



# 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: August 20, 2008

RE: Brooks Construction Company, Inc. / 141-25742-00549

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

## Notice of Decision: Approval - Effective Immediately

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

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

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

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

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

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

Enclosures  
FNPER.dot12/03/07



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## Federally Enforceable State Operating Permit Renewal OFFICE OF AIR QUALITY

**Brooks Construction Company, Inc.  
727 S Beiger Street  
Mishawaka, Indiana 46544**

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

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

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

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

Operation Permit No.: F141-25742-00549	
Issued by/Original Signed By:  Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: August 20, 2008  Expiration Date: August 20, 2018

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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:	727 S Beiger Street, Mishawaka, Indiana 46544
Mailing Address:	727 S Beiger St, Mishawaka, IN 46544
General Source Phone Number:	260-478-1990
SIC Code:	2951
County Location:	St. Joseph
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 dryer/mixer, constructed after June 11, 1973, identified as Emissions Unit No. 2, with a maximum capacity of three hundred (300) tons per hour, equipped with one (1) ninety-two and one half (92.5) million British thermal units per hour (mmBtu/hr) natural gas-fired burner, using No. 2 distillate fuel oil, and refinery blend fuel oil, and waste oil as back-up fuels, controlled by one (1) baghouse with a knockout box, exhausting to Stack SV1.

Under 40 CFR 60.90, Subpart I - New Source Performance Standards for Hot Mix Asphalt Facilities, this is considered an affected hot-mix asphalt facility.

- (b) Three (3) liquid asphalt storage tanks, identified as 11A, 11B and 11C, heated by a one and one half (1.5) million British thermal units per hour oil heater, capacity: twenty thousand (20,000) gallons, each, uncontrolled and exhausting to the atmosphere.
- (c) Material Handling and conveying operations, constructed in 2003, consisting of the following:
- (1) Material storage piles, consisting of limestone, sand, gravel, slag, and reclaimed asphalt pavement (RAP), with a combined maximum storage capacity of forty thousand (40,000) tons;
  - (2) One (1) Cold Feed system consisting of four (4) compartments, each holding one hundred (100) tons, for a total aggregate holding capacity of four hundred (400) tons;
  - (3) Two (2) feeder conveyors;
  - (4) Two (2) screens;

- (5) One (1) Recycled Asphalt Pavement (RAP) system, consisting of one (1) twenty-five (25) ton RAP feed bin, one (1) shaker, and one (1) conveyor;
- (6) Two (2) drag slat conveyors; and
- (7) Two (2) Hot Mix Asphalt storage silos: two hundred (200) tons capacity, each, uncontrolled and exhausting to stacks SV3 and SV4.

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, as defined in 326 IAC 2-7-1(21):

- (a) Two (2) oil storage tanks, identified as TA33 for waste oil and TA34 for off-road diesel, constructed in 2003, with a capacity of twenty thousand (20,000) gallons each, uncontrolled and exhausting to the atmosphere; and
- (b) Paved and unpaved roads and parking lots with public access [326 IAC 6-5].

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

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

## **SECTION B GENERAL CONDITIONS**

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

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

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

- (a) This permit, F141-25742-00549, is issued for a fixed term of ten (10) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

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

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

- (a) the condition is modified in a subsequent permit action pursuant to Title I of the Clean Air Act; or
- (b) the emission unit to which the condition pertains permanently ceases operation.

### **B.4 Enforceability [326 IAC 2-8-6]**

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

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

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

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

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

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

- (a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. 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.8 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.9 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]**

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

Indiana Department of Environmental Management  
Compliance 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.10 Compliance Order Issuance [326 IAC 2-8-5(b)]**

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

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

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- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) 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.
- (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.12 Emergency Provisions [326 IAC 2-8-12]

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- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation except as provided in 326 IAC 2-8-12.
- (b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a health-based or technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:
- (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
  - (2) The permitted facility was at the time being properly operated;
  - (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
  - (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, and Northern Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;  
  
Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or  
Telephone Number: 317-233-0178 (ask for Compliance Section)  
Facsimile Number: 317-233-6865  
Northern Regional Office phone: (574) 245-4870; fax: (574) 245-4877.
  - (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.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]

- (a) All terms and conditions of permits established prior to F141-25742-00549 and issued pursuant to permitting programs approved into the state implementation plan have been either:

- (1) incorporated as originally stated,
- (2) revised, or
- (3) deleted.

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

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

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

B.15 Deviations from Permit Requirements and Conditions [326 IAC 2-8-4(3)(C)(ii)]

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

- (a) This permit may be modified, reopened, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a Federally Enforceable State Operating Permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any condition of this permit. [326 IAC 2-8-4(5)(C)] The notification by the Permittee does require 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.17 Permit Renewal [326 IAC 2-8-3(h)]

- (a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require 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.18 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]

- (a) Permit amendments and revisions are governed by the requirements of 326 IAC 2-8-10 or 326 IAC 2-8-11.1 whenever the Permittee seeks to amend or modify this permit.
- (b) Any application requesting an amendment or modification of this permit shall be submitted to:
- Indiana Department of Environmental Management  
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.19 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

- (a) The Permittee may make any change or changes at the source that are described in 326 IAC 2-8-15(b) through (d) without a prior permit revision, if each of the following conditions is met:
- (1) The changes are not modifications under any provision of Title I of the Clean Air Act;
- (2) Any approval required by 326 IAC 2-8-11.1 has been obtained;
- (3) The changes do not result in emissions which exceed the limitations provided in this permit (whether expressed herein as a rate of emissions or in terms of total emissions);
- (4) The Permittee notifies the:
- Indiana Department of Environmental Management  
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.20 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.21 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]**

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

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

**B.22 Transfer of Ownership or Operational Control [326 IAC 2-8-10]**

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- (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.23 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.24 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 one hundred (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 June 16, 2003. The plan is included as Attachment A.

C.8 Stack Height [326 IAC 1-7]

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

C.9 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 Licensed Asbestos Inspector**  
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Licensed Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

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

#### **C.10 Performance Testing [326 IAC 3-6]**

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- (a) 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.11 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.12 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.13 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]**

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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.14 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.15 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]**

---

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

- (a) The Permittee prepared and submitted written emergency reduction plans (ERPs) consistent with safe operating procedures on.
- (b) Upon direct notification by IDEM, OAQ that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level. [326 IAC 1-5-3]

#### **C.16 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.17 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.18 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.19 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.20 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) 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.21 Compliance with 40 CFR 82 and 326 IAC 22-1**

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Pursuant to 40 CFR 82 (Protection of Stratospheric Ozone), Subpart F, except as provided for motor vehicle air conditioners in Subpart B, the Permittee shall comply with 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: Drum Hot Mix Asphalt Plant

- (a) One (1) drum dryer/mixer, constructed after June 11, 1973, identified as Emissions Unit No. 2, with a maximum capacity of three hundred (300) tons per hour, equipped with one (1) ninety-two and one half (92.5) million British thermal units per hour (mmBtu/hr) natural gas-fired burner, using No. 2 distillate fuel oil, and refinery blend fuel oil, and waste oil as back-up fuels, controlled by one (1) baghouse with a knockout box, exhausting to Stack SV1.

Under 40 CFR 60.90, Subpart I - New Source Performance Standards for Hot Mix Asphalt Facilities, this is considered an affected hot-mix asphalt facility.

- (b) Three (3) liquid asphalt storage tanks, identified as 11A, 11B and 11C, heated by a one and one half (1.5) million British thermal units per hour oil heater, capacity: twenty thousand (20,000) gallons, each, uncontrolled and exhausting to the atmosphere.

- (c) Material Handling and conveying operations, constructed in 2003, consisting of the following:

- (1) Material storage piles, consisting of limestone, sand, gravel, slag, and reclaimed asphalt pavement (RAP), with a combined maximum storage capacity of forty thousand (40,000) tons;
- (2) One (1) Cold Feed system consisting of four (4) compartments, each holding one hundred (100) tons, for a total aggregate holding capacity of four hundred (400) tons;
- (3) Two (2) feeder conveyors;
- (4) Two (2) screens;
- (5) One (1) Recycled Asphalt Pavement (RAP) system, consisting of one (1) twenty-five (25) ton RAP feed bin, one (1) shaker, and one (1) conveyor;
- (6) Two (2) drag slat conveyors; and
- (7) Two (2) Hot Mix Asphalt storage silos: two hundred (200) tons capacity, each, uncontrolled and exhausting to stacks SV3 and SV4.

(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 1,500,000 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 fifteen hundredths (0.15) 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 Matter (PM) [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a), particulate matter (PM) emissions from the dryer/mixer shall be limited to three hundredths (0.03) grain per dry standard cubic foot of exhaust air.

D.1.3 Particulate (PM10), 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 1,500,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM10 emissions from the dryer/mixer shall not exceed five hundredths (0.05) pounds per ton of asphalt processed.
- (c) CO emissions from the dryer/mixer shall not exceed thirteen hundredths (0.13) 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.1.4 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 all other combustion equipment shall be limited as follows:

- (a) No. 2 fuel oil shall have a sulfur content less than or equal to five tenths percent (0.5%) by weight,
- (b) Refinery Blend and Waste oils each shall have a sulfur content less than or equal to one percent (1.0%) by weight and a chlorine content less than or equal to four tenths percent (0.4%) by weight,
- (c) The HCl emissions from the dryer/mixer shall not exceed twenty-six and four tenths (26.4) pounds of HCl per 1,000 gallons of waste oil burned, and
- (d) Single Fuel Usage Limitations:

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

- (1) No. 2 fuel oil usage shall not exceed 2,530,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month,
- (2) Refinery blend fuel oil usage shall not exceed 1,320,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month,
- (3) Waste oil usage shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month,

- (e) Multiple Fuel Usage Limitation:

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

- (1) Nitrogen oxides (NOx) emissions from the dryer/mixer and all other combustion equipment shall be less than one hundred (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 one hundred (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 one hundred (100) tons per twelve (12) consecutive month period, each, HCl to less than ten (10) tons per twelve (12) consecutive month period, and any combination of HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

#### D.1.5 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 five tenths (0.5) pounds per million Btu heat input when using distillate oil (No. 2 fuel oil) and one and six tenths (1.6) pounds per million British thermal units heat input when using residual oil (including refinery blend fuel oil and waste oil).
- (b) Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a calendar month average.

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

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

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

- (a) The asphalt production rate shall be limited to less than 1,500,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (b) VOC emissions from the dryer/mixer shall be limited to less than thirty-two thousandths (0.032) pound of VOC per ton of asphalt produced.

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

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

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

The Permittee shall perform PM and PM<sub>10</sub> stack testing for the dryer/mixer utilizing methods as approved by the Commissioner to document compliance with Conditions D.1.1(b), D.1.2 and D.1.3(b). This test shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration, September 24, 2004. PM<sub>10</sub> includes filterable and condensable particulate matter. Testing shall be conducted in accordance with Section C - Performance Testing.

#### D.1.9 Particulate Control

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- (a) In order to comply with Conditions D.1.1(b), D.1.2 and D.1.3(b), the baghouse with knockout box 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.1.10 Multiple Fuel Usage Limitation

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- (a) In order to comply with Condition D.1.4(e) when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and all other combustion equipment, the Permittee shall limit fuel usage in the dryer/mixer burner and all other combustion equipment according to the following formulas:

- (1) Nitrogen oxide emission calculation

$$N = \frac{O(E_O) + R(E_R) + U(E_U)}{2,000 \text{ lbs/ton}}$$

where:

N = tons of nitrogen oxide emissions for a twelve (12) month consecutive period

O = gallons of No. 2 fuel oil used in last twelve (12) months

R = gallons of refinery blend fuel oil used in last twelve (12) months

U = gallons waste oil used in the last twelve (12) months

Emission Factors for Nitrogen Oxide

E<sub>O</sub> = twenty-four (24) pounds/ one thousand (1000) gallons of No. 2 fuel oil

E<sub>R</sub> = forty-seven (47) pounds/ one thousand (1000) gallons of refinery blend fuel oil

E<sub>U</sub> = nineteen (19) pounds/ one thousand (1000) gallons of waste oil

- (2) Sulfur dioxide emission calculation

$$S = \frac{O(E_O) + R(E_R) + U(E_U)}{2,000 \text{ lbs/ton}}$$

where:

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

O = gallons of No. 2 fuel oil used in last twelve (12) months with less than or equal to five tenths percent (0.5%) sulfur content

R = gallons of refinery blend fuel oil used in last twelve (12) months with less than or equal to one percent (1.0%) sulfur content

U = gallons of waste oil used in the last twelve (12) months less than or equal to one percent (1.0%) sulfur content

Emission Factors for Sulfur dioxide

E<sub>O</sub> = seventy-eight and five tenths (78.5) pounds/ one thousand (1000) gallons of No. 2 fuel oil

E<sub>R</sub> = seventy-eight and five tenths (78.5) pounds/ one thousand (1000) gallons of refinery blend fuel oil

E<sub>U</sub> = one hundred forty-seven (147) pounds/ one thousand (1000) gallons of waste oil

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

Compliance with the sulfur dioxide emissions and sulfur content limitations in Conditions D.1.4(a), D.1.4(b), and D.1.5 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.

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

In order to comply with Conditions D.1.4(b) and D.1.4(c), the Permittee shall demonstrate that the chlorine content of the fuel used for the dryer/mixer burner all other fuel combustion equipment does not exceed 0.40 percent by weight, when combusting waste oil, by providing a vendor analysis of fuel delivered accompanied by a vendor certification.

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

#### D.1.13 Visible Emissions Notations

- (a) Visible emission notations of the conveyors, screens, material transfer points, and dryer/mixer stack (SV1) 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.1.14 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 two (2.0) and ten (10.0) 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.1.15 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.

#### D.1.16 Broken or Failed Knockout Box Detection

In the event that knockout box failure has been observed, the failed unit(s) and the associated process will be shut down immediately until the failed unit(s) 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).

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

#### D.1.17 Record Keeping Requirements

- (a) To document compliance with Conditions D.1.1, D.1.2, D.1.3 and D.1.6, the Permittee shall keep records of the amount of asphalt processed through the dryer/mixer. Records necessary to demonstrate compliance shall be available within thirty (30) days of the end of each compliance period.
- (b) To document compliance with Conditions D.1.4 and D.1.5, 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) Actual waste oil usage, chlorine content, and equivalent hydrogen chloride (HCl) emission rate per month;
- (4) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and

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

- (5) Fuel supplier certifications;
- (6) The name of the fuel supplier; and
- (7) A statement from the fuel supplier that certifies the sulfur content of the distillate (No. 2) and residual (refinery blend) fuel oil and waste oil and the chlorine content of waste 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.1.4(e) and D.1.10 when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and 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.
- (d) To document compliance with Condition D.1.13, the Permittee shall maintain daily records of the visible emission notations from each of the conveyors, screens, material transfer points, and dryer/mixer stack (SV1) 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.1.14, 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.1.18 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.1, D.1.2, D.1.3(a), D.1.3(b), D.1.3(c), D.1.4(b), D.1.4(c), D.1.6 and D.1.10 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 an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

**SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS**

**Emissions Unit Description:** Insignificant Activities

(b) Paved and unpaved roads and parking lots with public access [326 IAC 6-5].

(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]**

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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 June 16, 2003, 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 dryer/mixer, constructed after June 11, 1973, identified as Emissions Unit No. 2, with a maximum capacity of three hundred (300) tons per hour, equipped with one (1) ninety-two and one half (92.5) million British thermal units per hour (mmBtu/hr) natural gas-fired burner, using No. 2 distillate fuel oil, and refinery blend fuel oil, and waste oil as back-up fuels, controlled by one (1) baghouse with a knockout box, exhausting to Stack SV1.

Under 40 CFR 60.90, Subpart I - New Source Performance Standards for Hot Mix Asphalt Facilities, 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 (four hundredths (0.04) gr/dscf).
- (2) Exhibit 20 percent opacity, or greater.

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

§ 60.93 *Test methods and procedures.*

- (a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).
- (b) The owner or operator shall determine compliance with the particulate matter standards in §60.92 as follows:
  - (1) Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).
  - (2) Method 9 and the procedures in §60.11 shall be used to determine opacity.

[54 FR 6667, Feb. 14, 1989]

## INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF AIR QUALITY

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

Source Name: Brooks Construction Company, Inc.  
Source Address: 727 S Beiger Street, Mishawaka, Indiana 46544  
Mailing Address: 727 S Beiger St, Mishawaka, IN 46544  
FESOP Permit No.: F141-25742-00549

**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: Brooks Construction Company, Inc.  
Source Address: 727 S Beiger Street, Mishawaka, Indiana 46544  
Mailing Address: 727 S Beiger St, Mishawaka, IN 46544  
FESOP Permit No.: F141-25742-00549

**This form consists of 2 pages**

**Page 1 of 2**

- |  |
|--|
| <input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12) <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, PM10, 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**

**FESOP Quarterly Report**

Source Name: Brooks Construction Company, Inc.  
Source Address: 727 S Beiger Street, Mishawaka, Indiana 46544  
Mailing Address: 727 S Beiger St, Mishawaka, IN 46544  
FESOP No.: F141-25742-00549  
Facility: One (1) dryer/mixer  
Parameter: Asphalt processed  
Limit: 1,500,000 tons per twelve (12) consecutive month period,  
with compliance determined at the end of each month.

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

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

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

Submitted by: \_\_\_\_\_  
Title / Position: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Date: \_\_\_\_\_  
Phone: \_\_\_\_\_

**Attach a signed certification to complete this report.**

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

**Single Fuel Quarterly Report**

Source Name: Brooks Construction Company, Inc.  
 Source Address: 727 S Beiger Street, Mishawaka, Indiana 46544  
 Mailing Address: 727 S Beiger St, Mishawaka, IN 46544  
 FESOP No.: F141-25742-00549  
 Facilities: Dryer/mixer burner and all other combustion equipment  
 Parameter: Fuel Usage  
 Limit: In order to limit the source-wide total potential to emit NO<sub>x</sub> and SO<sub>2</sub> to less than one hundred (100) tons per twelve (12) consecutive month period, each, each, HCl to less than ten (10) tons per twelve (12) consecutive month period, and any combination of HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period, the usage of fuel combusted in the dryer/mixer burner and all other combustion equipment shall be limited as follows:

Fuel Type (units)	Fuel Usage Limit (per 12 consecutive month period)
No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)	2,530,000
Refinery Blend Fuel Oil ≤ 1.0 wt% sulfur (gallons)	1,320,000
Waste Oil ≤ 1.0 wt% sulfur (gallons)	750,000

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

The following fuel was the only fuel combusted over the previous twelve (12) month period: \_\_\_\_\_  
 (combustion of more than one fuel requires the use of the "Multiple Fuel Quarterly Report" form)

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

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

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

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

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

**Attach a signed certification to complete this report.**

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

**Multiple Fuel Quarterly Report**

Page 1 of 2

Source Name: Brooks Construction Company, Inc.  
Source Address: 727 S Beiger Street, Mishawaka, Indiana 46544  
Mailing Address: 727 S Beiger St, Mishawaka, IN 46544  
FESOP No.: F141-25742-00549  
Facilities: Dryer/mixer burner and all other combustion equipment  
Parameters: Nitrogen Oxides (NOx) and Sulfur Dioxide (SO<sub>2</sub>) Emissions

Limit: Nitrogen oxides (NO<sub>x</sub>) emissions shall be less than one hundred (100) tons per twelve (12) consecutive month period based on the following equation:

$$N = \frac{O(E_O) + R(E_R) + U(E_U)}{2,000 \text{ lbs/ton}}$$

where:

N = tons of nitrogen oxide emissions for a twelve (12) month consecutive period

O = gallons of No. 2 fuel oil used in last twelve (12) months

R = gallons of refinery blend fuel oil used in last twelve (12) months

U = gallons waste oil used in the last twelve (12) months

Emission Factors for Nitrogen Oxide

E<sub>O</sub> = twenty-four (24) pounds/ one thousand (1000) gallons of No. 2 fuel oil

E<sub>R</sub> = forty-seven (47) pounds/ one thousand (1000) gallons of refinery blend fuel oil

E<sub>U</sub> = nineteen (19) pounds/ one thousand (1000) gallons of waste oil

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

$$S = \frac{O(E_O) + R(E_R) + U(E_U)}{2,000 \text{ lbs/ton}}$$

where:

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

O = gallons of No. 2 fuel oil used in last twelve (12) months with less than or equal to five tenths percent (0.5%) sulfur content

R = gallons of refinery blend fuel oil used in last twelve (12) months with less than or equal to one percent (1.0%) sulfur content

U = gallons of waste oil used in the last twelve (12) months less than or equal to one percent (1.0%) sulfur content

Emission Factors for Sulfur dioxide

E<sub>O</sub> = seventy-eight and five tenths (78.5) pounds/ one thousand (1000) gallons of No. 2 fuel oil

E<sub>R</sub> = seventy-eight and five tenths (78.5) pounds/ one thousand (1000) gallons of refinery blend fuel oil

E<sub>U</sub> = one hundred forty-seven (147) pounds/ one thousand (1000) gallons of waste 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	No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			O		Nitrogen Oxides
	Refinery Blend Fuel Oil ≤ 1.0 wt% sulfur (gallons)			R		
	Waste Oil ≤ 1.0 wt% sulfur (gallons)			U		
	No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			O		Sulfur Dioxide
	Refinery Blend Fuel Oil ≤ 1.0 wt% sulfur (gallons)			R		
	Waste Oil ≤ 1.0 wt% sulfur (gallons)			U		
Month 2	No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			O		Nitrogen Oxides
	Refinery Blend Fuel Oil ≤ 1.0 wt% sulfur (gallons)			R		
	Waste Oil ≤ 1.0 wt% sulfur (gallons)			U		
	No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			O		Sulfur Dioxide
	Refinery Blend Fuel Oil ≤ 1.0 wt% sulfur (gallons)			R		
	Waste Oil ≤ 1.0 wt% sulfur (gallons)			U		
Month 3	No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			O		Nitrogen Oxides
	Refinery Blend Fuel Oil ≤ 1.0 wt% sulfur (gallons)			R		
	Waste Oil ≤ 1.0 wt% sulfur (gallons)			U		
	No. 2 Fuel Oil ≤ 0.5 wt% sulfur (gallons)			O		Sulfur Dioxide
	Refinery Blend Fuel Oil ≤ 1.0 wt% sulfur (gallons)			R		
	Waste Oil ≤ 1.0 wt% sulfur (gallons)			U		

- 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: Brooks Construction Company, Inc.  
 Source Address: 727 S Beiger Street, Mishawaka, Indiana 46544  
 Mailing Address: 727 S Beiger St, Mishawaka, IN 46544  
 FESOP Permit No.: F141-25742-00549

**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.**

# FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) OFFICE OF AIR QUALITY

## ATTACHMENT A

### ASPHALT PLANT SITE FUGITIVE DUST CONTROL PLAN

**BROOKS CONSTRUCTION Co., INC.**  
**727 S. BEIGER STREET MISHAWAKA, INDIANA 46544**

- (a) Fugitive particulate matter (dust) emissions from paved roads, unpaved roads, and parking lots shall be controlled by one or more of the following measures:
  - (1) Paved roads and parking lots:
    - (A) Cleaning by vacuum sweeping on an as-needed basis (monthly at a minimum).
    - (B) Power brooming while wet either from rain or application of water.
  - (2) Unpaved roads and parking lots:
    - (A) Paving with asphalt.
    - (B) Treating with emulsified asphalt on an as-needed basis.
    - (C) Treating with water on an as-needed basis.
    - (D) Double chipping and sealing the road surface and maintaining on an as-needed basis.
- (b) Fugitive particulate matter (dust) emissions from aggregate stockpiles shall be controlled by one or more of the following measures.
  - (1) Maintaining minimum size and number of stock piles of aggregate.
  - (2) Treating around the stockpile area with emulsified asphalt on an as-needed basis.
  - (3) Treating around the stockpile area with water on an as-needed basis.
  - (4) Treating the stockpiles with water on an as-needed basis.
- (c) Fugitive particulate matter (dust) emissions from outdoor conveying of aggregates shall be controlled by the following measure:

Apply water at the feed and the intermediate point on an as-needed basis.
- (d) Fugitive particulate matter (dust) emissions resulting from the transferring of aggregates shall be controlled by one or more of the following measures:
  - (1) Minimizing the vehicular distance between the transfer points.
  - (2) Enclosing the transfer points.
  - (3) Applying water on transfer points on an as-needed basis.

- (e) Fugitive particulate matter (dust) emissions resulting from transportation of aggregate by truck, front end loader, etc., shall be controlled by one or more of the following measures:
  - (1) Tarping the aggregate hauling vehicles.
  - (2) Maintaining vehicle bodies in a condition to prevent leakage.
  - (3) Spraying the aggregates with water.
  - (5) Maintaining a ten (10) mile per hour speed limit in the yard.
  
- (f) Fugitive particulate matter (dust) emissions resulting from the loading and unloading shall be controlled by one or more of the following measures:
  - (1) Reducing free fall distance to a minimum.
  - (2) Reducing the rate of discharge of the aggregate.
  - (3) Spraying the aggregate with water on an as-needed basis.

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**

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

**Source Background and Description**

<b>Source Name:</b>	Brooks Construction Company, Inc.
<b>Source Location:</b>	727 S Beiger St, Mishawaka, IN 46544
<b>County:</b>	St. Joseph
<b>SIC Code:</b>	2951
<b>Permit Renewal No.:</b>	141-25742-00549
<b>Permit Reviewer:</b>	Hannah L. Desrosiers

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Brooks Construction Company, Inc. relating to the operation of a stationary drum hot mix asphalt plant.

**History**

Brooks Construction Company, Inc. was issued a FESOP on September 22, 2005. On December 19, 2007, Brooks Construction Company, Inc. submitted an application to the OAQ requesting to renew its operating permit. The source has also requested that the FESOP Renewal permit term be extended to ten (10) years.

**Permitted Emission Units and Pollution Control Equipment**

The source consists of the following permitted emission unit(s) and pollution control device(s):

- (a) One (1) drum dryer/mixer, constructed after June 11, 1973, identified as Emissions Unit No. 2, with a maximum capacity of three hundred (300) tons per hour, equipped with one (1) ninety-two and one half (92.5) million British thermal units per hour (mmBtu/hr) natural gas-fired burner, using No. 2 distillate fuel oil, and refinery blend fuel oil, and waste oil as back-up fuels, controlled by one (1) baghouse with a knockout box, exhausting to Stack SV1.

Under 40 CFR 60.90, Subpart I - New Source Performance Standards for Hot Mix Asphalt Facilities, this is considered an affected hot-mix asphalt facility.

- (b) Three (3) liquid asphalt storage tanks, identified as 11A, 11B and 11C, heated by a one and one half (1.5) million British thermal units per hour oil heater, capacity: twenty thousand (20,000) gallons, each, uncontrolled and exhausting to the atmosphere.
- (c) Material Handling and conveying operations, constructed in 2003, consisting of the following:
  - (1) Material storage piles, consisting of limestone, sand, gravel, slag, and reclaimed asphalt pavement (RAP), with a combined maximum storage capacity of forty thousand (40,000) tons;
  - (2) One (1) Cold Feed system consisting of four (4) compartments, each holding one hundred (100) tons, for a total aggregate holding capacity of four hundred (400) tons;
  - (3) Two (2) feeder conveyors;

- (4) Two (2) screens;
- (5) One (1) Recycled Asphalt Pavement (RAP) system, consisting of one (1) twenty-five (25) ton RAP feed bin, one (1) shaker, and one (1) conveyor;
- (6) Two (2) drag slat conveyors; and
- (7) Two (2) Hot Mix Asphalt storage silos: two hundred (200) tons capacity, each, uncontrolled and exhausting to stacks SV3 and SV4.

### Insignificant Activities

The source consists of the following permitted insignificant activities:

- (a) Two (2) oil storage tanks, identified as TA33 for waste oil and TA34 for off-road diesel, constructed in 2003, with a capacity of twenty thousand (20,000) gallons each, uncontrolled and exhausting to the atmosphere; and
- (b) Paved and unpaved roads and parking lots with public access [326 IAC 6-5].

### Existing Approvals

Since the issuance of the FESOP No. 141-17410-00549 on September 22, 2003, the source has constructed or has been operating under the following approvals as well:

- (a) Significant Permit Revision No. 141-19934-00549, issued on September 27, 2004; and
- (b) Administrative Amendment No. 141-25539-00549, issued on March 31, 2008.

### Enforcement Issue

There are no enforcement actions pending.

### Emission Calculations

See Appendix A of this document for detailed emission calculations.

### County Attainment Status

The source is located in St. Joseph County.

The following attainment status designations are applicable to St. Joseph County:

Pollutant	Designation
SO <sub>2</sub>	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O <sub>3</sub>	Attainment effective July 19, 2007, for the 8-hour ozone standard. <sup>1</sup>
PM <sub>10</sub>	Unclassifiable effective November 15, 1990.
NO <sub>2</sub>	Cannot be classified or better than national standards.
Pb	Not designated.

<sup>1</sup> Attainment effective October 18, 2000, for the 1-hour ozone standard for the South Bend-Elkhart area, including St. Joseph County, and is a maintenance area for the 1-hour ozone National Ambient Air Quality Standards (NAAQS) for purposes of 40 CFR 51, Subpart X\*. The 1-hour standard was revoked effective June 15, 2005.

\* Unclassifiable or attainment effective April 5, 2005, for PM<sub>2.5</sub>.

(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 (1)-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 eight (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 eight (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. St. Joseph 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) PM<sub>2.5</sub>

St. Joseph County has been classified as attainment for PM<sub>2.5</sub>. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM<sub>2.5</sub> emissions. Therefore, until the U.S. EPA adopts specific provisions for PSD review for PM<sub>2.5</sub> emissions, it has directed states to regulate PM<sub>10</sub> emissions as a surrogate for PM<sub>2.5</sub> emissions.

(c) Other Criteria Pollutants

St. Joseph 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, this existing source was already subject to an applicable New Source Performance Standard that was in effect on August 7, 1980, therefore fugitive emissions are counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

### Unrestricted Potential Emissions

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.

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Pollutant	tons/year
PM	36,994.81
PM <sub>10</sub> <sup>(1)</sup>	8,599.18
SO <sub>2</sub>	441.13
NO <sub>x</sub>	72.27
VOC	64.56
CO	174.66
Total HAPs <sup>(2)</sup>	81.61
Maximum (Worst Case) HAP	77.64 (hydrogen chloride)

*\*Appendix A of this TSD reflects the unrestricted, uncontrolled, potential emissions of the source.*

- (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, hexane, hydrogen chloride, methyl chloroform, naphthalene, toluene, xylene, arsenic, cadmium, chromium, lead, manganese, mercury, and nickel compounds.
- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM<sub>10</sub>, SO<sub>2</sub>, and CO is equal to or greater than one hundred (100) tons per year each, therefore, the source is subject to the provisions of 326 IAC 2-7. However, the source has agreed to continue to limit its PM<sub>10</sub>, SO<sub>2</sub>, and CO emissions to less than Title V levels, consequently the source will be issued a FESOP.
  - (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of NO<sub>x</sub> and VOC are each less than one hundred (100) tons per year.
  - (c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP (Hydrogen Chloride) is equal to or greater than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is equal to or greater than twenty-five (25) tons per year, therefore, the source is subject to the provisions of 326 IAC 2-7. However, the source has agreed to continue to limit their single HAP emissions and total HAP emissions below Title V limits. Consequently, the source will be issued a FESOP.

**Potential to Emit After Issuance**

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

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Process/Emission Unit	Potential To Emit of the Entire Source After Issuance of FESOP (tons/year)							
	PM	PM <sub>10</sub> *	SO <sub>2</sub>	NO <sub>x</sub>	VOC	CO	Total HAPs	Maximum (Worst Case) HAP
<b>Ducted Emissions</b>								
Fuel Combustion <sup>(1)</sup> (maximum (worst case))	15.60	12.43	99.00	40.52	2.23	34.03	11.08	9.90 (hydrogen chloride)
Dryer/Mixer <sup>(1)</sup>	112.50	37.50	43.50	41.25	24.00	97.50	7.99	2.33 (formaldehyde)
<b>Maximum (Worst Case) Emissions</b>	<b>112.50</b>	<b>37.50</b>	<b>99.00</b>	<b>41.25</b>	<b>24.00</b>	<b>97.50</b>	<b>11.08</b>	<b>9.90 (hydrogen chloride)</b>
<b>Fugitive Emissions</b>								
Asphalt Load-Out, Silo Filling, On-Site Yard <sup>(1)</sup>	0.83	0.83	0	0	12.85	2.16	0.21	0.07 (formaldehyde)
Hot Oil System	0	0	0	0	1.2E-03	0.06	1.3E-03	8.0E-04 (naphthalene)
Material Storage Piles	2.38	0.83	0	0	0	0	0	0
Material Processing and Handling <sup>(1)</sup>	4.85	2.29	0	0	0	0	0	0
Material Screening, and Conveying <sup>(1)</sup>	19.95	6.98	0	0	0	0	0	0
Paved and Unpaved Roads <sup>(1)</sup> (maximum (worst case))	88.76	22.62	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>116.76</b>	<b>33.56</b>	<b>0</b>	<b>0</b>	<b>12.85</b>	<b>2.22</b>	<b>0.22</b>	<b>0.07 (formaldehyde)</b>
<b>Total Limited/Controlled Emissions</b>								
	<b>229.26</b>	<b>71.06</b>	<b>99.00</b>	<b>41.25</b>	<b>36.85</b>	<b>99.72</b>	<b>11.30</b>	<b>9.90 (hydrogen chloride)</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
<p>(1) PTE after Production Limitation.  negl. = negligible</p> <p>* 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.</p> <p>** 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.</p>								

(a) FESOP Status

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

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

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

- (A) The total usage of refinery blend fuel oil and refinery blend fuel oil equivalents for the dryer/mixer burner and all other fuel combustion equipment shall continue to be limited to less than 1,320,000 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 two hundred fifty (250) million cubic feet of natural gas shall be equivalent to one thousand (1000) gallons of refinery blend fuel oil. However, the natural gas usage shall in no case exceed 810.3 million cubic feet per twelve (12) consecutive month period.
- (ii) Every two and eleven hundredths (2.11) gallons of No. 2 fuel oil shall be equivalent to one (1) gallon of refinery blend fuel oil. However, the No. 2 fuel oil usage shall in no case exceed 2,530,000 gallons per twelve (12) consecutive month period.
- (iii) Every one and two hundredths (1.02) gallons of waste oil shall be equivalent to one (1) gallon of refinery blend fuel oil. However, the waste oil usage shall in no case exceed 750,000 gallons per twelve (12) consecutive month period.
- (B) The sulfur content of the No. 2 fuel oil shall not exceed five tenths percent (0.5%) by weight.
- (C) The sulfur content of the refinery blend fuel oil and waste oil, each, shall not exceed one percent (1.0%) by weight.

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

See Appendix A for the detailed calculations.

- (2) 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 continue to be limited to less than 1,500,000 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 continue to be limited to less than five hundredths (0.05) pounds of PM<sub>10</sub> per ton of asphalt produced.
- (C) CO emissions from the dryer/mixer shall continue to be limited to less than thirteen hundredths (0.13) pounds of CO per ton of asphalt produced.

Compliance with these limits, combined with the potential PM<sub>10</sub>, and CO emissions from all other emission units at this source, will continue to limit the source-wide potential PM<sub>10</sub> and CO emissions, each, to less than one hundred (100) tons per twelve (12) consecutive month period, and render 326 IAC 2-7 (Part 70 Permit Program) and 326 IAC 2-2 (PSD) not applicable.

See Appendix A for the detailed calculations.

- (3) Pursuant to 326 IAC 2-8-4, the following additional limits shall apply to the source:
- (A) The usage of waste oil used in the dryer/mixer burner and all other fuel combustion equipment shall continue to be limited to less than 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
  - (B) The chlorine content of the waste oil used in the dryer/mixer burner and all other fuel combustion equipment shall not exceed four tenths percent (0.40%) by weight.
  - (C) The HCl emissions from the dryer/mixer burner shall continue to be limited to less than twenty-six and four tenths (26.4) pounds of HCl per one thousand (1000) gallons of waste oil burned.

Compliance with these limits, combined with the potential HAP emissions from all other emission units at this source, will continue to limit the source-wide potential HCl emissions to less than ten (10) tons per year and combined HAPs to less than twenty-five (25) tons per year and render 326 IAC 2-7 (Part 70) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

See Appendix A for the detailed calculations.

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

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

- (1) The asphalt production rate shall continue to be limited to less than 1,500,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (2) PM emissions from the dryer/mixer shall continue to be limited to less than fifteen hundredths (0.15) pounds of PM per ton of asphalt produced.

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

See Appendix A for detailed calculations.

### **Federal Rule Applicability**

The following federal rules are applicable to the source:

#### New Source Performance Standards (NSPS)

- (a) 40 CFR 60, Subpart I - Standards for Hot Mix Asphalt Facilities  
Pursuant to 40 CFR 60.90, affected facilities include each hot mix asphalt facility (as described in §60.91) constructed or modified after June 11, 1973. This existing stationary drum hot-mix asphalt plant, constructed in 2003, meets the definition of a hot-mix asphalt facility pursuant to the rule. Therefore, this existing stationary drum hot-mix

asphalt plant is subject to the New Source Performance Standard for Hot Mix Asphalt Facilities, 40 CFR 60, Subpart I (326 IAC 12), and the applicable requirements are included in the renewal for this facility.

This rule limits particulate matter emissions to four hundredths (0.04) grains per dry standard cubic foot (gr/dscf) and also limits visible emissions to twenty percent (20%) opacity.

The source will continue to comply with this rule by using the baghouse and knockout box to limit particulate matter emissions from the dryer/mixer to less than four hundredths (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) 40 CFR 60, Subpart UU - Standards for Asphalt Processing and Asphalt Roofing Manufacture

Pursuant to 40 CFR 60.471, affected facilities include each saturator and each mineral handling and storage facility at asphalt roofing plants; and each asphalt storage tank and each blowing still at asphalt processing plants, petroleum refineries, and asphalt roofing plants. 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 §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. Therefore, the New Source Performance Standards for Asphalt Processing and Asphalt Roofing Manufacture, 40 CFR 60, Subpart UU (326 IAC 12), still do not apply to the stationary drum hot-mix asphalt plant and the requirements are not included in this renewal.

(c) 40 CFR 60, Subpart OOO - Standards for Nonmetallic Mineral Processing Plants

Pursuant to 40 CFR 60.670(a)(1), affected facilities include crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin. However, pursuant to §60.670(a)(2) stand-alone screening operations at plants without crushers or grinding mills are exempt. The source does not perform onsite crushing of Recycled Asphalt Pavement (RAP) and only receives pre-crushed/pre-sized RAP materials, therefore, the New Source Performance Standards for Nonmetallic Mineral Processing Plants, 40 CFR 60, Subpart OOO (326 IAC 12), still do not apply to this source, and the requirements are not included in the in this renewal.

(d) 40 CFR 60, Subpart UUU - Standards for Calciners and Dryers in Mineral Industries

Pursuant to 40 CFR 60.730(a), affected facilities include calciners and dryers at mineral processing plants. Pursuant to §60.731, a mineral processing plant includes any facility that processes or produces any of the following minerals, their concentrates or any

mixture of which the majority ( less than (>) fifty percent (50%)) 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. The source does not process or produce any of the listed minerals or any combination of those minerals. Therefore, the New Source Performance Standards for Calciners and Dryers in Mineral Industries, 40 CFR 60, Subpart UUU (326 IAC 12), still do not apply to this source, and the requirements are not included in the in this renewal.

- (e) 40 CFR Part 60.110, Subpart K - Standards for Volatile Organic Liquid Storage Vessels  
Pursuant to 40 CFR 60.110(c), affected facilities include each storage vessel, used to store petroleum liquids for which construction or modification is commenced after March 8, 1974, and prior to May 19, 1978, with a storage capacity greater than 151, 416 liters (40,000 gallons), but not exceeding 246,052 liters (65,000 gallons).
- (1) The three (3) existing liquid asphalt storage tanks, identified as 11A, 11B, and 11C, were each constructed after July 23, 1984, and each has a maximum capacity less than 151, 416 liters (40,000 gallons). Therefore, the New Source Performance Standards for Volatile Organic Liquid Storage Vessels, 40 CFR Part 60.110, Subpart K (326 IAC 12), still do not apply to these facilities, and the requirements are not included in the in this renewal.
  - (2) The two (2) existing petroleum liquids storage tanks, TA33, for waste oil and TA34, for off-road diesel, were each constructed after July 23, 1984, and each have a maximum capacity less than 151, 416 liters (40,000 gallons). Therefore, the New Source Performance Standards for Volatile Organic Liquid Storage Vessels, 40 CFR Part 60.110, Subpart K (326 IAC 12), still do not apply to these facilities, and the requirements are not included in the in this renewal for either facility.
- (f) 40 CFR Part 60.110, Subpart Ka - Standards for Volatile Organic Liquid Storage Vessels  
Pursuant to 40 CFR 60.110a, affected facilities include each storage vessel with a storage capacity greater than 151,416 liters (40,000 gallons) and less than 1,589,873 liters (420,000 gallons), used to store petroleum liquids for which construction is commenced after May 18, 1978 and before July 23, 1984.
- (1) The three (3) existing liquid asphalt storage tanks, identified as 11A, 11B, and 11C, were each constructed after July 23, 1984, and each has a maximum capacity less than 151, 416 liters (40,000 gallons). Therefore, the New Source Performance Standards for Volatile Organic Liquid Storage Vessels, 40 CFR Part 60.110, Subpart Ka (326 IAC 12), still do not apply to these facilities, and the requirements are not included in the in this renewal.
  - (2) The two (2) existing petroleum liquids storage tanks, TA33, for waste oil and TA34, for off-road diesel, were each constructed after July 23, 1984, and each have a maximum capacity less than 151, 416 liters (40,000 gallons). Therefore, the New Source Performance Standards for Volatile Organic Liquid Storage Vessels, 40 CFR Part 60.110, Subpart Ka (326 IAC 12), still do not apply to these facilities, and the requirements are not included in the in this renewal for either facility.
- (g) 40 CFR Part 60.110, Subpart Kb - Standards for Volatile Organic Liquid Storage Vessels  
Pursuant to 40 CFR 60.110b(b), updated in 65 FR 59332 on October 15, 2003, affected facilities include each storage vessel, used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984, with a storage capacity greater than or equal to seventy-five cubic meters (75 m<sup>3</sup>)(19,813

gallons) but less than one hundred fifty-one cubic meters ( $151 \text{ m}^3$ )(39,890 gallons), and storing a liquid that has a maximum true vapor pressure of greater than fifteen kiloPascals (15.0 kPa).

- (1) While each of the three (3) existing liquid asphalt storage tanks, identified as 11A, 11B, and 11C, were constructed after July 23, 1984, and have a capacity greater than  $75 \text{ m}^3$  (19,813 gallons) but less than  $151 \text{ m}^3$  (39,890 gallons), the liquid stored in each tank has a maximum true vapor pressure of less than fifteen kiloPascals (15.0 kPa). Therefore, the New Source Performance Standards for Volatile Organic Liquid Storage Vessels, 40 CFR Part 60.110, Subpart Kb (326 IAC 12), no longer apply to this source, and the requirements are not included in the in this renewal.
  - (2) While each of the two (2) existing existing petroleum liquids storage tanks, TA33, for waste oil and TA34, for off-road diesel, were constructed after July 23, 1984, and have a capacity greater than  $75 \text{ m}^3$  (19,813 gallons) but less than  $151 \text{ m}^3$  (39,890 gallons), the liquid stored in each tank has a maximum true vapor pressure of less than fifteen kiloPascals (15.0 kPa). Therefore, the New Source Performance Standards for Volatile Organic Liquid Storage Vessels, 40 CFR Part 60.110, Subpart Kb (326 IAC 12), no longer apply to this source, and the requirements are not included in the in this renewal.
- (h) 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)

- (i) 40 CFR 63, Subpart LLLLL - NESHAPs for Asphalt Processing and Asphalt Roofing Manufacturing  
Pursuant to 40 CFR 63.861, affected facilities include any asphalt processing facility or asphalt roofing manufacturing facility, as defined in §63.8698, that is a major source of hazardous air pollutants (HAP) emissions, or is located at, or is part of a major source of HAP emissions. The stationary drum hot-mix asphalt plant is not an asphalt processing plant or an asphalt roofing manufacturing facility because it does not engage in the preparation of asphalt flux or asphalt roofing materials. Additionally, it is not a major source of HAPs, and is not located at nor is it a part of a major source of HAP emissions. Therefore, the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart LLLLL (326 IAC 20-71), still do not apply to this source, and the requirements are not included in the in this renewal.
- (j) 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 this renewal.

#### Compliance Assurance Monitoring (CAM)

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

#### **State Rule Applicability**

- (a) 326 IAC 2-8-4 (FESOP)  
FESOP applicability is discussed in the "PTE of the Entire Source after Issuance" section above.

- (b) 326 IAC 2-2 (Prevention of Significant Deterioration(PSD))  
PSD applicability is discussed in the "PTE of the Entire Source after Issuance" section above.
- (c) 326 IAC 1-7 (Stack Height)  
Pursuant to 326 IAC 1-7-1, this rule applies to all sources having exhaust gas stacks through which a potential (before limitations/controls) of twenty-five (25) tons per year or more of particulate matter and/or sulfur dioxide are emitted. The unlimited and uncontrolled PM<sub>10</sub> and SO<sub>2</sub> emissions, each, are greater than one hundred (100) tons per year. Therefore, this source continues to be subject to this rule and requirements are included in Section C, of this renewal.
- (e) 326 IAC 2-3 Emission Offset  
Pursuant to 326 IAC 2-3-2(a), this rule applies to new major stationary sources or major modifications constructed in an area designated, as of the date of submittal of a complete application, as nonattainment in 326 IAC 1-4, for a pollutant for which the stationary source or modification is major. St. Joseph County has been designated as attainment for the eight (8)-hour ozone standard. This source is not considered a major source because the potential emissions for all criteria pollutants are less than the Title V Thresholds. Therefore, the requirements of 326 IAC 2-3 (Emission Offset) still do not apply to this source, and the requirements are not included in the in this renewal.
- (e) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))  
Pursuant to 326 IAC 2-4.1-1, this rule applies to any owner or operator who constructs or reconstructs a major source of hazardous air pollutants (HAP), as defined in 40 CFR 63.41\*, after July 27, 1997. The unlimited potential HAPs emissions from the existing 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 has agreed to continue to limit the potential HAPs emissions 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 requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) still do not apply, see "PTE of the Entire Source after Issuance" section above, and the requirements are not included in the in this renewal.
- (f) 326 IAC 2-6 (Emission Reporting)  
Pursuant to 326 IAC 2-6-1, updated Feb 26, 2004, 3:45 p.m.: 27 IR 2210, this existing source is no longer 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 five (5) tons per year. Therefore, pursuant to 326 IAC 2-6-1(b), the source is still only subject to additional information requests as provided in 326 IAC 2-6-5.
- (g) 326 IAC 5-1 (Opacity Limitations)  
Pursuant to 326 IAC 5-1-1, this rule applies to opacity, not including condensed water vapor, emitted by or from a facility or source, located anywhere in the state. Section 2(2) of this rule applies to sources or facilities located in located in nonattainment areas for particulate matter as designated by the board. This existing source is located north of Kern Rd and east of Pine Rd in St. Joseph County. Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall continue to meet the following, unless otherwise stated in this permit:
- (1) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
  - (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

- (h) 326 IAC 6-1 (County Specific Particulate Matter Limitations)  
This rule was repealed Sept 1, 2005 by the Air Pollution Control Board; filed Aug 10, 2005, 1:00 p.m.: 28 IR 3550, and replaced by 326 IAC 6.5, Particulate Matter Limitations except Lake County. Therefore the requirements of 326 IAC 6-1-18, St. Joseph County Particulate Matter Limitations are not included in this renewal.
- (i) 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)  
Pursuant to 326 IAC 6-3-1(c)(5), this rule establishes emission limitations for particulate emissions from manufacturing processes located anywhere in the state, except where a particulate matter limitation established in 326 IAC 12, concerning new source performance standards, is more stringent than the particulate limitation established in this rule. The existing drum dryer/mixer is subject to 40 CFR 60, Subpart I (Standards of Performance for Hot Mix Asphalt Facilities), incorporated by reference through 326 IAC 12. Therefore, pursuant to 326 IAC 6-3-1(c)(5), the existing dryer/mixer is still not subject to the requirements of 326 IAC 6-3 because it is subject to the more stringent particulate limit established in 326 IAC 12.
- (j) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)  
Pursuant to 326 IAC 6-4-1, this rule applies to all sources of fugitive dust; i.e., the generation of particulate matter to the extent that some portion of the material escapes beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located. 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; therefore, this existing source continues to be subject to the requirements of 326 IAC 6-4. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the existing 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.
- (k) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)  
Pursuant to 326 IAC 6-5-1, this rule applies to all sources of fugitive particulate matter emissions located in nonattainment areas for particulate matter as designated by the board (except for such a source located in Lake County), which have potential fugitive particulate matter emissions of twenty-five (25) tons per year or more. This existing source is located north of Kern Rd and east of Pine Rd in St. Joseph County. 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 twenty-five (25) tons per year, therefore, this existing source continues to be subject to the requirements of 326 IAC 6-5. Pursuant to 326 IAC 6-5, fugitive particulate matter emissions shall continue to be controlled according to the Fugitive Dust Control Plan, submitted on June 16, 2003, which is included as Attachment A to the permit.
- (l) 326 IAC 6.5 (Particulate Matter Limitations Except Lake County)  
Pursuant to 326 IAC 6.5-1, sources or facilities located in the counties of Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo, or Wayne, not specifically listed in 326 IAC 6.5-2 through 326 IAC 6.5-10 or superseded by limitations established in 326 IAC 12, and with a potential to emit one hundred (100) tons or more; or actual emissions of ten (10) tons or more of particulate matter per year, shall comply with the limitations in section 2 of this rule.

Therefore, pursuant to 326 IAC 6.5-1-2(a), the particulate matter emissions from the dryer/mixer, shall continue to be limited to three hundredths (three hundredths (0.03)) gr/dscf.

This limitation is more stringent than the additional applicable requirement of four hundredths (0.04) grains per dry standard cubic foot pursuant to 326 IAC 12 (New Source Performance Standards) and 40 CFR 60.90 (Subpart I - Standards of Performance for Hot Mix Asphalt Facilities). Therefore, compliance with 326 IAC 6.5-1-2(a) will be able to satisfy the grain loading limit of four hundredths (0.04) gr/dscf specified in 326 IAC 12 and 40 CFR 60.90 to 60.93,

Subpart I. This existing source will continue to comply with this rule by using a baghouse to limit particulate matter emissions to less than three hundredths (0.03) gr/dscf.

- (m) 326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)  
Pursuant to 326 IAC 7-1.1-1, this rule applies to all emissions units with a potential to emit twenty-five (25) tons per year or ten (10) pounds per hour of sulfur dioxide.
- (1) The existing dryer/mixer burner has potential SO<sub>2</sub> emissions of greater than twenty-five (25) tons per year (limited potential emissions are ninety-nine (99.00) tons per year). Therefore, the SO<sub>2</sub> emissions from the existing dryer/mixer burner shall continue to be limited to five-tenths (0.5) pounds per million British thermal units (mmBtu) for distillate oil combustion (No. 2 fuel oil) and one and six tenths (1.6) pounds per mmBtu heat input for residual oil (including refinery blend fuel oil and waste oil) combustion. This equates to maximum allowable sulfur content of five tenths percent (0.5%) by weight for the distillate fuel oil and one percent (1.0%) by weight for the residual oils.
- (2) The existing hot oil heater has potential SO<sub>2</sub> emissions of less than twenty-five (25) tons per year and continues to not be subject to the requirements of 326 IAC 7-1.1. Therefore, the requirements of this rule are not included in the renewal for this facility.
- (n) 326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements)  
Pursuant to this rule, this existing source shall continue to 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.
- (o) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)  
Pursuant to 326 IAC 8-1-6 new facilities are subject only if they have potential emissions of twenty-five (25) tons of VOC or more per year, or are not otherwise regulated by other provisions of Article 8.
- (1) The unlimited potential VOC emissions from the existing dryer/mixer are greater than twenty-five (25) tons per year. However, the source shall continue to limit the VOC emissions from the existing dryer/mixer to less than twenty-five (25) tons per year, therefore, rendering the requirements of 326 IAC 8-1-6 not applicable.

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

- (A) The asphalt production rate shall continue to be limited to less than 1,500,000 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (B) VOC emissions from the dryer/mixer shall continue to be limited to less than thirty-two thousandths (0.032) pound of VOC per ton of asphalt produced.

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

- (2) The unlimited potential VOC emissions from each of the three (3) existing liquid asphalt storage tanks, identified as 11A, 11B, and 11C, are less than twenty-five (25) tons per year, therefore, the requirements of 326 IAC 8-1-6 still do not apply and are not included in the in this renewal for the three (3) existing liquid asphalt storage tanks.
- (3) There are no other 326 IAC 8 Rules that are applicable to the stationary drum hot-mix asphalt plant.

See Appendix A for the detailed calculations.

- (p) 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), petroleum liquid storage vessels with capacities greater than 150,000 liters (39,000 gallons) containing VOC whose true vapor pressure is greater than ten and five tenths (10.5) kPa (one and fifty-two hundredths (1.52) pounds per square inch (psi)) shall comply with the requirements for external fixed and floating roof tanks and the specified record keeping and reporting requirements.
- (a) Tanks 11A, 11B and 11C each have maximum capacities less than 39,000 gallons. Therefore, the requirements of this rule are still not applicable to these facilities and are not included in this permit.
- (b) Tanks TA33, for waste oil and TA34, for off-road diesel, each have maximum capacities less than 39,000 gallons. Therefore, the requirements of this rule are still not applicable to these facilities and are not included in this permit.
- (q) 326 IAC 8-5-2 (Asphalt paving rules)  
Pursuant to 326 IAC 8-5-1, this rule applies to sources or facilities, construction of which commenced after January 1, 1980, that produce cutback or emulsified asphalt or apply paving to a road surface anywhere in the state. This existing source no longer has the capacity to produce cutback or emulsified asphalt, and does not perform paving operations. Therefore, the stationary drum hot mix asphalt plant is still not subject to this rule and the requirements are not included in this renewal.
- (r) 326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)  
Pursuant to 326 IAC 8-9-1, this rule applies to stationary vessels used to store volatile organic liquid (VOL) that are located in Clark, Floyd, Lake, or Porter County. The source is located in St. Joseph County, therefore, the three (3) existing liquid asphalt storage tanks, identified as 11A, 11B and 11C, are each still not subject to this rule and the requirements are not included in this renewal.
- (s) 326 IAC 10-3 (Nitrogen Oxide Reduction Program for Specific Source Category)  
Pursuant to 326 IAC 10-3-1, this rule applies to affected facilities, including Portland cement kilns, specifically listed boilers and blast furnace gas boilers with a heat input greater than two hundred fifty million (250,000,000) British thermal units per hour (mmBtu), unless otherwise regulated by a more stringent New Source Performance Standard (NSPS), National Emission Standard for Hazardous Air Pollutants (NESHAP), or emission limit established under 326 IAC 2. The existing ninety-two and one half (92.5) mmBtu burner does not meet the definition of an affected facility; therefore, it is still not subject to this rule and the requirements are not included in this renewal.
- (t) 326 IAC 12-1 (New Source Performance Standards)  
Pursuant to 326 IAC 12-1-1, this article applies to the owner or operator of any stationary source, anywhere in the state, and incorporates by reference 40 CFR 60 New Source Performance Standards. If the emission limitations contained in this article conflict with or are inconsistent with any other emission limitations established by this title, then the more stringent limitation shall apply.
- (1) The existing 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.
- (2) There are no other New Source Performance Standards (NSPS)(40 CFR Part 60) included in the renewal for this source.

- (u) 326 IAC 20 (Hazardous Air Pollutants)  
 Pursuant to 326 IAC 20-1-1, this article applies to any source, or facility anywhere in the state, for which a standard is prescribed under this article unless otherwise specified in individual standards, and incorporates by reference National Emissions Standards for Hazardous Air Pollutants 40 CFR 63 Subpart A\* General Provisions. If the emission limitations contained in this article conflict with or are inconsistent with any other emission limitations established by this title, then the more stringent limitation shall apply.
- (1) 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 renewal for this source. See Federal Rule Applicability Section of this TSD.

**Compliance Determination and Monitoring Requirements**

The compliance determination requirements applicable to this renewal are as follows:

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

Emission Unit	Control Device	Pollutant	Frequency of Testing	Projected Future Testing Date*	Limit or Requirement
Dryer/Mixer	Baghouse with knockout box	PM/ PM <sub>10</sub>	Once every 5 years	09/24/2009	0.15 lb PM/ton of asphalt; and 0.05 lb PM <sub>10</sub> /ton of asphalt

\* The last stack test occurred on September 24, 2004. The source was in compliance at that time.

- (b) Fuel characteristics (i.e., sulfur and chlorine content) and usage rate will be used to verify compliance.

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

- (a) The existing 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 & Exceedances
Conveyors, screens, material transfer points, dryer/mixer and baghouse stack (SV1) exhaust	Visible Emissions	Daily	Normal-Abnormal	Response Steps
Baghouse for the dryer/mixer	Water Pressure Drop	Daily	2.0 to 10.0 inches	Response Steps

- (1) Calendar quarter inspections of the bags in the baghouse, the knockout box, and the once per shift baghouse inlet temperature reading requirements have not been included in the renewal for this source. IDEM has determined that it is the Permittee's responsibility to include routine control device inspection requirements in the applicable preventive maintenance plan. Since the Permittee is in the best position to determine the appropriate frequency of control device inspections and the details regarding which components of the control device should be

inspected, the conditions requiring control device inspections have been removed from the permit. In addition, the requirement to keep records of the inspections has been removed. Daily pressure drop and visible emissions inspections are deemed sufficient to ensure compliance with the FESOP PM and PM<sub>10</sub> limitations.

## **Air Quality Impacts from Minor Sources**

### **Modeling Overview**

Pursuant to 326 IAC 2-1.1-5, IDEM, OAQ, has conducted a modeling analysis of the Controlled and/or Limited Potential to Emit (PTE) for the criteria pollutants, including particulate matter to a diameter of ten (10) microns (PM<sub>10</sub>), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and lead (Pb), from this existing source to estimate whether the Controlled and/or Limited PTE for the criteria pollutants will cause or contribute to a violation of any National Ambient Air Quality Standard (NAAQS).

Preliminary and refined dispersion modeling was performed using SCREEN3 and AERMOD, U.S. EPA approved models, as listed in 40 CFR Part 51, Subpart Z, Appendix W "Guideline on Air Quality Models", and "worst case" data provided by the source.

### **Modeling Results**

The SCREEN3 modeling results indicated that the Controlled and/or Limited PTE for criteria pollutants (PM<sub>10</sub>, NO<sub>x</sub>, CO, and Pb) from this source will not exceed the National Ambient Air Quality Standards (NAAQS). However, the SCREEN3 modeling results indicated a need to perform more refined modeling for SO<sub>2</sub>.

As a result, more refined SO<sub>2</sub> modeling was performed using AERMOD. The results of SO<sub>2</sub> refined modeling showed that there is no location beyond the facility boundary with SO<sub>2</sub> concentrations greater than the NAAQS limits.

Therefore, as demonstrated in TSD Appendix B, the modeling results indicate that the Controlled and/or Limited PTE for all of the criteria pollutants from this source will not cause or contribute to a violation of any National Ambient Air Quality Standard (NAAQS).

## **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 permit renewal was received on December 19, 2007.

The construction and operation of this source shall be subject to the conditions of the attached FESOP Renewal No. 141-25742-00549. The staff recommends to the Commissioner that this FESOP Renewal be approved.

## **IDEM Contact**

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.

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).

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 Unlimited Potential Emissions Summary

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

#### Asphalt Plant Maximum Capacity

Maximum Hourly Asphalt Production =	300	ton/hr			
Maximum Annual Asphalt Production =	2,628,000	ton/yr			
Maximum Fuel Input Rate =	94	MMBtu/hr			
Equivalent Natural Gas Usage =	823	MMCF/yr			
Equivalent No. 2 Fuel Oil Usage =	5,881,714	gal/yr, and	0.50	% sulfur	
Equivalent Refinery Blend Fuel Oil Usage =	5,881,714	gal/yr, and	1.00	% sulfur	
Equivalent Waste Oil Usage =	5,881,714	gal/yr, and	1.00	% sulfur	0.65
					0.400
					0.010

#### 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	Maximum (Worst Case) HAP
<b>Ducted Emissions</b>								
Fuel Combustion (worst case)	122.34	97.49	441.13	58.82	2.94	14.70	81.24	77.64 (hydrogen chloride)
Dryer/Mixer	36,792.00	8,541.00	76.21	72.27	42.05	170.82	14.01	4.07 (formaldehyde)
<b>Maximum (Worst Case) Emissions</b>	<b>36,792.00</b>	<b>8,541.00</b>	<b>441.13</b>	<b>72.27</b>	<b>42.05</b>	<b>170.82</b>	<b>81.24</b>	<b>77.64</b> (hydrogen chloride)
<b>Fugitive Emissions</b>								
Asphalt Load-Out, Silo Filling, On-Site Yard	1.46	1.46	0	0	22.51	3.79	0.38	0.12 (formaldehyde)
Hot Oil System	0	0	0	0	1.2E-03	0.06	1.3E-03	8.0E-04 (naphthalene)
Material Storage Piles	2.38	0.83	0	0	0	0	0	0
Material Processing and Handling	8.49	4.02	0	0	0	0	0	0
Material Screening, and Conveying	34.95	12.23	0	0	0	0	0	0
Paved and Unpaved Roads (worst case)	155.53	39.64	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>202.81</b>	<b>58.18</b>	<b>0</b>	<b>0</b>	<b>22.51</b>	<b>3.84</b>	<b>0.38</b>	<b>0.12</b> (formaldehyde)
<b>Totals Unlimited/Uncontrolled PTE</b>	<b>36,994.81</b>	<b>8,599.18</b>	<b>441.13</b>	<b>72.27</b>	<b>64.56</b>	<b>174.66</b>	<b>81.61</b>	<b>77.64</b> (hydrogen chloride)

negl = negligible

**Appendix A: Emissions Calculations**  
**Unlimited Potential Emissions**  
**Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

The following calculations determine the Unlimited/Uncontrolled emissions created from the combustion of natural gas, #2 fuel oil, refinery blend fuel oil, or used/waste oil in the dryer/mixer and all other fuel combustion sources at the source.

**Maximum Capacity**

Maximum Annual Asphalt Production =	2,628,000	ton/yr							
Maximum Fuel Input Rate =	94	MMBtu/hr							
	823								
Equivalent No. 2 Fuel Oil Usage =	5,881,714	gal/yr, and	0.50	% sulfur					
Equivalent Refinery Blend Fuel Oil Limitation =	5,881,714	gal/yr, and	1.00	% sulfur					
Equivalent Waste Oil Usage =	5,881,714	gal/yr, and	1.00	% sulfur	0.65	% ash	0.40	% chlorine,	0.010 % lead

**Unlimited/Uncontrolled Emissions**

Criteria Pollutant	Emission Factor (units)				Unlimited/Uncontrolled Potential to Emit				Maximum (Worse Case) Fuel (tons/yr)
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Refinery Blend Fuel Oil * (lb/kgal)	Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	Refinery Blend Fuel Oil (tons/yr)	Waste Oil (tons/yr)	
PM	1.9	2.0	7	41.6	0.78	5.88	20.59	122.34	122.34
PM10	7.6	3.3	8.3	33.2	3.13	9.70	24.41	97.49	97.49
SO2	0.6	71.0	150.0	147.0	0.25	208.80	441.13	432.31	441.13
NOx	100	20.0	20.0	19.0	41.17	58.82	58.82	55.88	58.82
VOC	5.5	0.20	0.20	1.0	2.26	0.59	0.59	2.94	2.94
CO	84	5.0	5.0	5.0	34.58	14.70	14.70	14.70	14.70
<b>Hazardous Air Pollutant</b>									
HCl	0	0	0	26.4	0	0	0	77.64	77.64
Antimony	0	0	5.25E-03	negl	0	0	1.54E-02	negl	0.02
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.1E-01	8.2E-05	1.65E-03	3.88E-03	3.23E-01	0.32
Beryllium	1.2E-05	4.2E-04	2.78E-05	negl	4.9E-06	1.24E-03	8.18E-05	negl	1.2E-03
Cadmium	1.1E-03	4.2E-04	3.98E-04	9.3E-03	4.5E-04	1.24E-03	1.17E-03	2.73E-02	0.03
Chromium	1.4E-03	4.2E-04	8.45E-04	2.0E-02	5.8E-04	1.24E-03	2.49E-03	5.88E-02	0.06
Cobalt	8.4E-05	0	6.02E-03	2.1E-04	3.5E-05	0	1.77E-02	6.18E-04	0.02
Lead	5.0E-04	1.3E-03	1.51E-03	0.55	2.1E-04	3.71E-03	4.44E-03	1.6E+00	1.62
Manganese	3.8E-04	8.4E-04	3.00E-03	6.8E-02	1.6E-04	2.47E-03	8.82E-03	2.00E-01	0.20
Mercury	2.6E-04	4.2E-04	1.13E-04	0	1.1E-04	1.24E-03	3.32E-04	0	1.2E-03
Nickel	2.1E-03	4.2E-04	8.45E-02	1.1E-02	8.6E-04	1.24E-03	2.49E-01	3.23E-02	0.25
Selenium	2.4E-05	2.1E-03	6.83E-04	negl	9.9E-06	6.18E-03	2.01E-03	negl	6.2E-03
1,1,1-Trichloroethane	0	0	2.36E-04	0	0	0	6.94E-04	0	6.9E-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	0	8.6E-04	0	6.29E-04	0	8.6E-04
Bis(2-ethylhexyl)phthalate	0	0	0	2.2E-03	0	0	0	6.47E-03	0.01
Dichlorobenzene	1.2E-03	0	0	8.0E-07	4.9E-04	0	0	2.35E-06	4.9E-04
Ethylbenzene	0	0	6.36E-05	0	0	0	1.87E-04	0	1.9E-04
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	0	3.1E-02	1.79E-01	9.70E-02	0	0.18
Hexane	1.8E+00	0	0	0	7.4E-01	0	0	0	0.74
Phenol	0	0	0	2.4E-03	0	0	0	7.06E-03	0.01
Toluene	3.4E-03	0	6.20E-03	0	1.4E-03	0	1.82E-02	0	0.02
Total PAH Haps	negl	0	1.13E-03	3.9E-02	negl	0	3.32E-03	1.15E-01	0.11
Polycyclic Organic Matter	0	3.30E-03	0	0	0	9.70E-03	0	0	0.01
Xylene	0	0	1.09E-04	0	0	0	3.21E-04	0	3.2E-04
<b>Total HAPs</b>					<b>0.78</b>	<b>0.21</b>	<b>0.43</b>	<b>80.03</b>	<b>81.24</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**

Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 MMCF/1,000 MMBtu]  
 Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 gal/0.140 MMBtu]  
 Equivalent Propane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 gal/0.0905 MMBtu]  
 Equivalent Butane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 gal/0.0974 MMBtu]  
 Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] \* [Emission Factor (lb/MMCF)] \* [ton/2000 lbs]  
 All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] \* [Emission Factor (lb/kgal)] \* [kgal/1000 gal] \* [ton/2000 lbs]  
 Sources of AP-42 Emission Factors for fuel combustion:

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4  
 No. 2, No. 6, and Residual 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  
 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

**Notes**

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

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

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

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

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

Criteria Pollutant	Uncontrolled Emission Factors (lb/ton)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			Maximum (Worse Case) PTE
	Drum-Mix Plant (dryer/mixer)			Drum-Mix Plant (dryer/mixer)			
	Natural Gas	No. 2 Fuel Oil	Refinery Blend * or Waste Oil	Natural Gas	No. 2 Fuel Oil	Refinery Blend * or Waste Oil	
PM	28	28	28	36,792	36,792	36,792	<b>36,792</b>
PM10	6.5	6.5	6.5	8,541	8,541	8,541	<b>8,541</b>
SO2	0.0034	0.011	0.058	4.5	14.5	76.2	<b>76.2</b>
NOx	0.026	0.055	0.055	34.2	72.3	72.3	<b>72.3</b>
VOC	0.032	0.032	0.032	42.0	42.0	42.0	<b>42.0</b>
CO	0.13	0.13	0.13	170.8	170.8	170.8	<b>170.8</b>
<b>Hazardous Air Pollutant</b>							
HCl	0	0	2.10E-04	0	0	2.76E-01	<b>0.28</b>
Antimony	1.80E-07	1.80E-07	1.80E-07	2.37E-04	2.37E-04	2.37E-04	<b>2.37E-04</b>
Arsenic	5.60E-07	5.60E-07	5.60E-07	7.36E-04	7.36E-04	7.36E-04	<b>7.36E-04</b>
Beryllium	negl	negl	negl	negl	negl	negl	<b>0</b>
Cadmium	4.10E-07	4.10E-07	4.10E-07	5.39E-04	5.39E-04	5.39E-04	<b>5.39E-04</b>
Chromium	5.50E-06	5.50E-06	5.50E-06	7.23E-03	7.23E-03	7.23E-03	<b>7.23E-03</b>
Cobalt	2.60E-08	2.60E-08	2.60E-08	3.42E-05	3.42E-05	3.42E-05	<b>3.42E-05</b>
Lead	6.20E-07	1.50E-05	1.50E-05	8.15E-04	1.97E-02	1.97E-02	<b>0.02</b>
Manganese	7.70E-06	7.70E-06	7.70E-06	1.01E-02	1.01E-02	1.01E-02	<b>0.01</b>
Mercury	2.40E-07	2.60E-06	2.60E-06	3.15E-04	3.42E-03	3.42E-03	<b>3.42E-03</b>
Nickel	6.30E-05	6.30E-05	6.30E-05	0.08	0.08	0.08	<b>0.08</b>
Selenium	3.50E-07	3.50E-07	3.50E-07	4.60E-04	4.60E-04	4.60E-04	<b>4.60E-04</b>
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	0.05	0.05	0.05	<b>0.05</b>
Acetaldehyde	0	0	1.30E-03	0	0	1.71	<b>1.71</b>
Acrolein	0	0	2.60E-05	0	0	3.42E-02	<b>0.03</b>
Benzene	3.90E-04	3.90E-04	3.90E-04	0.51	0.51	0.51	<b>0.51</b>
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.32	0.32	0.32	<b>0.32</b>
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	4.07	4.07	4.07	<b>4.07</b>
Hexane	9.20E-04	9.20E-04	9.20E-04	1.21	1.21	1.21	<b>1.21</b>
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.06	0.06	0.06	<b>0.06</b>
MEK	0	0	2.00E-05	0	0	0.03	<b>0.03</b>
Propionaldehyde	0	0	1.30E-04	0	0	0.17	<b>0.17</b>
Quinone	0	0	1.60E-04	0	0	0.21	<b>0.21</b>
Toluene	1.50E-04	2.90E-03	2.90E-03	0.20	3.81	3.81	<b>3.81</b>
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.25	1.16	1.16	<b>1.16</b>
Xylene	2.00E-04	2.00E-04	2.00E-04	0.26	0.26	0.26	<b>0.26</b>
<b>Total HAPs</b>						<b>14.01</b>	
<b>Maximum (Worst) Single HAP</b>						<b>4.07</b>	<b>(formaldehyde)</b>

**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

**Notes**

\*Since there are no specific AP-42 HAP emission factors for combustion of Refinery Blend Fuel Oil, it was assumed that HAP emissions from the use of Refinery Blend Fuel Oil were equal to HAP emissions from the use of waste oil.

## Appendix A: Emissions Calculations Unlimited Potential Fugitive Emissions Load-Out, Silo Filling, and Yard Emissions

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

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

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Maximum Annual Asphalt Production =	2,628,000	tons/yr

Pollutant	Emission Factor (lb/ton asphalt)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			
	Load-Out	Silo Filling	On-Site Yard	Load-Out	Silo Filling	On-Site Yard	Total
Total PM	5.2E-04	5.9E-04	NA	0.69	0.77	NA	1.46
Organic PM	3.4E-04	2.5E-04	NA	0.45	0.33	NA	0.78
TOC	0.004	0.012	0.001	5.46	16.01	1.45	22.9
CO	0.001	0.001	3.5E-04	1.77	1.55	0.46	3.79

<b>PM/HAPs</b>	<b>0.032</b>	<b>0.038</b>	<b>0</b>	<b>0.070</b>
<b>VOC/HAPs</b>	<b>0.081</b>	<b>0.204</b>	<b>0.021</b>	<b>0.306</b>
<b>non-VOC/HAPs</b>	<b>4.2E-04</b>	<b>4.3E-05</b>	<b>1.1E-04</b>	<b>5.8E-04</b>
<b>non-VOC/non-HAPs</b>	<b>0.40</b>	<b>0.23</b>	<b>0.10</b>	<b>0.73</b>

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

**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):

$$\begin{aligned} \text{Total PM/PM10 Ef} &= 0.000181 + 0.00141(-V)e^{(0.0251)(T+460)-20.43} \\ \text{Organic PM Ef} &= 0.00141(-V)e^{(0.0251)(T+460)-20.43} \\ \text{TOC Ef} &= 0.0172(-V)e^{(0.0251)(T+460)-20.43} \\ \text{CO Ef} &= 0.00558(-V)e^{(0.0251)(T+460)-20.43} \end{aligned}$$

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

$$\begin{aligned} \text{PM/PM10 Ef} &= 0.000332 + 0.00105(-V)e^{(0.0251)(T+460)-20.43} \\ \text{Organic PM Ef} &= 0.00105(-V)e^{(0.0251)(T+460)-20.43} \\ \text{TOC Ef} &= 0.0504(-V)e^{(0.0251)(T+460)-20.43} \\ \text{CO Ef} &= 0.00488(-V)e^{(0.0251)(T+460)-20.43} \end{aligned}$$

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

**Note**

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

**Appendix A: Emissions Calculations**  
**Unlimited Potential Fugitive Emissions**  
**Load-Out, Silo Filling, and Yard Emissions (continued)**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 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)	Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)	Load-out	Silo Filling	Onsite Yard	Total
<b>PAH HAPs</b>										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	1.2E-03	1.6E-03	NA	2.7E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	1.3E-04	4.7E-05	NA	1.7E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	3.1E-04	4.3E-04	NA	7.5E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	8.5E-05	1.9E-04	NA	2.7E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	3.4E-05	0	NA	3.4E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	9.9E-06	0	NA	9.9E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	8.5E-06	0	NA	8.5E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	1.0E-05	0	NA	1.0E-05
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	3.5E-05	3.2E-05	NA	6.7E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	4.6E-04	7.0E-04	NA	1.2E-03
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	1.7E-06	0	NA	1.7E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	2.2E-04	5.0E-04	NA	7.2E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	3.4E-03	3.4E-03	NA	6.8E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	2.1E-06	0	NA	2.1E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	1.1E-02	1.8E-02	NA	0.028
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	5.6E-03	6.1E-03	NA	1.2E-02
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	9.9E-05	1.0E-04	NA	2.0E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	3.6E-03	6.0E-03	NA	9.6E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	6.7E-04	1.5E-03	NA	2.1E-03
<b>Total PAH HAPs</b>							<b>0.027</b>	<b>0.038</b>	<b>NA</b>	<b>0.065</b>
<b>Other semi-volatile HAPs</b>										
Phenol		PM/HAP	---	Organic PM	1.18%	0	5.3E-03	0	0	5.3E-03

**Abbreviations**

PM = Particulate Matter

HAP = Hazardous Air Pollutant

POM = Polycyclic Organic Matter

**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

**Notes**

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

**Appendix A: Emissions Calculations**  
**Unlimited Potential Fugitive Emissions**  
**Load-Out, Silo Filling, and Yard Emissions (continued)**

Organic Volatile-Based Compounds (Table 11.1-16)

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
					Load-out and Onsite Yard (% by weight of TOC)	Silo Filling and Asphalt Storage Tank (% by weight of TOC)	Load-out	Silo Filling	Onsite Yard	Total
<b>VOC</b>		VOC	---	TOC	94%	100%	<b>5.14</b>	<b>16.01</b>	<b>1.36</b>	<b>22.51</b>
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	3.6E-01	4.2E-02	9.4E-02	0.491
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	2.5E-03	8.8E-03	6.6E-04	0.012
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	3.9E-02	1.8E-01	1.0E-02	0.225
<b>Total non-VOC/non-HAPS</b>					<b>7.30%</b>	<b>1.40%</b>	<b>0.399</b>	<b>0.224</b>	<b>0.106</b>	<b>0.73</b>
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	2.8E-03	5.1E-03	7.5E-04	8.7E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	5.2E-04	7.8E-04	1.4E-04	1.4E-03
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	2.7E-03	6.2E-03	7.1E-04	9.6E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	7.1E-04	2.6E-03	1.9E-04	3.5E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	1.1E-05	6.4E-04	3.0E-06	6.6E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	8.2E-04	3.7E-03	2.2E-04	4.7E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	6.0E-03	0	1.6E-03	7.6E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	1.5E-02	6.1E-03	4.0E-03	0.025
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	4.8E-03	1.1E-01	1.3E-03	0.117
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	8.2E-03	1.6E-02	2.2E-03	0.026
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	9.8E-05	5.0E-05	2.6E-05	1.7E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	4.3E-05	0	4.3E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	4.0E-04	8.6E-04	1.1E-04	1.4E-03
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	4.2E-04	0	1.1E-04	5.3E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	1.1E-02	9.9E-03	3.0E-03	0.024
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	0	7.1E-05	0	1.9E-05	9.0E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	2.2E-02	3.2E-02	5.9E-03	0.060
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	4.4E-03	9.1E-03	1.2E-03	1.5E-02
<b>Total volatile organic HAPs</b>					<b>1.50%</b>	<b>1.30%</b>	<b>0.082</b>	<b>0.208</b>	<b>0.022</b>	<b>0.312</b>

**Abbreviations**

TOC = Total Organic Compounds

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

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  
Unlimited Potential Fugitive Emissions  
Hot Oil System**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

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

Maximum Fuel Input Rate To Hot Oil Heater = 1.5 MMBtu/hr  
 Equivalent Natural Gas Usage = 13.1 MMCF/yr  
 Equivalent No. 2 Fuel Oil Usage = 93,857 gal/yr, and

Criteria Pollutant	Emission Factors		Unlimited/Uncontrolled Potential to Emit (tons/yr)		Maximum (Worse Case) PTE
	Natural Gas (lb/ft3)	No. 2* Fuel Oil (lb/gal)	Natural Gas	No. 2*, Refinery Blend and Waste Oil	
VOC	2.60E-08	2.65E-05	1.71E-04	0.001	<b>0.001</b>
CO	8.90E-06	0.0012	0.058	0.056	<b>0.058</b>
<b>Hazardous Air Pollutant</b>					
Formaldehyde:	2.60E-08	3.50E-06	1.71E-04	1.64E-04	<b>1.71E-04</b>
Acenaphthene		5.30E-07		2.49E-05	<b>2.49E-05</b>
Acenaphthylene		2.00E-07		9.39E-06	<b>9.39E-06</b>
Anthracene		1.80E-07		8.45E-06	<b>8.45E-06</b>
Benzo(b)fluoranthene		1.00E-07		4.69E-06	<b>4.69E-06</b>
Fluoranthene		4.40E-08		2.06E-06	<b>2.06E-06</b>
Fluorene		3.20E-08		1.50E-06	<b>1.50E-06</b>
Naphthalene		1.70E-05		7.98E-04	<b>7.98E-04</b>
Phenanthrene		4.90E-06		2.30E-04	<b>2.30E-04</b>
Pyrene		3.20E-08		1.50E-06	<b>1.50E-06</b>
<b>Total HAPs</b>					<b>1.25E-03</b>
<b>Maximum (Worst) Single HAP</b>					<b>7.98E-04 (Naphthalene)</b>

**Abbreviations**

CO = Carbon Monoxide

VOC = Volatile Organic Compound

**Methodology**

Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 MMCF/1,000 MMBtu]

Equivalent No. 2 Fuel Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 gal/0.140 MMBtu]

Natural Gas: Potential to Emit (tons/yr) = (Natural Gas Usage (MMCF/yr))\*(Emission Factor (lb/CF))\*(1000000 CF/MMCF)\*(ton/2000 lbs)

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

1 gallon of No. 2 Fuel Oil has a heating value of 140,000 Btu

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

**Notes**

Emissions associated with fuel combustion in the hot oil heater are included in the fuel combustion calculations. Emissions (withdrawal and standing losses) associated with all volatile organic liquid (VOL) storage vessels are not included in the table above.

\*Since there are no specific AP-42 HAP emission factors for Refinery Blend and Waste Oil, it was assumed that HAP emissions from Refinery Blend and Waste Oil were equal to HAP emissions from No. 2 fuel oil.

**Appendix A: Emissions Calculations  
Potential Fugitive Emissions  
Material Storage Piles**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 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)
Limestone	1.6	1.85	1.80	0.608	0.213
Sand	2.6	3.01	1.80	0.989	0.346
RAP	0.5	0.58	1.80	0.190	0.067
Gravel	1.6	1.85	0.90	0.304	0.106
Slag	3.8	4.40	0.36	0.289	0.101
<b>Totals</b>				<b>2.38</b>	<b>0.83</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 (acres) based on FESOP No. 039-17738-03325

**Appendix A: Emissions Calculations  
Unlimited Potential Fugitive Emissions  
Material Processing and Handling**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 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.

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

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

$k$ (PM) =	0.74	= particle size multiplier (0.74 assumed for aerodynamic diameter <=100 um)
$k$ (PM10) =	0.35	= particle size multiplier (0.35 assumed for aerodynamic diameter <=10 um)
$U$ =	10.2	= worst case annual mean wind speed (Source: NOAA, 2006*)
$M$ =	4.0	= material % moisture content of aggregate (Source: AP-42 Section 11.1.1.1)
$E_f$ (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 =	2,628,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	2,496,600	tons/yr

Type of Activity	Unlimited/ Uncontrolled PTE of PM (tons/yr)	Unlimited/ Uncontrolled PTE of PM10 (tons/yr)
Truck unloading of materials into storage piles	2.83	1.34
Front-end loader dumping of materials into feeder bins	2.83	1.34
Conveyor dropping material into dryer/mixer or batch tower	2.83	1.34
<b>Total (tons/yr)</b>	<b>8.49</b>	<b>4.02</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, 2006

**Material Screening and Conveying (AP-42 Section 11.19.2)**

To estimate potential fugitive dust emissions from raw material 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	31.21	10.86
Conveying	0.003	0.0011	3.74	1.37
<b>Limited Potential to Emit (tons/yr)</b>			<b>34.95</b>	<b>12.23</b>

**Abbreviations**

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PTE = Potential to Emit

**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).



**Appendix A: Emissions Calculations  
Unlimited Potential Fugitive Emissions  
Paved Roads**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 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 =	2,628,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	2,496,600	tons/yr
Maximum Asphalt Cement/Binder Throughput =	131,400	tons/yr
Maximum No. 2 Fuel Oil Usage =	5,881,714	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.40	1.1E+05	4.4E+06	500	0.095	10554.5
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	1.1E+05	1.9E+06	500	0.095	10554.5
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	3.7E+03	1.8E+05	500	0.095	345.6
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	3.7E+03	4.4E+04	500	0.095	345.6
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	6.2E+02	2.7E+04	500	0.095	58.8
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	6.2E+02	7.5E+03	500	0.095	58.8
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	5.9E+05	1.1E+07	500	0.095	56290.6
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	5.9E+05	8.9E+06	500	0.095	56290.6
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	1.1E+05	4.5E+06	500	0.095	10369.3
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	1.1E+05	1.9E+06	500	0.095	10369.3
<b>Total</b>					<b>1.6E+06</b>	<b>3.3E+07</b>			<b>1.6E+05</b>

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.095	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 =	20.3	20.3	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 13.2.1-1)
sL =	0.6	0.6	g/m <sup>2</sup> = Ubiquitous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summ)

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

Unmitigated Emission Factor, $E_f =$	0.66	0.13	lb/mile
Mitigated Emission Factor, $E_{ext} =$	0.60	0.12	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)	3.47	0.68	3.17	0.62	1.59	0.31
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	3.47	0.68	3.17	0.62	1.59	0.31
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.114	0.022	0.104	0.020	0.052	1.0E-02
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.114	0.022	0.104	0.020	0.052	1.0E-02
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	1.9E-02	3.8E-03	1.8E-02	3.4E-03	8.8E-03	1.7E-03
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	1.9E-02	3.8E-03	1.8E-02	3.4E-03	8.8E-03	1.7E-03
Aggregate/RAP Loader Full	Front-end loader (3 CY)	18.51	3.60	16.93	3.29	8.46	1.65
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	18.51	3.60	16.93	3.29	8.46	1.65
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	3.41	0.66	3.12	0.61	1.56	0.30
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	3.41	0.66	3.12	0.61	1.56	0.30
<b>Totals</b>		<b>51.05</b>	<b>9.93</b>	<b>46.68</b>	<b>9.08</b>	<b>23.34</b>	<b>4.54</b>

**Methodology**

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

**Abbreviations**

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

**Appendix A: Emissions Calculations  
Limited Emissions  
Summary**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

**Asphalt Plant Limitations**

Annual Asphalt Production Limitation =	1,500,000	ton/yr								
Natural Gas Limitation =	810.3	MMCF/yr								
No. 2 Fuel Oil Limitation =	2,530,000	gal/yr, and	0.50	% sulfur						
Refinery Blend Fuel Oil Limitation =	1,320,000	gal/yr, and	1.00	% sulfur						
Waste Oil Limitation =	750,000	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine,	0.010	% lead
PM Dryer/Mixer Limitation =	0.150	lb/ton of asphlt production								
PM10 Dryer/Mixer Limitation =	0.050	lb/ton of asphlt production								
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphlt production								
VOC Dryer/Mixer Limitation =	0.032	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	Maximum (Worst Case) HAP
<b>Ducted Emissions</b>								
Fuel Combustion (worst case)	15.60	12.43	99.00	40.52	2.23	34.03	11.08	9.90 (hydrogen chloride)
Dryer/Mixer	112.50	37.50	43.50	41.25	24.00	97.50	7.99	2.33 (formaldehyde)
<b>Maximum (Worst Case) Emissions</b>	<b>112.50</b>	<b>37.50</b>	<b>99.00</b>	<b>41.25</b>	<b>24.00</b>	<b>97.50</b>	<b>11.08</b>	<b>9.90</b> (hydrogen chloride)
<b>Fugitive Emissions</b>								
Asphalt Load-Out, Silo Filling, On-Site Yard	0.83	0.83	0	0	12.85	2.16	0.21	0.07 (formaldehyde)
Hot Oil System	0	0	0	0	1.2E-03	0.06	1.3E-03	8.0E-04 (naphthalene)
Material Storage Piles	2.38	0.83	0	0	0	0	0	0
Material Processing and Handling	4.85	2.29	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	19.95	6.98	0	0	0	0	0	0
Paved and Unpaved Roads (worst case)	88.76	22.62	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>116.76</b>	<b>33.56</b>	<b>0</b>	<b>0</b>	<b>12.85</b>	<b>2.22</b>	<b>0.22</b>	<b>0.07</b> (formaldehyde)
<b>Totals Limited/Controlled Emissions</b>	<b>229.26</b>	<b>71.06</b>	<b>99.00</b>	<b>41.25</b>	<b>36.85</b>	<b>99.72</b>	<b>11.30</b>	<b>9.90</b> (hydrogen chloride)

negl = negligible

**Appendix A: Emissions Calculations**  
**Limited Emissions**  
**Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

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

**Production and Fuel Limitations**

Annual Asphalt Production Limitation =	1,500,000	ton/yr								
Natural Gas Limitation =	810.3	MMCF/yr								
No. 2 Fuel Oil Limitation =	2,530,000	gal/yr, and	0.50	% sulfur						
Refinery Blend Fuel Oil Limitation =	1,320,000	gal/yr, and	1.00	% sulfur						
Waste Oil Limitation =	750,000	gal/yr, and	1.00	% sulfur	0.65	% ash	0.40	% chlorine,	0.010	% lead

**Limited Emissions**

Criteria Pollutant	Emission Factor (units)				Limited Potential to Emit (tons/yr)					
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Refinery Blend Fuel Oil * (lb/kgal)	Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	Refinery Blend Fuel Oil (tons/yr)	Waste Oil (tons/yr)	Maximum (Worse Case) Fuel (tons/yr)	
PM	1.9	2.0	7	41.6	0.77	2.53	4.62	15.60	15.6	
PM10	7.6	3.3	8.3	33.15	3.08	4.17	5.48	12.43	12.43	
SO2	0.6	71.0	150.0	147.0	0.24	89.82	99.00	55.13	99.00	
NOx	100	20.0	20.0	19.0	40.52	25.30	13.20	7.13	40.52	
VOC	5.5	0.20	0.20	1.0	2.23	0.25	0.13	0.38	2.23	
CO	84	5.0	5.0	5.0	34.03	6.33	3.30	1.88	34.03	
<b>Hazardous Air Pollutant</b>										
HCl	0	0	0	26.4	0	0	0	9.90	9.90	
Antimony	0	0	5.25E-03	negl	0	0	3.47E-03	negl	3.5E-03	
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.1E-01	8.1E-05	7.08E-04	8.71E-04	4.13E-02	0.04	
Beryllium	1.2E-05	4.2E-04	2.78E-05	negl	4.9E-06	5.31E-04	1.83E-05	negl	5.3E-04	
Cadmium	1.1E-03	4.2E-04	3.98E-04	9.3E-03	4.5E-04	5.31E-04	2.63E-04	3.49E-03	3.5E-03	
Chromium	1.4E-03	4.2E-04	8.45E-04	2.0E-02	5.7E-04	5.31E-04	5.58E-04	7.50E-03	0.01	
Cobalt	8.4E-05	0	6.02E-03	2.1E-04	3.4E-05	0	3.97E-03	7.88E-05	4.0E-03	
Lead	5.0E-04	1.3E-03	1.51E-03	0.55	2.0E-04	1.59E-03	9.97E-04	2.1E-01	0.21	
Manganese	3.8E-04	8.4E-04	3.00E-03	6.8E-02	1.5E-04	1.06E-03	1.98E-03	2.55E-02	0.03	
Mercury	2.6E-04	4.2E-04	1.13E-04	0	1.1E-04	5.31E-04	7.46E-05	0	5.3E-04	
Nickel	2.1E-03	4.2E-04	8.45E-02	1.1E-02	8.5E-04	5.31E-04	5.58E-02	4.13E-03	0.06	
Selenium	2.4E-05	2.1E-03	6.83E-04	negl	9.7E-06	2.66E-03	4.51E-04	negl	2.7E-03	
1,1,1-Trichloroethane	0	0	2.36E-04	0	0	0	1.56E-04	0	1.6E-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	0	8.5E-04	0	1.41E-04	0	8.5E-04	
Bis(2-ethylhexyl)phthalate	0	0	0	2.2E-03	0	0	0	8.25E-04	8.3E-04	
Dichlorobenzene	1.2E-03	0	0	8.0E-07	4.9E-04	0	0	3.00E-07	4.9E-04	
Ethylbenzene	0	0	6.36E-05	0	0	0	4.20E-05	0	4.2E-05	
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	0	3.0E-02	7.72E-02	2.18E-02	0	0.08	
Hexane	1.8E+00	0	0	0	0.73	0	0	0	0.73	
Phenol	0	0	0	2.4E-03	0	0	0	9.00E-04	9.0E-04	
Toluene	3.4E-03	0	6.20E-03	0	1.4E-03	0	4.09E-03	0	4.1E-03	
Total PAH Haps	negl	0	1.13E-03	3.9E-02	negl	0	7.46E-04	1.47E-02	1.5E-02	
Polycyclic Organic Matter	0	3.30E-03	0	0	0	4.17E-03	0	0	4.2E-03	
Xylene	0	0	1.09E-04	0	0	0	7.19E-05	0	7.2E-05	
<b>Total HAPs</b>					<b>0.76</b>	<b>0.09</b>	<b>0.10</b>	<b>10.20</b>	<b>11.08</b>	<b>(HCL)</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.6, and Refinery Blend 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  
 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

**Notes**

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

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

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

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

Annual Asphalt Production Limitation =	1,500,000	ton/yr
PM Dryer/Mixer Limitation =	0.150	lb/ton of asphlt production
PM10 Dryer/Mixer Limitation =	0.050	lb/ton of asphlt production
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphlt production
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphlt production

Criteria Pollutant	Emission Factor or Limitation (lb/ton)			Limited/Controlled Potential to Emit (tons/yr)			Maximum (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	Refinery Blend * or Waste Oil	Natural Gas	No. 2 Fuel Oil	Refinery Blend * or Waste Oil	
PM	0.15	0.15	0.15	112.5	112.5	112.5	112.5
PM10	0.05	0.05	0.05	37.5	37.5	37.5	37.5
SO2	0.0034	0.011	0.058	2.6	8.3	43.5	43.5
NOx	0.026	0.055	0.055	19.5	41.3	41.3	41.3
VOC	0.032	0.032	0.032	24.0	24.0	24.0	24.0
CO	0.13	0.13	0.13	97.5	97.5	97.5	97.5
<b>Hazardous Air Pollutant</b>							
HCl			2.10E-04			0.16	0.16
Antimony	1.80E-07	1.80E-07	1.80E-07	1.35E-04	1.35E-04	1.35E-04	1.35E-04
Arsenic	5.60E-07	5.60E-07	5.60E-07	4.20E-04	4.20E-04	4.20E-04	4.20E-04
Beryllium	negl	negl	negl	negl	negl	negl	0
Cadmium	4.10E-07	4.10E-07	4.10E-07	3.08E-04	3.08E-04	3.08E-04	3.08E-04
Chromium	5.50E-06	5.50E-06	5.50E-06	4.13E-03	4.13E-03	4.13E-03	4.13E-03
Cobalt	2.60E-08	2.60E-08	2.60E-08	1.95E-05	1.95E-05	1.95E-05	1.95E-05
Lead	6.20E-07	1.50E-05	1.50E-05	4.65E-04	1.13E-02	1.13E-02	0.01
Manganese	7.70E-06	7.70E-06	7.70E-06	5.78E-03	5.78E-03	5.78E-03	0.01
Mercury	2.40E-07	2.60E-06	2.60E-06	1.80E-04	1.95E-03	1.95E-03	1.95E-03
Nickel	6.30E-05	6.30E-05	6.30E-05	4.73E-02	4.73E-02	4.73E-02	0.05
Selenium	3.50E-07	3.50E-07	3.50E-07	2.63E-04	2.63E-04	2.63E-04	2.63E-04
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	3.00E-02	3.00E-02	3.00E-02	0.03
Acetaldehyde			1.30E-03			0.98	0.98
Acrolein			2.60E-05			1.95E-02	0.02
Benzene	3.90E-04	3.90E-04	3.90E-04	0.29	0.29	0.29	0.29
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.18	0.18	0.18	0.18
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	2.33	2.33	2.33	2.33
Hexane	9.20E-04	9.20E-04	9.20E-04	0.69	0.69	0.69	0.69
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.04	0.04	0.04	0.04
MEK			2.00E-05			0.02	0.02
Propionaldehyde			1.30E-04			0.10	0.10
Quinone			1.60E-04			0.12	0.12
Toluene	1.50E-04	2.90E-03	2.90E-03	0.11	2.18	2.18	2.18
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.14	0.66	0.66	0.66
Xylene	2.00E-04	2.00E-04	2.00E-04	0.15	0.15	0.15	0.15
<b>Total HAPs</b>							<b>7.99</b>
<b>Maximum (Worst) Single HAP</b>							<b>2.33 (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

**Notes**

\*Since there are no specific AP-42 HAP emission factors for combustion of Refinery Blend Fuel Oil, it was assumed that HAP emissions from the use of Refinery Blend Fuel Oil were equal to HAP emissions from the use of waste oil.

**Appendix A: Emissions Calculations**

**Fuel Equivalency Calculations**

**Fuel Combustion Units with Maximum Capacity < 100 MMBtu/hr**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

The following calculations determine the fuel equivalencies for each of the fuels as compared to refinery blend fuel oil (assumed similar to No. 4 fuel oil).

Fuel Type	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	NA	NA	0.6	lb/MMCF	250.00	MMCF natural gas / 1000 gal refinery blend fuel oil	100	lb/MMCF	0.20	MMCF natural gas / 1000 gal refinery blend fuel oil
No. 2 Fuel Oil	0.50	% by weight	71.00	lb/kgal	2.11	gal No. 2 fuel oil / gal refinery blend fuel oil	20.0	lb/kgal	1.00	gal No. 2 fuel oil / gal refinery blend fuel oil
Refinery Blend Fuel Oil (No. 4 Fuel Oil)	1.00	% by weight	150.00	lb/kgal	1.00	gal refinery blend fuel oil / gal refinery blend fuel oil	20.0	lb/kgal	1.00	gal refinery blend fuel oil / gal refinery blend fuel oil
Waste Oil	1.00	% by weight	147.00	lb/kgal	1.02	gal waste oil / gal refinery blend fuel oil	19.0	lb/kgal	1.05	gal waste oil / gal refinery blend fuel oil

**Methodology**

Fuel Equivalency = [AP-42 Emission Factor for refinery blend fuel oil (lb/kgal)] / [AP-42 Emission Factor for any fuel type (lb/kgal or lb/MMCF)]

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 and No.4 (industrial boiler < 100 MMBtu/hr): AP-42 Chapter 1.3 (dated 9/98), Table 1.3-1
- Waste Oil (small boiler): AP-42 Chapter 1.11 (dated 10/96), Table 1.11-2

**Appendix A: Emissions Calculations  
Limited Fugitive Emissions  
Load-Out, Silo Filling, and Yard Emissions**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

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

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Annual Asphalt Production Limitation =	1,500,000	tons/yr

Pollutant	Emission Factor (lb/ton asphalt)			Limited Potential to Emit (tons/yr)			
	Load-Out	Silo Filling	On-Site Yard	Load-Out	Silo Filling	On-Site Yard	Total
Total PM	5.2E-04	5.9E-04	NA	0.39	0.44	NA	<b>0.83</b>
Organic PM	3.4E-04	2.5E-04	NA	0.26	0.19	NA	<b>0.45</b>
TOC	0.004	0.012	0.001	3.12	9.14	0.83	<b>13.1</b>
CO	0.001	0.001	3.5E-04	1.01	0.88	0.26	<b>2.16</b>

<b>PM/HAPs</b>	<b>0.018</b>	<b>0.022</b>	<b>0</b>	<b>0.040</b>
<b>VOC/HAPs</b>	<b>0.046</b>	<b>0.116</b>	<b>0.012</b>	<b>0.174</b>
<b>non-VOC/HAPs</b>	<b>2.4E-04</b>	<b>2.5E-05</b>	<b>6.4E-05</b>	<b>3.3E-04</b>
<b>non-VOC/non-HAPs</b>	<b>0.23</b>	<b>0.13</b>	<b>0.06</b>	<b>0.42</b>

<b>Total VOCs</b>	<b>2.93</b>	<b>9.14</b>	<b>0.8</b>	<b>12.8</b>
<b>Total HAPs</b>	<b>0.06</b>	<b>0.14</b>	<b>0.012</b>	<b>0.21</b>
<b>Worst Single HAP</b>				<b>0.067</b>
				<b>(formaldehyde)</b>

**Abbreviations**

TOC = Total Organic Compounds

CO = Carbon Monoxide

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

**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)::

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

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

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

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

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

$$\text{PM/PM}_{10} \text{ Ef} = 0.000332 + 0.00105(-V)e^{-(0.0251)(T+460)-20.43}$$

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

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

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

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

**Notes**

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

**Appendix A: Emissions Calculations**  
**Limited Fugitive Emissions**  
**Load-Out, Silo Filling, and Yard Emissions (continued)**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 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)	Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)	Load-out	Silo Filling	Onsite Yard	Total
<b>PAH HAPs</b>										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	6.6E-04	8.9E-04	NA	1.6E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	7.2E-05	2.7E-05	NA	9.8E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	1.8E-04	2.5E-04	NA	4.3E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	4.9E-05	1.1E-04	NA	1.6E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	1.9E-05	0	NA	1.9E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	5.6E-06	0	NA	5.6E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	4.9E-06	0	NA	4.9E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	5.9E-06	0	NA	5.9E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	2.0E-05	1.8E-05	NA	3.8E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	2.6E-04	4.0E-04	NA	6.6E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	9.5E-07	0	NA	9.5E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	1.3E-04	2.9E-04	NA	4.1E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	2.0E-03	1.9E-03	NA	3.9E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	1.2E-06	0	NA	1.2E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	6.1E-03	1.0E-02	NA	0.016
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	3.2E-03	3.5E-03	NA	6.7E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	5.6E-05	5.7E-05	NA	1.1E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	2.1E-03	3.4E-03	NA	5.5E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	3.8E-04	8.4E-04	NA	1.2E-03
<b>Total PAH HAPs</b>							<b>0.015</b>	<b>0.022</b>	<b>NA</b>	<b>0.037</b>
<b>Other semi-volatile HAPs</b>										
Phenol		PM/HAP	---	Organic PM	1.18%	0	3.0E-03	0	0	3.0E-03

**Abbreviations**

PM = Particulate Matter

HAP = Hazardous Air Pollutant

POM = Polycyclic Organic Matter

**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

**Notes**

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

**Appendix A: Emissions Calculations**  
**Limited Fugitive Emissions**  
**Load-Out, Silo Filling, and Yard Emissions (continued)**

**Organic Volatile-Based Compounds (Table 11.1-16)**

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Limited Potential to Emit (tons/yr)			
					Load-out and Onsite Yard (% by weight of TOC)	Silo Filling and Asphalt Storage Tank (% by weight of TOC)	Load-out	Silo Filling	Onsite Yard	Total
<b>VOC</b>		VOC	---	TOC	94%	100%	<b>2.93</b>	<b>9.14</b>	<b>0.78</b>	<b>12.85</b>
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	2.0E-01	2.4E-02	5.4E-02	0.280
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	1.4E-03	5.0E-03	3.8E-04	0.007
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	2.2E-02	1.0E-01	5.9E-03	0.129
<b>Total non-VOC/non-HAPS</b>					<b>7.30%</b>	<b>1.40%</b>	<b>0.228</b>	<b>0.128</b>	<b>0.060</b>	<b>0.42</b>
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	1.6E-03	2.9E-03	4.3E-04	5.0E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	3.0E-04	4.5E-04	7.9E-05	8.3E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	1.5E-03	3.6E-03	4.0E-04	5.5E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	4.1E-04	1.5E-03	1.1E-04	2.0E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	6.6E-06	3.7E-04	1.7E-06	3.7E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	4.7E-04	2.1E-03	1.2E-04	2.7E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	3.4E-03	0	9.1E-04	4.3E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	8.7E-03	3.5E-03	2.3E-03	0.015
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	2.7E-03	6.3E-02	7.3E-04	0.067
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	4.7E-03	9.1E-03	1.2E-03	0.015
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	5.6E-05	2.8E-05	1.5E-05	9.9E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	2.5E-05	0	2.5E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	2.3E-04	4.9E-04	6.0E-05	7.8E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	2.4E-04	0	6.4E-05	3.0E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	6.6E-03	5.7E-03	1.7E-03	0.014
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	0	4.1E-05	0	1.1E-05	5.1E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	1.3E-02	1.8E-02	3.4E-03	0.034
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	2.5E-03	5.2E-03	6.6E-04	8.4E-03
<b>Total volatile organic HAPs</b>					<b>1.50%</b>	<b>1.30%</b>	<b>0.047</b>	<b>0.119</b>	<b>0.012</b>	<b>0.178</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 Fugitive Emissions  
Material Processing and Handling**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 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.

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

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

$k$ (PM) =	0.74	= particle size multiplier (0.74 assumed for aerodynamic diameter <=100 um)
$k$ (PM10) =	0.35	= particle size multiplier (0.35 assumed for aerodynamic diameter <=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 =	1,500,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,425,000	tons/yr

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)
Truck unloading of materials into storage piles	1.62	0.76
Front-end loader dumping of materials into feeder bins	1.62	0.76
Conveyor dropping material into dryer/mixer or batch tower	1.62	0.76
<b>Total (tons/yr)</b>	<b>4.85</b>	<b>2.29</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	17.81	6.20
Conveying	0.003	0.0011	2.14	0.78
<b>Limited Potential to Emit (tons/yr)</b>			<b>19.95</b>	<b>6.98</b>

**Abbreviations**

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

**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).

**Appendix A: Emissions Calculations  
Limited Fugitive Emissions  
Unpaved Roads**

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 2007

**Unpaved Roads at Industrial Site**

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

Annual Asphalt Production Limitation =	1,500,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,425,000	tons/yr
Maximum Asphalt Cement/Binder Throughput =	75,000	tons/yr
No. 2 Fuel Oil Limitation =	2,530,000	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 year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.4	6.4E+04	2.5E+06	500	0.095	6024.2
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	6.4E+04	1.1E+06	500	0.095	6024.2
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	2.1E+03	1.0E+05	500	0.095	197.3
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	2.1E+03	2.5E+04	500	0.095	197.3
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	2.7E+02	1.2E+04	500	0.095	25.3
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	2.7E+02	3.2E+03	500	0.095	25.3
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	3.4E+05	6.5E+06	500	0.095	32129.3
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	3.4E+05	5.1E+06	500	0.095	32129.3
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	6.3E+04	2.6E+06	500	0.095	5918.6
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	6.3E+04	1.1E+06	500	0.095	5918.6
<b>Total</b>						<b>9.4E+05</b>	<b>1.9E+07</b>		<b>8.9E+04</b>

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.095	miles/trip

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

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

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

	PM	PM10	
Unmitigated Emission Factor, $E_f$ =	6.09	1.55	lb/mile
Mitigated Emission Factor, $E_{ext}$ =	4.01	1.02	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)	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)	18.36	4.68	12.07	3.08	6.04	1.54
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	18.36	4.68	12.07	3.08	6.04	1.54
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.601	0.153	0.395	0.101	0.198	0.050
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.601	0.153	0.395	0.101	0.198	0.050
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.077	0.020	0.051	0.013	0.025	0.006
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.077	0.020	0.051	0.013	0.025	0.006
Aggregate/RAP Loader Full	Front-end loader (3 CY)	97.91	24.95	64.38	16.41	32.19	8.20
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	97.91	24.95	64.38	16.41	32.19	8.20
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	18.04	4.60	11.86	3.02	5.93	1.51
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	18.04	4.60	11.86	3.02	5.93	1.51
<b>Totals</b>		<b>269.96</b>	<b>68.80</b>	<b>177.51</b>	<b>45.24</b>	<b>88.76</b>	<b>22.62</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 Fugitive Emissions Paved Roads

**Company Name:** Brooks Construction Co., Inc.  
**Source Address:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**FESOP Renewal No.:** 141-25742-00549  
**Reviewer:** Hannah L. Desrosiers  
**Date Submitted:** December 19, 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 =	1,500,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,425,000	tons/yr
Maximum Asphalt Cement/Binder Throughput =	75,000	tons/yr
No. 2 Fuel Oil Limitation =	2,530,000	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)	17.0	22.4	39.40	6.4E+04	2.5E+06	500	0.095	6024.2
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	6.4E+04	1.1E+06	500	0.095	197.3
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	2.1E+03	1.0E+05	500	0.095	197.3
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	2.1E+03	2.5E+04	500	0.095	197.3
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	2.7E+02	1.2E+04	500	0.095	25.3
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	2.7E+02	3.2E+03	500	0.095	25.3
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	3.4E+05	6.5E+06	500	0.095	32129.3
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	3.4E+05	5.1E+06	500	0.095	32129.3
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	6.3E+04	2.6E+06	500	0.095	5918.6
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	6.3E+04	1.1E+06	500	0.095	5918.6
<b>Total</b>					<b>9.4E+05</b>	<b>1.9E+07</b>			<b>8.9E+04</b>

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.095	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 =	20.3	20.3	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 month)

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

Mitigated Emission Factor, $E_{ext} = E * [1 - (p/4N)]$	
where p =	125
N =	365
	days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
	days per year

	PM	PM10	
Unmitigated Emission Factor, $E_f =$	0.66	0.13	lb/mile
Mitigated Emission Factor, $E_{ext} =$	0.60	0.12	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)	1.98	0.39	1.81	0.35	0.91	0.18
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	1.98	0.39	1.81	0.35	0.91	0.18
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.065	0.013	0.059	0.012	0.030	5.8E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.065	0.013	0.059	0.012	0.030	5.8E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	8.3E-03	1.6E-03	7.6E-03	1.5E-03	3.8E-03	7.4E-04
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	8.3E-03	1.6E-03	7.6E-03	1.5E-03	3.8E-03	7.4E-04
Aggregate/RAP Loader Full	Front-end loader (3 CY)	10.57	2.06	9.66	1.88	4.83	0.94
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	10.57	2.06	9.66	1.88	4.83	0.94
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	1.95	0.38	1.78	0.35	0.89	0.17
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	1.95	0.38	1.78	0.35	0.89	0.17
<b>Totals</b>		<b>29.13</b>	<b>5.67</b>	<b>26.64</b>	<b>5.18</b>	<b>13.32</b>	<b>2.59</b>

#### Methodology

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

#### Abbreviations

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

**Appendix B: Minor Source Criteria Pollutant Modeling**  
*PSD Significant Emission Rate Modeling Determination Test\**

**Permit No.:** 141-25742-00549  
**Company Name:** Brooks Construction Co., Inc.  
**Source Location:** 727 S. Beiger Street, Mishawaka, Indiana 46544  
**County:** St. Joseph  
**SIC Code:** 2951  
**Reviewer:** Hannah L. Desrosiers

<b>Maximum (Worst Case) Ducted Emissions</b>	PM10	SO2	Nox	Co	Pb
Limited (Tons/yr)	37.50	99.00	41.25	97.50	0.22
Control Efficiency (%)	90%	0%	0%	0%	90%
Limited/Controlled (Tons/yr)	3.75	99.00	41.25	97.50	0.02
Limited/Controlled (lbs/hr)	0.86	22.60	9.42	22.26	0.005
<b>PSD Significant threshold</b>	<b>3.42</b>	<b>9.13</b>	<b>9.13</b>	<b>22.83</b>	<b>0.137</b>
Threshold exceeded?	No	Yes	Yes	No	No

<b>Hot oil System</b>	PM10	SO2	Nox	Co	Pb
(Tons/yr)	0.00	0.00	0.00	0.06	0.00
Control Efficiency (%)	90%	0%	0%	0%	90%
Limited/Controlled (Tons/yr)	0.00	0.00	0.00	0.06	0.00
Limited/Controlled (lbs/hr)	0.00	0.00	0.00	0.01	0.00
<b>PSD Significant threshold</b>	<b>3.42</b>	<b>9.13</b>	<b>9.13</b>	<b>22.83</b>	<b>0.137</b>
Threshold exceeded?	No	No	No	No	No

**Note:**

\* This worksheet is used to determine if Air Modeling is required based on a comparison of the source's Limited/Controlled (lbs/hr) emission rate to the the PSD Significant threshold. If the Limited/Controlled (lbs/hr) emission rate exceeds the PSD Significant threshold then [yes] Air Modeling is required.

*Appendix B: Minor Source Criteria Pollutant Modeling  
Screening Form - Raw Data*

**Permit Summary**

**Permit Number:** 141-25742-00549  
**Company Name:** Brooks Construction Company, Inc.  
**Source Location:** 727 S Beiger St, Mishawaka, IN 46544  
**County:** St. Joseph  
**SIC Code:** 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>
Dryer/Mixer	SV1	22.26	9.42	0.86	0.005	22.6
<i>Max. Emissions Rate (lb/hr):</i>		<i>22.26</i>	<i>9.42</i>	<i>0.86</i>	<i>0.005</i>	<i>22.6</i>

**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)	
SV1	34	54000	250	4	24	25	65	50
0								
0								
0								
0								

*Appendix B: Minor Source Criteria Pollutant Modeling  
SCREEN3 Data*

**Permit Summary**

Permit Number: 141-25742-00549  
 Company Name: Brooks Construction Company, Inc.  
 Source Location: 727 S Beiger St, Mishawaka, IN 46544  
 County: St. Joseph  
 SIC Code: 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):	2.80476	1.18692	0.10836	0.00063	2.8476

**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)			
SV1	10.36585366	21.846357	394.26	1.219512195	7.317073171	7.62195122	19.81707317	15.24390244	25.51774061	89282.84922
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!
0	0	#DIV/0!	255.37	0	0	0	0	0	#DIV/0!	#DIV/0!

*Appendix B: Minor Source Criteria Pollutant Modeling  
Screening Form - Modeling Results*

**Permit Summary**

Permit Number: 141-25742-00549  
 Company Name: Brooks Construction Company, Inc.  
 Source Location: 727 S Beiger St, Mishawaka, IN 46544  
 County: St. Joseph  
 SIC Code: 2951  
 Permit Reviewer: Hannah L. Desrosiers

**Modeling Method**

Model Used (please check one):

SCREEN3     AERSCREEN  
 ISC3     AERMOD

Date Modeling Completed: 5/28/2008

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 ( $\mu\text{g}/\text{m}^3$ ):	2520	1066	97.34	0.5659	2558

**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	2520				
<b>NAAQ Standard</b>	<b>40000</b>				
<b>PASS or FAIL</b>	PASS				
3-hour modeled concentration					2302.2
<b>NAAQ Standard</b>					<b>1300</b>
<b>PASS or FAIL</b>					FAIL
8-hour modeled concentration	1764				
<b>NAAQ Standard/CEP Benchmark</b>	<b>10000</b>				
<b>PASS or FAIL</b>	PASS				
24-hour modeled concentration			38.936	0.22636	1023.2
<b>NAAQ Standard</b>			<b>150</b>	<b>1.5</b>	<b>365</b>
<b>PASS or FAIL</b>			PASS	PASS	FAIL
Annual modeled concentration		85.28	7.7872		204.64
<b>NAAQ Standard/CEP Benchmark</b>		<b>100</b>	<b>50</b>		<b>80</b>
<b>PASS or FAIL</b>		PASS	PASS		FAIL

*Appendix B: Minor Source Criteria Pollutant Modeling  
Screening Form - Modeling Results*

**Permit Summary**

Permit Number: 141-25742-00549  
 Company Name: Brooks Construction Company, Inc.  
 Source Location: 727 S Beiger St, Mishawaka, IN 46544  
 County: St. Joseph  
 SIC Code: 2951  
 Permit Reviewer: Hannah L. Desrosiers

**Modeling Method**

Model Used (please check one):  
 SCREEN3     AERSCREEN  
 ISC3         AERMOD

Date Modeling Completed: 6/3/2008  
 Modeler: Michael Mosier, Senior Environmental Mgr

**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 ( $\mu\text{g}/\text{m}^3$ ):					81.6

**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	0				
<b>NAAQ Standard</b>	<b>40000</b>				
<b>PASS or FAIL</b>	PASS				
3-hour modeled concentration					73.44
<b>NAAQ Standard</b>					<b>1300</b>
<b>PASS or FAIL</b>					PASS
8-hour modeled concentration	0				
<b>NAAQ Standard/CEP Benchmark</b>	<b>10000</b>				
<b>PASS or FAIL</b>	PASS				
24-hour modeled concentration			0	0	32.64
<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		0	0		6.528
<b>NAAQ Standard/CEP Benchmark</b>		<b>100</b>	<b>50</b>		<b>80</b>
<b>PASS or FAIL</b>		PASS	PASS		PASS

*Appendix B: Minor Source Criteria Pollutant Modeling  
SCREEN3 Report*

06/03/08  
09:18:48

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

25742co

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =          2.80476
STACK HEIGHT (M)      =          10.3700
STK INSIDE DIAM (M)   =           1.2200
STK EXIT VELOCITY (M/S)=           1.0000
STK GAS EXIT TEMP (K) =          394.2600
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           .0000
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           7.3200
MIN HORIZ BLDG DIM (M) =           7.6200
MAX HORIZ BLDG DIM (M) =          19.8200
    
```

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

BUOY. FLUX = .937 M\*\*4/S\*\*3; MOM. FLUX = .277 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
1.	.0000	0	.0	.0	.0	.00	.00	.00	NA
100.	1740.	6	4.0	4.1	10000.0	12.21	4.07	7.13	SS
200.	1219.	4	2.0	2.0	640.0	13.57	15.56	11.13	SS
300.	939.0	4	1.5	1.5	480.0	16.44	22.61	14.01	SS
400.	740.5	4	1.5	1.5	480.0	16.44	29.45	17.10	SS
500.	624.4	4	1.0	1.0	320.0	23.18	36.15	19.73	SS
600.	543.6	4	1.0	1.0	320.0	23.18	42.72	22.59	SS
700.	468.7	4	1.0	1.0	320.0	23.18	49.19	25.38	SS
800.	404.7	4	1.0	1.0	320.0	23.18	55.57	28.09	SS
900.	393.8	6	1.5	1.5	10000.0	22.82	30.78	14.90	SS
1000.	399.8	6	1.0	1.0	10000.0	26.18	33.88	15.49	SS
1100.	400.2	6	1.0	1.0	10000.0	26.18	36.96	16.31	SS
1200.	396.2	6	1.0	1.0	10000.0	26.18	40.01	17.11	SS
1300.	389.2	6	1.0	1.0	10000.0	26.18	43.04	17.88	SS
1400.	380.0	6	1.0	1.0	10000.0	26.18	46.05	18.63	SS
1500.	369.6	6	1.0	1.0	10000.0	26.18	49.03	19.37	SS
1600.	358.4	6	1.0	1.0	10000.0	26.18	51.99	20.09	SS
1700.	346.8	6	1.0	1.0	10000.0	26.18	54.94	20.80	SS

*Appendix B: Minor Source Criteria Pollutant Modeling*  
**SCREEN3 Report**

1800.	335.0	6	1.0	1.0	10000.0	26.18	57.87	21.49	SS
1900.	320.3	6	1.0	1.0	10000.0	26.18	60.78	21.68	SS
2000.	309.1	6	1.0	1.0	10000.0	26.18	63.68	22.26	SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
 55. 2520. 6 3.5 3.6 10000.0 11.32 2.37 5.66 SS

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) = .1289E+05	CONC (UG/M**3) = .1726E+05
CRIT WS @10M (M/S) = 1.18	CRIT WS @10M (M/S) = 3.86
CRIT WS @ HS (M/S) = 1.18	CRIT WS @ HS (M/S) = 3.89
DILUTION WS (M/S) = 1.00	DILUTION WS (M/S) = 1.94
CAVITY HT (M) = 10.35	CAVITY HT (M) = 7.67
CAVITY LENGTH (M) = 23.23	CAVITY LENGTH (M) = 10.58
ALONGWIND DIM (M) = 7.62	ALONGWIND DIM (M) = 19.82

\*\*\*\*\*  
 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	2520.	55.	0.
BLDG. CAVITY-1	.1289E+05	23.	-- (DIST = CAVITY LENGTH)
BLDG. CAVITY-2	.1726E+05	11.	-- (DIST = CAVITY LENGTH)

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

## Appendix B: Minor Source Criteria Pollutant Modeling SCREEN3 Report

06/03/08  
09:23:03

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

25742nox

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =          1.18692
STACK HEIGHT (M)      =          10.3700
STK INSIDE DIAM (M)   =           1.2200
STK EXIT VELOCITY (M/S)=           1.0000
STK GAS EXIT TEMP (K) =          394.2600
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           .0000
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           7.3200
MIN HORIZ BLDG DIM (M) =           7.6200
MAX HORIZ BLDG DIM (M) =          19.8200
    
```

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

BUOY. FLUX = .937 M\*\*4/S\*\*3; MOM. FLUX = .277 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
1.	.0000	0	.0	.0	.0	.00	.00	.00	NA
100.	736.4	6	4.0	4.1	10000.0	12.21	4.07	7.13	SS
200.	516.0	4	2.0	2.0	640.0	13.57	15.56	11.13	SS
300.	397.4	4	1.5	1.5	480.0	16.44	22.61	14.01	SS
400.	313.4	4	1.5	1.5	480.0	16.44	29.45	17.10	SS
500.	264.2	4	1.0	1.0	320.0	23.18	36.15	19.73	SS
600.	230.0	4	1.0	1.0	320.0	23.18	42.72	22.59	SS
700.	198.4	4	1.0	1.0	320.0	23.18	49.19	25.38	SS
800.	171.2	4	1.0	1.0	320.0	23.18	55.57	28.09	SS
900.	166.7	6	1.5	1.5	10000.0	22.82	30.78	14.90	SS
1000.	169.2	6	1.0	1.0	10000.0	26.18	33.88	15.49	SS
1100.	169.4	6	1.0	1.0	10000.0	26.18	36.96	16.31	SS
1200.	167.7	6	1.0	1.0	10000.0	26.18	40.01	17.11	SS
1300.	164.7	6	1.0	1.0	10000.0	26.18	43.04	17.88	SS
1400.	160.8	6	1.0	1.0	10000.0	26.18	46.05	18.63	SS
1500.	156.4	6	1.0	1.0	10000.0	26.18	49.03	19.37	SS
1600.	151.7	6	1.0	1.0	10000.0	26.18	51.99	20.09	SS
1700.	146.7	6	1.0	1.0	10000.0	26.18	54.94	20.80	SS

*Appendix B: Minor Source Criteria Pollutant Modeling*  
**SCREEN3 Report**

1800.	141.8	6	1.0	1.0	10000.0	26.18	57.87	21.49	SS
1900.	135.5	6	1.0	1.0	10000.0	26.18	60.78	21.68	SS
2000.	130.8	6	1.0	1.0	10000.0	26.18	63.68	22.26	SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
 55. 1066. 6 3.5 3.6 10000.0 11.32 2.37 5.66 SS

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) = 5454.	CONC (UG/M**3) = 7302.
CRIT WS @10M (M/S) = 1.18	CRIT WS @10M (M/S) = 3.86
CRIT WS @ HS (M/S) = 1.18	CRIT WS @ HS (M/S) = 3.89
DILUTION WS (M/S) = 1.00	DILUTION WS (M/S) = 1.94
CAVITY HT (M) = 10.35	CAVITY HT (M) = 7.67
CAVITY LENGTH (M) = 23.23	CAVITY LENGTH (M) = 10.58
ALONGWIND DIM (M) = 7.62	ALONGWIND DIM (M) = 19.82

\*\*\*\*\*  
 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	1066.	55.	0.
BLDG. CAVITY-1	5454.	23.	-- (DIST = CAVITY LENGTH)
BLDG. CAVITY-2	7302.	11.	-- (DIST = CAVITY LENGTH)

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

**Appendix B: Minor Source Criteria Pollutant Modeling  
SCREEN3 Report**

06/03/08  
10:39:05

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

25742pm10

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =          .108360
STACK HEIGHT (M)      =          10.3700
STK INSIDE DIAM (M)   =           1.2200
STK EXIT VELOCITY (M/S)=           1.0000
STK GAS EXIT TEMP (K) =          394.2600
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           .0000
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           7.3200
MIN HORIZ BLDG DIM (M) =           7.6200
MAX HORIZ BLDG DIM (M) =          19.8200
    
```

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

BUOY. FLUX = .937 M\*\*4/S\*\*3; MOM. FLUX = .277 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
1.	.0000	0	.0	.0	.0	.00	.00	.00	NA
100.	67.23	6	4.0	4.1	10000.0	12.21	4.07	7.13	SS
200.	47.11	4	2.0	2.0	640.0	13.57	15.56	11.13	SS
300.	36.28	4	1.5	1.5	480.0	16.44	22.61	14.01	SS
400.	28.61	4	1.5	1.5	480.0	16.44	29.45	17.10	SS
500.	24.12	4	1.0	1.0	320.0	23.18	36.15	19.73	SS
600.	21.00	4	1.0	1.0	320.0	23.18	42.72	22.59	SS
700.	18.11	4	1.0	1.0	320.0	23.18	49.19	25.38	SS
800.	15.63	4	1.0	1.0	320.0	23.18	55.57	28.09	SS
900.	15.21	6	1.5	1.5	10000.0	22.82	30.78	14.90	SS
1000.	15.44	6	1.0	1.0	10000.0	26.18	33.88	15.49	SS
1100.	15.46	6	1.0	1.0	10000.0	26.18	36.96	16.31	SS
1200.	15.31	6	1.0	1.0	10000.0	26.18	40.01	17.11	SS
1300.	15.04	6	1.0	1.0	10000.0	26.18	43.04	17.88	SS
1400.	14.68	6	1.0	1.0	10000.0	26.18	46.05	18.63	SS
1500.	14.28	6	1.0	1.0	10000.0	26.18	49.03	19.37	SS
1600.	13.85	6	1.0	1.0	10000.0	26.18	51.99	20.09	SS
1700.	13.40	6	1.0	1.0	10000.0	26.18	54.94	20.80	SS

*Appendix B: Minor Source Criteria Pollutant Modeling*  
**SCREEN3 Report**

1800.	12.94	6	1.0	1.0	10000.0	26.18	57.87	21.49	SS
1900.	12.37	6	1.0	1.0	10000.0	26.18	60.78	21.68	SS
2000.	11.94	6	1.0	1.0	10000.0	26.18	63.68	22.26	SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
 55. 97.34 6 3.5 3.6 10000.0 11.32 2.37 5.66 SS

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) = 497.9	CONC (UG/M**3) = 666.6
CRIT WS @10M (M/S) = 1.18	CRIT WS @10M (M/S) = 3.86
CRIT WS @ HS (M/S) = 1.18	CRIT WS @ HS (M/S) = 3.89
DILUTION WS (M/S) = 1.00	DILUTION WS (M/S) = 1.94
CAVITY HT (M) = 10.35	CAVITY HT (M) = 7.67
CAVITY LENGTH (M) = 23.23	CAVITY LENGTH (M) = 10.58
ALONGWIND DIM (M) = 7.62	ALONGWIND DIM (M) = 19.82

\*\*\*\*\*  
 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	97.34	55.	0.
BLDG. CAVITY-1	497.9	23.	-- (DIST = CAVITY LENGTH)
BLDG. CAVITY-2	666.6	11.	-- (DIST = CAVITY LENGTH)

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

*Appendix B: Minor Source Criteria Pollutant Modeling  
SCREEN3 Report*

06/03/08  
10:42:54

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

25742Pb

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =      .630000E-03
STACK HEIGHT (M)      =      10.3700
STK INSIDE DIAM (M)   =       1.2200
STK EXIT VELOCITY (M/S)=       1.0000
STK GAS EXIT TEMP (K) =      394.2600
AMBIENT AIR TEMP (K)  =      293.0000
RECEPTOR HEIGHT (M) =       .0000
URBAN/RURAL OPTION    =          RURAL
BUILDING HEIGHT (M)   =       7.3200
MIN HORIZ BLDG DIM (M) =       7.6200
MAX HORIZ BLDG DIM (M) =      19.8200
    
```

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

BUOY. FLUX = .937 M\*\*4/S\*\*3; MOM. FLUX = .277 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
1.	.0000	0	.0	.0	.0	.00	.00	.00	NA
100.	.3908	6	4.0	4.1	10000.0	12.21	4.07	7.13	SS
200.	.2739	4	2.0	2.0	640.0	13.57	15.56	11.13	SS
300.	.2109	4	1.5	1.5	480.0	16.44	22.61	14.01	SS
400.	.1663	4	1.5	1.5	480.0	16.44	29.45	17.10	SS
500.	.1402	4	1.0	1.0	320.0	23.18	36.15	19.73	SS
600.	.1221	4	1.0	1.0	320.0	23.18	42.72	22.59	SS
700.	.1053	4	1.0	1.0	320.0	23.18	49.19	25.38	SS
800.	.9089E-01	4	1.0	1.0	320.0	23.18	55.57	28.09	SS
900.	.8846E-01	6	1.5	1.5	10000.0	22.82	30.78	14.90	SS
1000.	.8979E-01	6	1.0	1.0	10000.0	26.18	33.88	15.49	SS
1100.	.8990E-01	6	1.0	1.0	10000.0	26.18	36.96	16.31	SS
1200.	.8900E-01	6	1.0	1.0	10000.0	26.18	40.01	17.11	SS
1300.	.8742E-01	6	1.0	1.0	10000.0	26.18	43.04	17.88	SS
1400.	.8537E-01	6	1.0	1.0	10000.0	26.18	46.05	18.63	SS
1500.	.8302E-01	6	1.0	1.0	10000.0	26.18	49.03	19.37	SS
1600.	.8050E-01	6	1.0	1.0	10000.0	26.18	51.99	20.09	SS
1700.	.7789E-01	6	1.0	1.0	10000.0	26.18	54.94	20.80	SS

*Appendix B: Minor Source Criteria Pollutant Modeling*  
**SCREEN3 Report**

1800.	.7525E-01	6	1.0	1.0	10000.0	26.18	57.87	21.49	SS
1900.	.7194E-01	6	1.0	1.0	10000.0	26.18	60.78	21.68	SS
2000.	.6944E-01	6	1.0	1.0	10000.0	26.18	63.68	22.26	SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
 55. .5659 6 3.5 3.6 10000.0 11.32 2.37 5.66 SS

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) = 2.895	CONC (UG/M**3) = 3.876
CRIT WS @10M (M/S) = 1.18	CRIT WS @10M (M/S) = 3.86
CRIT WS @ HS (M/S) = 1.18	CRIT WS @ HS (M/S) = 3.89
DILUTION WS (M/S) = 1.00	DILUTION WS (M/S) = 1.94
CAVITY HT (M) = 10.35	CAVITY HT (M) = 7.67
CAVITY LENGTH (M) = 23.23	CAVITY LENGTH (M) = 10.58
ALONGWIND DIM (M) = 7.62	ALONGWIND DIM (M) = 19.82

\*\*\*\*\*  
 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	.5659	55.	0.
BLDG. CAVITY-1	2.895	23.	-- (DIST = CAVITY LENGTH)
BLDG. CAVITY-2	3.876	11.	-- (DIST = CAVITY LENGTH)

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

*Appendix B: Minor Source Criteria Pollutant Modeling  
SCREEN3 Report*

06/03/08  
09:35:56

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

25742so2

SIMPLE TERRAIN INPUTS:

```

SOURCE TYPE           =          POINT
EMISSION RATE (G/S)   =          2.84760
STACK HEIGHT (M)      =          10.3700
STK INSIDE DIAM (M)   =           1.2200
STK EXIT VELOCITY (M/S)=           1.0000
STK GAS EXIT TEMP (K) =          394.2600
AMBIENT AIR TEMP (K)  =          293.0000
RECEPTOR HEIGHT (M) =           .0000
URBAN/RURAL OPTION    =           RURAL
BUILDING HEIGHT (M)   =           7.3200
MIN HORIZ BLDG DIM (M) =           7.6200
MAX HORIZ BLDG DIM (M) =          19.8200
    
```

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

BUOY. FLUX = .937 M\*\*4/S\*\*3; MOM. FLUX = .277 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
1.	.0000	0	.0	.0	.0	.00	.00	.00	NA
100.	1767.	6	4.0	4.1	10000.0	12.21	4.07	7.13	SS
200.	1238.	4	2.0	2.0	640.0	13.57	15.56	11.13	SS
300.	953.4	4	1.5	1.5	480.0	16.44	22.61	14.01	SS
400.	751.8	4	1.5	1.5	480.0	16.44	29.45	17.10	SS
500.	633.9	4	1.0	1.0	320.0	23.18	36.15	19.73	SS
600.	551.9	4	1.0	1.0	320.0	23.18	42.72	22.59	SS
700.	475.9	4	1.0	1.0	320.0	23.18	49.19	25.38	SS
800.	410.8	4	1.0	1.0	320.0	23.18	55.57	28.09	SS
900.	399.8	6	1.5	1.5	10000.0	22.82	30.78	14.90	SS
1000.	405.9	6	1.0	1.0	10000.0	26.18	33.88	15.49	SS
1100.	406.3	6	1.0	1.0	10000.0	26.18	36.96	16.31	SS
1200.	402.3	6	1.0	1.0	10000.0	26.18	40.01	17.11	SS
1300.	395.1	6	1.0	1.0	10000.0	26.18	43.04	17.88	SS
1400.	385.9	6	1.0	1.0	10000.0	26.18	46.05	18.63	SS
1500.	375.2	6	1.0	1.0	10000.0	26.18	49.03	19.37	SS
1600.	363.8	6	1.0	1.0	10000.0	26.18	51.99	20.09	SS
1700.	352.1	6	1.0	1.0	10000.0	26.18	54.94	20.80	SS

**Appendix B: Minor Source Criteria Pollutant Modeling  
SCREEN3 Report**

1800.	340.1	6	1.0	1.0	10000.0	26.18	57.87	21.49	SS
1900.	325.2	6	1.0	1.0	10000.0	26.18	60.78	21.68	SS
2000.	313.9	6	1.0	1.0	10000.0	26.18	63.68	22.26	SS

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:  
 55. 2558. 6 3.5 3.6 10000.0 11.32 2.37 5.66 SS

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) = .1308E+05	CONC (UG/M**3) = .1752E+05
CRIT WS @10M (M/S) = 1.18	CRIT WS @10M (M/S) = 3.86
CRIT WS @ HS (M/S) = 1.18	CRIT WS @ HS (M/S) = 3.89
DILUTION WS (M/S) = 1.00	DILUTION WS (M/S) = 1.94
CAVITY HT (M) = 10.35	CAVITY HT (M) = 7.67
CAVITY LENGTH (M) = 23.23	CAVITY LENGTH (M) = 10.58
ALONGWIND DIM (M) = 7.62	ALONGWIND DIM (M) = 19.82

\*\*\*\*\*  
 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	2558.	55.	0.
BLDG. CAVITY-1	.1308E+05	23.	-- (DIST = CAVITY LENGTH)
BLDG. CAVITY-2	.1752E+05	11.	-- (DIST = CAVITY LENGTH)

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

B: Minor Source Criteria Pollutant Modeling

AERMOD Report

\*\*\* AERMOD - VERSION 07026 \*\*\*

\*\*\* SO2 \*\*\*

\*\*\* Model Executed on 06/03/08 at 11:01:05 \*\*\*

Input File - C:\Minor Source Screening\Brooks Construction\_Hannah\_92.DTA

Output File - C:\Minor Source Screening\Brooks Construction\_Hannah\_92.LST

Met File - C:\Aermod Met\IND92PIA.SFC

Number of sources - 1  
 Number of source groups - 1  
 Number of receptors - 362

\*\*\* POINT SOURCE DATA \*\*\*

STACK SOURCE HEIGHT (METERS) VARY BY	STACK PART. ID (DEG. K)	NUMBER STACK EXIT CATS. (GRAMS/SEC) (M/SEC)	STACK RATE DIAMETER (METERS)	BLDG X EXIST	URBAN SOURCE	CAP/ HOR (METERS)	BASE ELEV. SCALAR (METERS)	EMI S RATE (METERS)
SV1 0.0	NO 10.36	0 394.26	0.28476E+01 21.83		15.2 1.22	0.0 NO	NO	NO

\*\*\* SOURCE IDs DEFINING SOURCE GROUPS \*\*\*

GROUP ID	SOURCE IDs
ALL	SV1

8784 HRS) RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3

\*\*

GROUP ID (ZHILL, ZFLAG)	OF TYPE	GRID-ID	AVERAGE CONC	RECEPTOR	NETWORK (XR, YR, ZELEV,
ALL	1ST HIGHEST VALUE IS		1.98521 AT	( 199.90,	199.90,
0.00,	0.00,	0.00)	DC		
	2ND HIGHEST VALUE IS		1.98398 AT	( 199.90,	100.00,

25742aermod

0.00,	0.00,	0.00)	DC		
	3RD HIGHEST VALUE IS		1.92930 AT	( 299.90,	199.90,
0.00,	0.00,	0.00)	DC		
	4TH HIGHEST VALUE IS		1.53687 AT	( 299.90,	299.90,
0.00,	0.00,	0.00)	DC		
	5TH HIGHEST VALUE IS		1.49173 AT	( 399.90,	199.90,
0.00,	0.00,	0.00)	DC		
	6TH HIGHEST VALUE IS		1.47288 AT	( 399.90,	299.90,
0.00,	0.00,	0.00)	DC		
	7TH HIGHEST VALUE IS		1.36305 AT	( 299.90,	100.00,
0.00,	0.00,	0.00)	DC		
	8TH HIGHEST VALUE IS		1.35956 AT	( 100.00,	100.00,
0.00,	0.00,	0.00)	DC		
	9TH HIGHEST VALUE IS		1.34712 AT	( 100.00,	199.90,
0.00,	0.00,	0.00)	DC		
	10TH HIGHEST VALUE IS		1.31512 AT	( 199.90,	299.90,
0.00,	0.00,	0.00)	DC		

\*\*\* THE SUMMARY OF HIGHEST 3-HR

RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3

\*\*

DATE

GROUP ID (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK	AVERAGE CONC OF TYPE	GRID-ID	(YYMMDDHH)	RECEPTOR
ALL	HIGH 1ST HIGH VALUE IS	81.60218	ON 92082806:	AT	(
100.00,	-100.00, 0.00,	0.00,	0.00)	DC	
100.00,	HIGH 2ND HIGH VALUE IS	66.94814	ON 92071224:	AT	(
	100.00, 0.00,	0.00,	0.00)	DC	

\*\*\* THE SUMMARY OF HIGHEST 24-HR

RESULTS \*\*\*

\*\* CONC OF OTHER IN MICROGRAMS/M\*\*3

\*\*

DATE

GROUP ID (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK	AVERAGE CONC OF TYPE	GRID-ID	(YYMMDDHH)	RECEPTOR
ALL	HIGH 1ST HIGH VALUE IS	29.04831c	ON 92071224:	AT	( 100.00,
100.00,	0.00, 0.00,	0.00)	DC		
199.90,	HIGH 2ND HIGH VALUE IS	22.64797	ON 92110224:	AT	( 199.90,
	0.00, 0.00,	0.00)	DC		