22.5	35.00	4.4E+04	1.6E+06	300	0.057	2525.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.5	0.0	12.50	4.4E+04	5.6E+05	300	0.057	2525.3
<b>Totals</b>					<b>6.5E+05</b>	<b>1.5E+07</b>			<b>3.7E+04</b>

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

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

	PM	PM10	
where k =	0.082	0.016	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	22.5	22.5	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	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	
Unmitigated Emission Factor, $E_f =$	0.77	0.15	lb/mile
Mitigated Emission Factor, $E_{ext} =$	0.70	0.14	lb/mile
Dust Control Efficiency =	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)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	0.92	0.18	0.84	0.16	0.42	0.08
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.92	0.18	0.84	0.16	0.42	0.08
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.044	0.009	0.040	0.008	0.020	3.9E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.044	0.009	0.040	0.008	0.020	3.9E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	8.2E-03	1.6E-03	7.5E-03	1.5E-03	3.8E-03	7.3E-04
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	8.2E-03	1.6E-03	7.5E-03	1.5E-03	3.8E-03	7.3E-04
Aggregate/RAP Loader Full	Front-end loader (3 CY)	5.19	1.01	4.75	0.92	2.37	0.46
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	5.19	1.01	4.75	0.92	2.37	0.46
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.97	0.19	0.89	0.17	0.44	0.09
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.97	0.19	0.89	0.17	0.44	0.09
<b>Totals</b>		<b>14.28</b>	<b>2.78</b>	<b>13.06</b>	<b>2.54</b>	<b>6.53</b>	<b>1.27</b>

**Abbreviations**

PM = Particulate Matter  
 PM10 = Particulate Matter (<10 um)  
 PTE = Potential to Emit

**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)

*Minor Source Criteria Pollutant Modeling  
Screening Form - Raw Data*

**Permit Summary**

**Permit Number:** F 031-25789-00031  
**Company Name:** Koors Contracting, Inc.  
**Source Location:** 1112 East Tiwaba Way, Westport, IN 47283  
**County:** Decatur  
**SIC Code:** 5032, 2951  
**Permit Reviewer:** Hannah L. Desrosiers

**Source Specific Information**

**TABLE 1 - Pollutant Emission Rates (lb/hr) - based on the highest allowable emissions rate**

Unit ID	Stack ID	CO	NO <sub>x</sub>	PM <sub>10</sub>	Pb	SO <sub>2</sub>
Asphalt Plant	SV-A	22.26027397	22.55707763	20.54794521	0.000454207	22.55936073
Hot oil system	SV-B	0.00913242	0	0	0	0
<b>Max. Emissions Rate (lb/hr):</b>		<b>22.26940639</b>	<b>22.55707763</b>	<b>20.54794521</b>	<b>0.000454207</b>	<b>22.55936073</b>

**TABLE 2 - Stack Information: (all heights are from ground level)**

For non-circular stacks, take the average of the stack dimensions as the stack diameter.  
If there is no building near the stack, zero out the building height, width, and length.

Stack ID	Stack Height (ft)	Flow Rate (acfm)	Stack Temp. (°F)	Stack Diameter (ft)	Closest building related to stack:			Closest Property Line (ft)
					Height (ft)	Width (ft)	Length (ft)	
SV-A	60	43000	350	4.1	13	13	30	180
SV-B	14	43000	350	0.333333333	13	13	30	130
0								
0								
0								

Minor Source Criteria Pollutant Modeling  
SCREEN3 Data

**Permit Summary**

Permit Number: F 031-25789-00031  
 Company Name: Koors Contracting, Inc.  
 Source Location: 1112 East Tiwaba Way, Westport, IN 47283  
 County: Decatur  
 SIC Code: 5032, 2951  
 Permit Reviewer: Hannah L. Desrosiers

**SCREEN3 Modeling Data**

**TABLE 3 - Pollutant Modeling Data - grams per second**

Pollutant:	CO	NO <sub>x</sub>	PM <sub>10</sub>	Pb	SO <sub>2</sub>
Totals (g/s):	2.805945205	2.842191781	2.589041096	5.723E-05	2.842479452

**TABLE 4 - Stack Modeling Data**

The M-Value is calculated using a unit emission rate of 1 g/s.  
 The stack with the lowest M value represents the lowest dispersion coefficient and should be modeled.

Stack ID	Stack Height (m)	Stack Gas Velocity (m/s)	Stack Temp. (K)	Stack Diameter (m)	Closest building related to stack			Closest Property Line (m)	Volumetric Flow Rate (m <sup>3</sup> /s)	Stack M-Value
					Height (m)	Width (m)	Length (m)			
SV-A	18.29268293	16.55792806	449.82	1.25	3.963414634	3.963414634	9.146341463	54.87804878	20.31968234	136244.4879
SV-B	4.268292683	2505.048936	449.82	0.101626016	3.963414634	3.963414634	9.146341463	39.63414634	20.31968234	4809566.668
0	0	#DIV/0!	255.37	0	0	0	0	0	#DIV/0!	#DIV/0!
0	0	#DIV/0!	255.37	0	0	0	0	0	#DIV/0!	#DIV/0!
0	0	#DIV/0!	255.37	0	0	0	0	0	#DIV/0!	#DIV/0!

## Minor Source Criteria Pollutant Modeling Screening Form - Modeling Results

### Permit Summary

**Permit Number:** F 031-25789-00031  
**Company Name:** Koors Contracting, Inc.  
**Source Location:** 1112 East Tiwaba Way, Westport, IN 47283  
**County:** Decatur  
**SIC Code:** 5032, 2951  
**Permit Reviewer:** Hannah L. Desrosiers

### Modeling Method

**Model Used** (please check one):

SCREEN3     AERSCREEN  
 ISC3         AERMOD

**Date Modeling Completed:** 4/1/2008

**Modeler:** Hannah L. Desrosiers

### Modeling Results

#### **TABLE 5 - Pollutants Modeling Results: 1 Hour Concentration ( $\mu\text{g}/\text{m}^3$ ):**

The modeled concentrations in this table are the 1-hour concentrations for each pollutant. Use tables 6 and 7 to compare the modeled data to the air quality standard.

Pollutant:	CO	NO <sub>x</sub>	PM <sub>10</sub>	Pb	SO <sub>2</sub>
Concentration ( $\mu\text{g}/\text{m}^3$ ):	232	234.4	214.6	0.004127	234.4

#### **TABLE 6 - Pollutants Maximum Concentration ( $\mu\text{g}/\text{m}^3$ ):**

Averaging Period	CO	NO <sub>x</sub>	PM <sub>10</sub>	Pb	SO <sub>2</sub>
1-hour modeled concentration	232				
<b>NAAQ Standard</b>	<b>40000</b>				
<b>PASS or FAIL</b>	PASS				
3-hour modeled concentration					210.96
<b>NAAQ Standard</b>					<b>1300</b>
<b>PASS or FAIL</b>					PASS
8-hour modeled concentration	162.4				
<b>NAAQ Standard/CEP Benchmark</b>	<b>10000</b>				
<b>PASS or FAIL</b>	PASS				
24-hour modeled concentration			85.84	0.0016508	93.76
<b>NAAQ Standard</b>			<b>150</b>	<b>1.5</b>	<b>365</b>
<b>PASS or FAIL</b>			PASS	PASS	PASS
Annual modeled concentration		18.752	17.168		18.752
<b>NAAQ Standard/CEP Benchmark</b>		<b>100</b>	<b>50</b>		<b>80</b>
<b>PASS or FAIL</b>		PASS	PASS		PASS

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

04/02/08  
08:07:02

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

**25789co**

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =          2.81000
STACK HEIGHT (M)      =          18.2900
STK INSIDE DIAM (M)   =           1.2500
STK EXIT VELOCITY (M/S) =          1.0000
STK GAS EXIT TEMP (K) =          449.8200
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           .0000
URBAN/RURAL OPTION    =          RURAL
BUILDING HEIGHT (M)   =           3.9600
MIN HORIZ BLDG DIM (M) =          3.9600
MAX HORIZ BLDG DIM (M) =          9.1500
    
```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 1.335 M\*\*4/S\*\*3; MOM. FLUX = .254 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
60.	53.40	1	3.0	3.1	960.0	23.84	17.14	8.94	NO
100.	181.3	1	3.0	3.1	960.0	23.84	26.96	14.16	NO
200.	219.5	2	2.0	2.1	640.0	28.50	36.35	20.56	NO
300.	232.0	3	2.0	2.1	640.0	28.24	34.48	20.64	NO
400.	220.8	3	1.5	1.6	480.0	32.81	44.90	26.87	NO
500.	206.7	3	1.0	1.1	320.0	41.95	55.24	33.21	NO
600.	193.5	4	1.5	1.6	480.0	32.27	42.97	21.71	NO
700.	188.9	4	1.5	1.6	480.0	32.27	49.41	24.48	NO
800.	177.6	4	1.5	1.6	480.0	32.27	55.77	27.18	NO
900.	172.2	4	1.0	1.1	320.0	41.13	62.27	30.27	NO
1000.	165.8	4	1.0	1.1	320.0	41.13	68.48	32.84	NO
1100.	156.5	4	1.0	1.1	320.0	41.13	74.63	34.82	NO
1200.	147.2	4	1.0	1.1	320.0	41.13	80.74	36.75	NO
1300.	138.2	4	1.0	1.1	320.0	41.13	86.80	38.63	NO
1400.	129.8	4	1.0	1.1	320.0	41.13	92.81	40.46	NO
1500.	121.9	4	1.0	1.1	320.0	41.13	98.79	42.24	NO
1600.	114.5	4	1.0	1.1	320.0	41.13	104.72	43.99	NO
1700.	107.8	4	1.0	1.1	320.0	41.13	110.62	45.70	NO
1800.	101.5	4	1.0	1.1	320.0	41.13	116.49	47.37	NO

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

1900.	95.81	4	1.0	1.1	320.0	41.13	122.33	49.02	NO
2000.	90.54	4	1.0	1.1	320.0	41.13	128.13	50.63	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 60. M:									
287.	232.7	3	2.0	2.1	640.0	28.24	33.22	19.91	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
 \*\*\* REGULATORY (Default) \*\*\*  
 PERFORMING CAVITY CALCULATIONS  
 WITH ORIGINAL SCREEN CAVITY MODEL  
 (BRODE, 1988)  
 \*\*\*\*\*

*** CAVITY CALCULATION - 1 ***	*** CAVITY CALCULATION - 2 ***
CONC (UG/M**3) = .0000	CONC (UG/M**3) = .0000
CRIT WS @10M (M/S) = 99.99	CRIT WS @10M (M/S) = 99.99
CRIT WS @ HS (M/S) = 99.99	CRIT WS @ HS (M/S) = 99.99
DILUTION WS (M/S) = 99.99	DILUTION WS (M/S) = 99.99
CAVITY HT (M) = 5.69	CAVITY HT (M) = 4.27
CAVITY LENGTH (M) = 11.45	CAVITY LENGTH (M) = 5.54
ALONGWIND DIM (M) = 3.96	ALONGWIND DIM (M) = 9.15

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

\*\*\*\*\*  
 END OF CAVITY CALCULATIONS  
 \*\*\*\*\*

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
 \*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	232.7	287.	0.

\*\*\*\*\*  
 \*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*  
 \*\*\*\*\*

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

04/02/08  
08:10:57

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

**25789nox**

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =          2.84000
STACK HEIGHT (M)      =          18.2900
STK INSIDE DIAM (M)   =           1.2500
STK EXIT VELOCITY (M/S) =          1.0000
STK GAS EXIT TEMP (K) =          449.8200
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           .0000
URBAN/RURAL OPTION    =          RURAL
BUILDING HEIGHT (M)   =           3.9600
MIN HORIZ BLDG DIM (M) =           3.9600
MAX HORIZ BLDG DIM (M) =           9.1500
    
```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 1.335 M\*\*4/S\*\*3; MOM. FLUX = .254 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
60.	53.97	1	3.0	3.1	960.0	23.84	17.14	8.94	NO
100.	183.2	1	3.0	3.1	960.0	23.84	26.96	14.16	NO
200.	221.9	2	2.0	2.1	640.0	28.50	36.35	20.56	NO
300.	234.4	3	2.0	2.1	640.0	28.24	34.48	20.64	NO
400.	223.1	3	1.5	1.6	480.0	32.81	44.90	26.87	NO
500.	208.9	3	1.0	1.1	320.0	41.95	55.24	33.21	NO
600.	195.5	4	1.5	1.6	480.0	32.27	42.97	21.71	NO
700.	190.9	4	1.5	1.6	480.0	32.27	49.41	24.48	NO
800.	179.5	4	1.5	1.6	480.0	32.27	55.77	27.18	NO
900.	174.0	4	1.0	1.1	320.0	41.13	62.27	30.27	NO
1000.	167.6	4	1.0	1.1	320.0	41.13	68.48	32.84	NO
1100.	158.1	4	1.0	1.1	320.0	41.13	74.63	34.82	NO
1200.	148.7	4	1.0	1.1	320.0	41.13	80.74	36.75	NO
1300.	139.7	4	1.0	1.1	320.0	41.13	86.80	38.63	NO
1400.	131.1	4	1.0	1.1	320.0	41.13	92.81	40.46	NO
1500.	123.2	4	1.0	1.1	320.0	41.13	98.79	42.24	NO
1600.	115.8	4	1.0	1.1	320.0	41.13	104.72	43.99	NO
1700.	108.9	4	1.0	1.1	320.0	41.13	110.62	45.70	NO
1800.	102.6	4	1.0	1.1	320.0	41.13	116.49	47.37	NO

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

1900.	96.84	4	1.0	1.1	320.0	41.13	122.33	49.02	NO
2000.	91.50	4	1.0	1.1	320.0	41.13	128.13	50.63	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 60. M:									
287.	235.1	3	2.0	2.1	640.0	28.24	33.22	19.91	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
 \*\*\* REGULATORY (Default) \*\*\*  
 PERFORMING CAVITY CALCULATIONS  
 WITH ORIGINAL SCREEN CAVITY MODEL  
 (BRODE, 1988)  
 \*\*\*\*\*

*** CAVITY CALCULATION - 1 ***	*** CAVITY CALCULATION - 2 ***
CONC (UG/M**3) = .0000	CONC (UG/M**3) = .0000
CRIT WS @10M (M/S) = 99.99	CRIT WS @10M (M/S) = 99.99
CRIT WS @ HS (M/S) = 99.99	CRIT WS @ HS (M/S) = 99.99
DILUTION WS (M/S) = 99.99	DILUTION WS (M/S) = 99.99
CAVITY HT (M) = 5.69	CAVITY HT (M) = 4.27
CAVITY LENGTH (M) = 11.45	CAVITY LENGTH (M) = 5.54
ALONGWIND DIM (M) = 3.96	ALONGWIND DIM (M) = 9.15

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

\*\*\*\*\*  
 END OF CAVITY CALCULATIONS  
 \*\*\*\*\*

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
 \*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	235.1	287.	0.

\*\*\*\*\*  
 \*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*  
 \*\*\*\*\*

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

04/02/08  
08:13:42

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

**25789pm10**

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =          2.60000
STACK HEIGHT (M)      =          18.2900
STK INSIDE DIAM (M)   =           1.2500
STK EXIT VELOCITY (M/S) =          1.0000
STK GAS EXIT TEMP (K) =          449.8200
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           .0000
URBAN/RURAL OPTION    =          RURAL
BUILDING HEIGHT (M)   =           3.9600
MIN HORIZ BLDG DIM (M) =          3.9600
MAX HORIZ BLDG DIM (M) =           9.1500
    
```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 1.335 M\*\*4/S\*\*3; MOM. FLUX = .254 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
60.	49.41	1	3.0	3.1	960.0	23.84	17.14	8.94	NO
100.	167.8	1	3.0	3.1	960.0	23.84	26.96	14.16	NO
200.	203.1	2	2.0	2.1	640.0	28.50	36.35	20.56	NO
300.	214.6	3	2.0	2.1	640.0	28.24	34.48	20.64	NO
400.	204.3	3	1.5	1.6	480.0	32.81	44.90	26.87	NO
500.	191.3	3	1.0	1.1	320.0	41.95	55.24	33.21	NO
600.	179.0	4	1.5	1.6	480.0	32.27	42.97	21.71	NO
700.	174.8	4	1.5	1.6	480.0	32.27	49.41	24.48	NO
800.	164.3	4	1.5	1.6	480.0	32.27	55.77	27.18	NO
900.	159.3	4	1.0	1.1	320.0	41.13	62.27	30.27	NO
1000.	153.4	4	1.0	1.1	320.0	41.13	68.48	32.84	NO
1100.	144.8	4	1.0	1.1	320.0	41.13	74.63	34.82	NO
1200.	136.2	4	1.0	1.1	320.0	41.13	80.74	36.75	NO
1300.	127.9	4	1.0	1.1	320.0	41.13	86.80	38.63	NO
1400.	120.1	4	1.0	1.1	320.0	41.13	92.81	40.46	NO
1500.	112.8	4	1.0	1.1	320.0	41.13	98.79	42.24	NO
1600.	106.0	4	1.0	1.1	320.0	41.13	104.72	43.99	NO
1700.	99.72	4	1.0	1.1	320.0	41.13	110.62	45.70	NO
1800.	93.96	4	1.0	1.1	320.0	41.13	116.49	47.37	NO

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

1900.	88.65	4	1.0	1.1	320.0	41.13	122.33	49.02	NO
2000.	83.77	4	1.0	1.1	320.0	41.13	128.13	50.63	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND	60. M:								
287.	215.3	3	2.0	2.1	640.0	28.24	33.22	19.91	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
 \*\*\* REGULATORY (Default) \*\*\*  
 PERFORMING CAVITY CALCULATIONS  
 WITH ORIGINAL SCREEN CAVITY MODEL  
 (BRODE, 1988)  
 \*\*\*\*\*

*** CAVITY CALCULATION - 1 ***	*** CAVITY CALCULATION - 2 ***
CONC (UG/M**3) = .0000	CONC (UG/M**3) = .0000
CRIT WS @10M (M/S) = 99.99	CRIT WS @10M (M/S) = 99.99
CRIT WS @ HS (M/S) = 99.99	CRIT WS @ HS (M/S) = 99.99
DILUTION WS (M/S) = 99.99	DILUTION WS (M/S) = 99.99
CAVITY HT (M) = 5.69	CAVITY HT (M) = 4.27
CAVITY LENGTH (M) = 11.45	CAVITY LENGTH (M) = 5.54
ALONGWIND DIM (M) = 3.96	ALONGWIND DIM (M) = 9.15

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

\*\*\*\*\*  
 END OF CAVITY CALCULATIONS  
 \*\*\*\*\*

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
 \*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	215.3	287.	0.

\*\*\*\*\*  
 \*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*  
 \*\*\*\*\*

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

04/02/08  
08:17:38

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

**25789pb**

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =      .500000E-04
STACK HEIGHT (M)      =      18.2900
STK INSIDE DIAM (M)   =      1.2500
STK EXIT VELOCITY (M/S)=      1.0000
STK GAS EXIT TEMP (K) =      449.8200
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =      .0000
URBAN/RURAL OPTION    =          RURAL
BUILDING HEIGHT (M)   =      3.9600
MIN HORIZ BLDG DIM (M) =      3.9600
MAX HORIZ BLDG DIM (M) =      9.1500
    
```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 1.335 M\*\*4/S\*\*3; MOM. FLUX = .254 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
60.	.9503E-03	1	3.0	3.1	960.0	23.84	17.14	8.94	NO
100.	.3226E-02	1	3.0	3.1	960.0	23.84	26.96	14.16	NO
200.	.3906E-02	2	2.0	2.1	640.0	28.50	36.35	20.56	NO
300.	.4127E-02	3	2.0	2.1	640.0	28.24	34.48	20.64	NO
400.	.3928E-02	3	1.5	1.6	480.0	32.81	44.90	26.87	NO
500.	.3678E-02	3	1.0	1.1	320.0	41.95	55.24	33.21	NO
600.	.3442E-02	4	1.5	1.6	480.0	32.27	42.97	21.71	NO
700.	.3361E-02	4	1.5	1.6	480.0	32.27	49.41	24.48	NO
800.	.3160E-02	4	1.5	1.6	480.0	32.27	55.77	27.18	NO
900.	.3064E-02	4	1.0	1.1	320.0	41.13	62.27	30.27	NO
1000.	.2950E-02	4	1.0	1.1	320.0	41.13	68.48	32.84	NO
1100.	.2784E-02	4	1.0	1.1	320.0	41.13	74.63	34.82	NO
1200.	.2619E-02	4	1.0	1.1	320.0	41.13	80.74	36.75	NO
1300.	.2459E-02	4	1.0	1.1	320.0	41.13	86.80	38.63	NO
1400.	.2309E-02	4	1.0	1.1	320.0	41.13	92.81	40.46	NO
1500.	.2168E-02	4	1.0	1.1	320.0	41.13	98.79	42.24	NO
1600.	.2038E-02	4	1.0	1.1	320.0	41.13	104.72	43.99	NO
1700.	.1918E-02	4	1.0	1.1	320.0	41.13	110.62	45.70	NO
1800.	.1807E-02	4	1.0	1.1	320.0	41.13	116.49	47.37	NO

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

1900.	.1705E-02	4	1.0	1.1	320.0	41.13	122.33	49.02	NO
2000.	.1611E-02	4	1.0	1.1	320.0	41.13	128.13	50.63	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 60. M:									
287.	.4140E-02	3	2.0	2.1	640.0	28.24	33.22	19.91	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
 \*\*\* REGULATORY (Default) \*\*\*  
 PERFORMING CAVITY CALCULATIONS  
 WITH ORIGINAL SCREEN CAVITY MODEL  
 (BRODE, 1988)  
 \*\*\*\*\*

*** CAVITY CALCULATION - 1 ***	*** CAVITY CALCULATION - 2 ***
CONC (UG/M**3) = .0000	CONC (UG/M**3) = .0000
CRIT WS @10M (M/S) = 99.99	CRIT WS @10M (M/S) = 99.99
CRIT WS @ HS (M/S) = 99.99	CRIT WS @ HS (M/S) = 99.99
DILUTION WS (M/S) = 99.99	DILUTION WS (M/S) = 99.99
CAVITY HT (M) = 5.69	CAVITY HT (M) = 4.27
CAVITY LENGTH (M) = 11.45	CAVITY LENGTH (M) = 5.54
ALONGWIND DIM (M) = 3.96	ALONGWIND DIM (M) = 9.15

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

\*\*\*\*\*  
 END OF CAVITY CALCULATIONS  
 \*\*\*\*\*

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
 \*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	.4140E-02	287.	0.

\*\*\*\*\*  
 \*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*  
 \*\*\*\*\*

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

04/02/08  
08:20:44

\*\*\* SCREEN3 MODEL RUN \*\*\*  
\*\*\* VERSION DATED 96043 \*\*\*

**25789so<sub>2</sub>**

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =          2.84000
STACK HEIGHT (M)      =          18.2900
STK INSIDE DIAM (M)   =           1.2500
STK EXIT VELOCITY (M/S)=           1.0000
STK GAS EXIT TEMP (K) =          449.8200
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           .0000
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           3.9600
MIN HORIZ BLDG DIM (M) =           3.9600
MAX HORIZ BLDG DIM (M) =           9.1500
    
```

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.  
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

BUOY. FLUX = 1.335 M\*\*4/S\*\*3; MOM. FLUX = .254 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\*\*\*  
\*\*\* SCREEN AUTOMATED DISTANCES \*\*\*  
\*\*\*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
60.	53.97	1	3.0	3.1	960.0	23.84	17.14	8.94	NO
100.	183.2	1	3.0	3.1	960.0	23.84	26.96	14.16	NO
200.	221.9	2	2.0	2.1	640.0	28.50	36.35	20.56	NO
300.	234.4	3	2.0	2.1	640.0	28.24	34.48	20.64	NO
400.	223.1	3	1.5	1.6	480.0	32.81	44.90	26.87	NO
500.	208.9	3	1.0	1.1	320.0	41.95	55.24	33.21	NO
600.	195.5	4	1.5	1.6	480.0	32.27	42.97	21.71	NO
700.	190.9	4	1.5	1.6	480.0	32.27	49.41	24.48	NO
800.	179.5	4	1.5	1.6	480.0	32.27	55.77	27.18	NO
900.	174.0	4	1.0	1.1	320.0	41.13	62.27	30.27	NO
1000.	167.6	4	1.0	1.1	320.0	41.13	68.48	32.84	NO
1100.	158.1	4	1.0	1.1	320.0	41.13	74.63	34.82	NO
1200.	148.7	4	1.0	1.1	320.0	41.13	80.74	36.75	NO
1300.	139.7	4	1.0	1.1	320.0	41.13	86.80	38.63	NO
1400.	131.1	4	1.0	1.1	320.0	41.13	92.81	40.46	NO
1500.	123.2	4	1.0	1.1	320.0	41.13	98.79	42.24	NO
1600.	115.8	4	1.0	1.1	320.0	41.13	104.72	43.99	NO
1700.	108.9	4	1.0	1.1	320.0	41.13	110.62	45.70	NO
1800.	102.6	4	1.0	1.1	320.0	41.13	116.49	47.37	NO

**Minor Source Criteria Pollutant Modeling  
SCREEN3 Model Run**

1900.	96.84	4	1.0	1.1	320.0	41.13	122.33	49.02	NO
2000.	91.50	4	1.0	1.1	320.0	41.13	128.13	50.63	NO
MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 60. M:									
287.	235.1	3	2.0	2.1	640.0	28.24	33.22	19.91	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)  
 DWASH=NO MEANS NO BUILDING DOWNWASH USED  
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED  
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED  
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3\*LB

\*\*\*\*\*  
 \*\*\* REGULATORY (Default) \*\*\*  
 PERFORMING CAVITY CALCULATIONS  
 WITH ORIGINAL SCREEN CAVITY MODEL  
 (BRODE, 1988)  
 \*\*\*\*\*

*** CAVITY CALCULATION - 1 ***	*** CAVITY CALCULATION - 2 ***
CONC (UG/M**3) = .0000	CONC (UG/M**3) = .0000
CRIT WS @10M (M/S) = 99.99	CRIT WS @10M (M/S) = 99.99
CRIT WS @ HS (M/S) = 99.99	CRIT WS @ HS (M/S) = 99.99
DILUTION WS (M/S) = 99.99	DILUTION WS (M/S) = 99.99
CAVITY HT (M) = 5.69	CAVITY HT (M) = 4.27
CAVITY LENGTH (M) = 11.45	CAVITY LENGTH (M) = 5.54
ALONGWIND DIM (M) = 3.96	ALONGWIND DIM (M) = 9.15

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

\*\*\*\*\*  
 END OF CAVITY CALCULATIONS  
 \*\*\*\*\*

\*\*\*\*\*  
 \*\*\* SUMMARY OF SCREEN MODEL RESULTS \*\*\*  
 \*\*\*\*\*

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
-----	-----	-----	-----
SIMPLE TERRAIN	235.1	287.	0.

\*\*\*\*\*  
 \*\* REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS \*\*  
 \*\*\*\*\*