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

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: July 13, 2009

RE: Brooks Construction, Inc. / 003-27335-00374

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

Notice of Decision: Approval - Effective Immediately

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

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

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

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

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

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

Enclosures
FNPER.dot12/03/07

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

Brooks Construction, Inc.
2711 Banks Avenue
Fort Wayne, Indiana 46802

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

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

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17. This permit also addresses certain new source review requirements for existing equipment and is intended to fulfill the new source review procedures pursuant to 326 IAC 2-8-11.1, applicable to those conditions

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

Operation Permit No.: F003-27335-00374	
Issued by: Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: July 13, 2009 Expiration Date: July 13, 2014

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SECTION A SOURCE SUMMARY

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

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

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

Source Address:	2711 Banks Avenue, Fort Wayne, IN 46802
Mailing Address:	2625 Ardmore Avenue, Fort Wayne, IN 46899
General Source Phone Number:	(260) 478-1990
SIC Code:	2851
County Location:	Allen
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

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

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

(a) One (1) asphalt parallel flow drum mixer/dryer, identified as EU-01, capable of processing 250 tons per hour of raw material, equipped with one (1) 86 million (MM) British thermal units (Btu) per hour natural gas fired burner, using No. 2 distillate fuel oil, refinery blend fuel oil, or waste oil as a back-up fuel, processing steel slag in the aggregate mix; equipped with one (1) high efficiency cyclone collector identified as CE-01 and one (1) fabric filter baghouse, identified as CE-02, in line, for particulate matter (PM) control, and one (1) 45.95 MMBtu/hr thermal oxidizer, identified as CE-03, as a voluntary control, for volatile organic compounds, exhausting at one (1) stack SV-1. This plant does not produce cold mix asphalt.

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

(b) Material Handling and conveying operations, approved for construction in 2009, consisting of the following:

(1) Two (2) cold feed systems

(2) Two (2) pug mills

(3) Four (4) Feeder Conveyors

(4) Four (4) Screens

(5) One (1) Recycled Asphalt Pavement (RAP) System

(c) One (1) liquid asphalt storage tank, identified as T-01, with a maximum storage capacity of 20,000 gallons.

(d) One (1) number two (No. 2) fuel storage tank, identified as T-02, with a maximum storage capacity of 20,000 gallons.

(e) One (1) rejuvenator storage tank, identified as T-03, with a maximum storage capacity of 20,000 gallons.

(f) One (1) waste oil storage tank, identified as T-04, with a maximum storage capacity of 20,000 gallons.

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

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

This stationary source also includes the following insignificant activities:

(a) Fuel dispensing activities including the following:

(1) A gasoline fuel transfer dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day and having a capacity equal to or less than ten thousand five hundred (10,500) gallons. Such storage tanks may be in a fixed location or on mobile equipment.

(2) A petroleum fuel, other than gasoline, dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less.

(b) Paved and unpaved roads with limited public access.

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

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

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

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

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

(a) The attached Affidavit of Construction shall be submitted to the Office of Air Quality (OAQ), verifying that the emission units were constructed as proposed in the application or the permit. The emission units covered in this permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emission units differs from the construction proposed in the application, the source may not begin operation until the permit has been revised pursuant to 326 IAC 2 and an Operation Permit Validation Letter is issued.

(c) The Permittee shall attach the Operation Permit Validation Letter received from the Office of Air Quality (OAQ) to this permit.

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

(a) This permit, F003-27335-00374, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

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

B.5 Term of Conditions [326 IAC 2-1.1-9.5]

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

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

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

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

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

B.7 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.8 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.9 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.10 Certification [326 IAC 2-8-3(d)][326 IAC 2-8-4(3)(C)(i)][326 IAC 2-8-5(1)]

(a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an "authorized individual" of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.

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

B.11 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]

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

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

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

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

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

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

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

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

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

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

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

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

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

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

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

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

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

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

The PMP extension notification does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or

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

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

B.14 Emergency Provisions [326 IAC 2-8-12]

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

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

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

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

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

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

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865

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

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

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

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

(A) A description of the emergency;

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

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require 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. Any emergencies that have been previously reported pursuant to paragraph (b)(5) of this condition and certified by an "authorized individual" need only referenced by the date of the original report.

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

(a) All terms and conditions of permits established prior to F003-27335-00374 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised, or

(3) deleted.

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

B.16 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]

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

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

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

using the attached Quarterly Deviation and Compliance Monitoring Report, or its equivalent. A deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report.

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

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

B.18 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)][326 IAC 2-8-7(a)][326 IAC 2-8-8]

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

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

(1) That this permit contains a material mistake.

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

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

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

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

B.19 Permit Renewal [326 IAC 2-8-3(h)]

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

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

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

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

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

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

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

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

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

Any such application shall be certified by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

B.21 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

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

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

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

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

(4) The Permittee notifies the:

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

and

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

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

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

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

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

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

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

B.22 Source Modification Requirement [326 IAC 2-8-11.1]

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

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

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

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

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

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

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

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

B.24 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

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

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

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

The application which shall be submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

B.25 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ within thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

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

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

B.26 Advanced Source Modification Approval [326 IAC 2-8-4(11)] [326 IAC 2-1.1-9]

(a) The requirements to obtain a permit modification under 326 IAC 2-8-11.1 are satisfied by this permit for the proposed emission units, control equipment or insignificant activities in Sections A.2 and A.3.

(b) Pursuant to 326 IAC 2-1.1-9 any permit authorizing construction may be revoked if construction of the emission unit has not commenced within eighteen (18) months from the date of issuance of the permit, or if during the construction, work is suspended for a continuous period of one (1) year or more.

B.27 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

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

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

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

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

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

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

(a) Pursuant to 326 IAC 2-8:

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

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

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

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

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

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

C.3 Opacity [326 IAC 5-1]

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

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A,

Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

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

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

C.5 Incineration [326 IAC 4-2] [326 IAC 9-1-2]

The Permittee shall not operate an incinerator 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]

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

C.7 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]

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

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

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]

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

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

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

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

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

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

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

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-52 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]

(a) Compliance testing on new emissions units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this permit, shall be submitted to:

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

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require 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]

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)]

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 or ninety (90) days of initial start-up, whichever is later. 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 and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251

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

The notification which shall be submitted by the Permittee does require 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]

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)]

(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 shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

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

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

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

(c) If the ERP is disapproved by IDEM, OAQ, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

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

C.16 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]

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

C.17 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

(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 or ninety (90) days of initial start-up, whichever is later.

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

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

(d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(e) The first report shall cover the period commencing on the date of issuance of this permit or the date of initial start-up, whichever is later, and ending on the last day of the reporting period. Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit, “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

C.21 Compliance with 40 CFR 82 and 326 IAC 22-1

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

(a) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156.

(b) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158.

(c) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) asphalt parallel flow drum mixer/dryer, identified as EU-01, capable of processing 250 tons per hour of raw material, equipped with one (1) 86 million (MM) British thermal units (Btu) per hour natural gas fired burner, using No. 2 distillate fuel oil, refinery blend fuel oil, or waste oil as a back-up fuel, processing steel slag in the aggregate mix; equipped with one (1) high efficiency cyclone collector identified as CE-01 and one (1) fabric filter baghouse, identified as CE-02, in line, for particulate matter (PM) control, and one (1) 45.95 MMBtu/hr thermal oxidizer, identified as CE-03, as a voluntary control, for volatile organic compounds, exhausting at one (1) stack SV-1. This plant does not produce cold mix asphalt.

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

(b) Material Handling and conveying operations, approved for construction in 2009, consisting of the following:

(1) Two (2) cold feed systems

(2) Two (2) pug mills

(3) Four (4) Feeder Conveyors

(4) Four (4) Screens

(5) One (1) Recycled Asphalt Pavement (RAP) System

(c) One (1) liquid asphalt storage tank, identified as T-01, with a maximum storage capacity of 20,000 gallons.

(d) One (1) number two (No. 2) fuel storage tank, identified as T-02, with a maximum storage capacity of 20,000 gallons.

(e) One (1) rejuvenator storage tank, identified as T-03, with a maximum storage capacity of 20,000 gallons.

(f) One (1) waste oil storage tank, identified as T-04, with a maximum storage capacity of 20,000 gallons.

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

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

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

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

(a) In order to render 326 IAC 2-2 not applicable, the amount of asphalt processed shall not exceed 1,238,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(b) PM emissions from the dryer/mixer shall not exceed 0.267 pounds per ton of asphalt processed.

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

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

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

(a) The amount of asphalt processed shall not exceed 1,238,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(b) The PM10 emissions from the dryer/mixer shall not exceed 0.118 pounds per ton of asphalt processed.

(c) The PM2.5 emissions from the dryer/mixer shall not exceed 0.142 pounds per ton of asphalt processed.

(d) The CO emissions from the dryer/mixer shall not exceed 0.130 pounds per ton of asphalt processed.

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

(f) The SO2 emissions from the dryer/mixer shall not exceed 0.0014 pounds per ton of asphalt processed.

(g) The sulfur content of the slag shall not exceed 0.66 percent by weight.

(h) The Permittee shall only use steel slag. The steel slag usage shall not exceed 371,400 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limitations, combined with the limited PTE from other emission units at this source, shall limit the source-wide total potential to emit PM10, PM2.5, CO, VOC, and SO2 to less than 100 tons per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) not applicable.

D.1.3 Hazardous Air Pollutants (HAPs) [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following fuel limitations combusted in the dryer/mixer burner and all other combustion equipment:

(a) The HCl emissions shall not exceed 26.4 pounds of HCl per 1,000 gallons of waste oil burned.

(b) The waste oil combusted shall not contain more than 0.65% ash, 0.400% chlorine, and 0.04% Lead.

Compliance with these limits, combined with the limited PTE from all other emission units at this source, shall limit the source-wide total potential to HCL to less than 10 tons per 12 consecutive month period, and any combination of HAPs to less than 25 tons per 12 consecutive month

period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

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

Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following fuel limitations combusted in the dryer/mixer burner and all other combustion equipment:

(a) Sulfur Content Specifications

(1) The sulfur content of No.2 fuel oil shall not exceed 0.50 percent by weight.

(2) The sulfur content of the refinery blend fuel oil shall not exceed 1.00 percent by weight.

(3) The sulfur content of the waste fuel oil shall not exceed 1.00 percent by weight.

(b) 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) Natural gas usage shall not exceed 1,850 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month,

(2) No. 2 fuel oil usage shall not exceed 2,638,153 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month;

(3) Refinery blend fuel oil usage shall not exceed 1,193,050 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month; and

(4) Waste oil usage shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) Multiple Fuel Usage Limitation:

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

(1) NOx emissions from the dryer/mixer and all other combustion equipment shall be less than 100 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) SO_2 emissions from the dryer/mixer and all other combustion equipment shall be less than 100 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limits, combined with the limited PTE from all other emission units at this source, shall limit the source-wide total potential to emit NOx and SO_2 to less than 100 tons per 12 consecutive month period, each, 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_2) [326 IAC 7-1.1-1][326 IAC 7-2-1]

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

(a) The sulfur dioxide (SO_2) emissions from the dryer/mixer burner shall not exceed 0.5 pounds per million Btu heat input when using distillate oil.

(b) The sulfur dioxide (SO_2) emissions from the dryer/mixer burner shall not exceed 1.60 pounds per million Btu heat input when using residual oil.

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

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

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

The amount of asphalt processed shall not exceed 1,238,000 tons per twelve (12) consecutive month period and a VOC limit of 0.032 pound of VOC per ton of hot mix asphalt produced.

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

D.1.7 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 dryer/burner and parallel flow drum mixer unit and their control device.

Compliance Determination Requirements

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

(a) Within sixty (60) days after achieving maximum capacity, but not later than one hundred and eighty (180) days after startup, in order to demonstrate compliance with Condition D.1.1, the Permittee shall perform PM testing of the dryer/mixer utilizing methods approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration.

(b) In order to demonstrate compliance with Conditions D.1.2(b) and D.1.2(c), the Permittee shall perform PM2.5 and PM10 testing on the dryer/mixer within 180 days of publication of the new or revised condensible PM test method(s) referenced in the U.S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5), signed on May 8th, 2008 or within 180 days, whichever is later. This testing shall be conducted utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with Section C- Performance Testing. PM10 and PM2.5 includes filterable and condensible PM.

(c) Within sixty (60) days after achieving maximum capacity, but not later than one hundred and eighty (180) days after startup, in order to demonstrate compliance with Condition D.1.2(f) and D.1.2(g), the Permittee shall perform SO2 testing of the dryer/mixer utilizing methods approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration.

D.1.9 Particulate Control

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

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

D.1.10 Multiple Fuel Usage Limitation

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

(1) Nitrogen Oxide (NOx) emission calculation:

$$\frac{N = G(E_G) + O(E_O) + R(E_R) + W(E_W)}{2{,}000 \text{ lbs/ton}}$$

where:
N = tons of nitrogen oxide emissions for a 12-month consecutive period
G = million cubic feet of natural gas used in the last 12 months
O = gallons of No. 2 fuel oil used in last 12 months
R = gallons of Refinery Blend fuel oil
W = gallons of Waste oil used for last 12 months
E_G = 100 lb/million cubic feet of natural gas
E_O = 20 lb/1000 gallons of No. 2 fuel oil
E_R = 55 lb/1000 gallons of Refinery Blend fuel oil
E_W = 19 lb/1000 gallons of Waste oil

(2) Sulfur Dioxide (SO_2) emission calculation:

$$\frac{S = G(E_G) + O(E_O) + R(E_R) + W(E_W) + T(E_T)}{2{,}000 \text{ lbs/ton}}$$

where:
S = tons of sulfur dioxide emissions for a 12-month consecutive period
G = million cubic feet of natural gas used in the last 12 months
O = gallons of No. 2 fuel oil used in last 12 months
R = gallons of Refinery Blend fuel oil used in last 12 months
W = gallons of Waste oil used in last 12 months
T = tons of slag used in last 12 months
E_G = 0.60 lb/million cubic feet of natural gas
E_O = 71.00 lb/1000 gallons of No. 2 fuel oil
E_R = 157 lb/1000 gallons of Refinery Blend fuel oil
E_W = 147 lb/1000 gallons of Waste oil
E_T = 0.0014 lb/ton of slag used

D.1.11 Sulfur Dioxide (SO_2) Emissions and Sulfur Content

(a) Compliance with the slag limitations established in Conditions D.1.2(f) and D.1.2(g) shall be determined utilizing one of the following options. Pursuant to 326 IAC 7-2-1 (Sulfur

Dioxide Reporting Requirements), compliance shall be demonstrated on a thirty (30) day calendar-month average.

(1) Maintaining all records of vendor analyses or certifications of slag delivered; or

(2) Analyzing a sample of the slag delivery if no vendor analyses or certifications are available, at least once per quarter, to determine the sulfur content of the slag, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the eighty six (86) million British thermal units per hour burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, or other procedures approved by IDEM, OAQ.

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

(b) Compliance with the fuel limitations established in Conditions D.1.4(a) and D.1.5 shall be determined utilizing one of the following options. Pursuant to 326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements), compliance shall be demonstrated on a thirty (30) day calendar-month average.

(1) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed five-tenths (0.5) pounds per million British thermal units heat input when combusting No. 2 fuel oil, or one (1.00) pound per million British thermal units heat input when combusting either refinery blend or waste fuel oils, by:

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

(B) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.

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

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

(2) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the 86 million British thermal units per hour burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

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

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

D.1.12 Visible Emissions Notations

(a) Visible emission notations of the conveyors, screens, material transfer points, and dryer/ mixer stack (SV-1) exhaust shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

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

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

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

(e) If abnormal emissions are observed, the Permittee shall take reasonable response steps 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.1.13 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 1.0 and 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.1.14 Broken or Failed Bag Detection

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

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

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

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

D.1.15 Record Keeping Requirements

(a) To document compliance with Conditions D.1.1(a), D.1.2(a) 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 Condition D.1.2(h), the Permittee shall keep records of the amount of slag processed through the dryer/mixer. Records necessary to demonstrate compliance shall be available within thirty (30) days of the end of each compliance period.

(c) To document compliance with Conditions D.1.2(f) and D.1.2(g), the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken daily and shall be complete and sufficient to establish compliance with the SO2 emission limits established in Conditions D.1.2(f) and D.1.2(g). For the sulfur content limit, the compliance determination period is each calendar month.

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

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

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

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

(4) Slag supplier certifications;

(5) The name of the slag supplier; and

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

(d) To document compliance with Conditions D.1.3, 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) 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 suppliers; and

(7) A statement from the fuel supplier that certifies the sulfur content of the No. 2 fuel oil, Refinery Blend fuel oil, and/or the 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.

(e) To document compliance with Conditions D.1.4(c) and D.1.10 when combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and hot oil heating system, the Permittee shall maintain records of actual fuel usage, and equivalent nitrogen oxides and sulfur dioxide emission rates for each fuel used at the source per month.

(f) To document compliance with Condition D.1.12, the Permittee shall maintain daily records of the visible emission notations from each of the conveyors, screens, material transfer points, and dryer/mixer stack (SV-1) exhaust. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the plant did not operate that day).

(g) To document compliance with Condition D.1.13, 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).

(h) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.16 Reporting Requirements

(a) A quarterly summary of the information to document compliance with Conditions D.1.1(a), D.1.2(a), D.1.2(h), 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 the “authorized individual” as defined by 326 IAC 2-1.1-1(1).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Insignificant Activities

(a) Fuel dispensing activities including the following:

(1) A gasoline fuel transfer dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day and having a capacity equal to or less than ten thousand five hundred (10,500) gallons. Such storage tanks may be in a fixed location or on mobile equipment.

(2) A petroleum fuel, other than gasoline, dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less.

(b) Paved and unpaved roads with limited public access.

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

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

D.2.1 PM and PM10 Emissions [326 IAC 2-8-4] [326 IAC 6-5]

Pursuant to 326 IAC 2-8 and 326 IAC 6-5, the Permittee shall control PM, PM10, and PM2.5 emissions from paved and unpaved roads according to the fugitive dust plan submitted, which is included as Attachment A to this permit.

SECTION E.1 FACILITY OPERATION CONDITIONS

Emissions Unit Description: Hot-Mix Asphalt Plant

(a) One (1) asphalt parallel flow drum mixer/dryer, identified as EU-01, capable of processing 250 tons per hour of raw material, equipped with one (1) 86 million (MM) British thermal units (Btu) per hour natural gas fired burner, using No. 2 distillate fuel oil, refinery blend fuel oil, or waste oil as a back-up fuel, processing steel slag in the aggregate mix; equipped with one (1) high efficiency cyclone collector identified as CE-01 and one (1) fabric filter baghouse, identified as CE-02, in line, for particulate matter (PM) control, and one (1) 45.95 MMBtu/hr thermal oxidizer, identified as CE-03, as a voluntary control, for volatile organic compounds, exhausting at one (1) stack SV-1. This plant does not produce cold mix asphalt.

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

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

New Source Performance Standards (NSPS) Requirements [326 IAC 2-8-4(1)]

E.1.1 NSPS Subpart I Requirements - Standards of Performance for Hot Mix Asphalt Facilities [40 CFR Part 60, Subpart I] [326 IAC 12-1]

Pursuant to CFR Part 60, Subpart I, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart I, which are incorporated by reference as 326 IAC 12-1 for the asphalt plant as specified as follows. Pursuant to 40 CFR 60.90(a), the affected facility to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

§ 60.90 Applicability and designation of affected facility.

(a) The affected facility to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

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

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

§ 60.91 Definitions.

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

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

[51 FR 12325, Apr. 10, 1986]

§ 60.92 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:
(1) Contain particulate matter in excess of 90 mg/dscm (0.04 gr/dscf).
(2) Exhibit 20 percent opacity, or greater.

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

§ 60.93 Test methods and procedures.

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

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

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

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

[54 FR 6667, Feb. 14, 1989]

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, Indiana 46802
Mailing Address: 2625 Ardmore Avenue, Fort Wayne, IN 46899
FESOP Permit No.: F003-27335-00374

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

Please check what document is being certified:

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

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

Signature:
Printed Name:
Title/Position:
Date:

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

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) EMERGENCY OCCURRENCE REPORT

Source Name:	Brooks Construction, Inc.
Source Address:	2711 Banks Avenue, Fort Wayne, Indiana 46802
Mailing Address:	2625 Ardmore Avenue, Fort Wayne, IN 46899
FESOP Permit No.:	F003-27335-00374

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

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

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

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

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

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

Form Completed by:_____

Title / Position:_____

Date:_____

Phone: _____

A certification is not required for this report.

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

FESOP Quarterly Report

Source Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, Indiana 46802
Mailing Address: 2625 Ardmore Avenue, Fort Wayne, IN 46899
FESOP Permit No.: F003-27335-00374
Facility: Dryer/Burner (EU-01)
Parameter: Hot Mix Asphalt Production
Limit: The amount of hot mix asphalt produced in the dryer/burner shall not exceed 1,238,000 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
	Hot Mix Asphalt Produced This Month (tons)	Hot Mix Asphalt Produced Previous 11 Months (tons)	12 Month Total Hot Mix Asphalt Produced (tons)
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

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

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

Attach a signed certification to complete this report.

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

Fuel / Slag Usage Quarterly Report

Page 1 of 2

Source Name:	Brooks Construction, Inc.
Source Address:	2711 Banks Avenue, Fort Wayne, Indiana 46802
Mailing Address:	2625 Ardmore Avenue, Fort Wayne, IN 46899
FESOP Permit No.:	F003-27335-00374
Facility:	EU-01
Parameters:	Nitrogen Oxides (NOx) and Sulfur Dioxide (SO_2) Emissions

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

$$N = \frac{G(E_G) + O(E_O) + R(E_R) + W(E_W)}{2{,}000 \text{ lbs/ton}}$$

where:
N = tons of nitrogen oxide emissions for a 12-month consecutive period
G = million cubic feet of natural gas used in the last 12 months
O = gallons of No. 2 fuel oil used in last 12 months
R = gallons of Refinery Blend fuel oil
W = gallons of Waste oil used for last 12 months
E_G = 100 lb/million cubic feet of natural gas
E_O = 20 lb/1000 gallons of No. 2 fuel oil
E_R = 55 lb/1000 gallons of Refinery Blend fuel oil
E_W = 19 lb/1000 gallons of Waste oil

Limit: Sulfur dioxide (SO_2) emissions shall be less than 100 tons per twelve (12) consecutive month period based on the following equation:

$$S = \frac{G(E_G) + O(E_O) + R(E_R) + W(E_W) + T(E_T)}{2{,}000 \text{ lbs/ton}}$$

where:
S = tons of sulfur dioxide emissions for a 12-month consecutive period
G = million cubic feet of natural gas used in the last 12 months
O = gallons of No. 2 fuel oil used in last 12 months
R = gallons of Refinery Blend fuel oil used in last 12 months
W = gallons of Waste oil used in last 12 months
T = tons of slag used in last 12 months
E_G = 0.60 lb/million cubic feet of natural gas
E_O = 71.00 lb/1000 gallons of No. 2 fuel oil
E_R = 157 lb/1000 gallons of Refinery Blend fuel oil
E_W = 147 lb/1000 gallons of Waste oil
E_T = 0.0014 lb/ton of slag used

Multiple Fuel Quarterly Report

QUARTER:_____ YEAR:_____

Month		Column 1	Column 2	Column 1 + Column 2	Equation Results
	Fuel Types / Slag (units)	Usage This Month	Usage Previous 11 Months	Usage 12 Month Total	Emissions (tons per 12 months)
Month 1	Natural Gas (million cubic feet)				Nitrogen Oxides = Sulfur Dioxide =
	No. 2 Fuel Oil (gallons)				
	Refinery Blend fuel oil (gallons)				
	Used/waste oil (gallons)				
	Slag Usage (tons)				
Month 2	Natural Gas (million cubic feet)				Nitrogen Oxides = Sulfur Dioxide =
	No. 2 Fuel Oil (gallons)				
	Refinery Blend fuel oil (gallons)				
	Used/waste oil (gallons)				
	Slag Usage (tons)				
Month 3	Natural Gas (million cubic feet)				Nitrogen Oxides = Sulfur Dioxide =
	No. 2 Fuel Oil (gallons)				
	Refinery Blend fuel oil (gallons)				
	Used/waste oil (gallons)				
	Slag Usage (tons)				

☐ 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 AND ENFORCEMENT BRANCH
FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, Indiana 46802
Mailing Address: 2625 Ardmore Avenue, Fort Wayne, IN 46899
FESOP Permit No.: F003-27335-00374

Months: _____ to _____ Year: _____

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'.

☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.

☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

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

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

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

Form Completed by:_____

Title / Position:_____

Date:_____

Phone: _____

Attach a signed certification to complete this report.

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

Brooks Construction, Inc.
2711 Banks Avenue
Fort Wayne, Indiana 46802

Affidavit of Construction

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

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of _____ for _____.
(Title) (Company Name)

3. By virtue of my position with _____, I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of _____.
(Company Name)

4. I hereby certify that Brooks Construction, Inc. 2711 Banks Avenue, Fort Wayne, Indiana 46802, completed construction of the drum hot mix asphalt plant. on _____in conformity with the requirements and intent of the construction permit application received by the Office of Air Quality on January 5, 2008 and as permitted pursuant to New Source Construction Permit and Federally Enforceable State Operating Permit No. F003-27335-00374, Plant ID No. 003-00374 issued on _____.

5. **Permittee, please cross out the following statement if it does not apply:** Additional (operations/facilities) were constructed/substituted as described in the attachment to this document and were not made in accordance with the construction permit.

Further Affiant said not.

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

Signature_____
Date_____

STATE OF INDIANA)
)SS

COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of Indiana

on this _____ day of _____, 20 _____. My Commission expires: _____.

Signature_____
Name_____ (typed or printed)

Attachment A

ASPHALT PLANT SITE FUGITIVE DUST CONTROL PLAN

BROOKS CONSTRUCTION
2711 BANKS AVENUE
FORT WAYNE, IN 46802

(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 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 chip and seal the road surface and maintained 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) Maintain 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 one or more of the following measures:

(1) Apply water at the feed and the intermediate points on an as needed basis.

(d) Fugitive particulate matter (dust) emissions from the transferring of aggregates shall be controlled by one or more of the following measures:

(1) Minimize the vehicular distance between the transfer points.
(2) Enclose the transfer points.
(3) Apply water on transfer points on an as needed basis.

(e) Fugitive particulate matter (dust) emissions from transporting 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) Maintain vehicle bodies in a condition to prevent leakage.
(3) Spray the aggregates with water.
(4) Maintain a 10 mile per hour (MPH) speed limit in the yard.

(f) Fugitive particulate matter (dust) emissions from the loading and unloading of aggregate shall be controlled by one or more of the following measures:

(1) Reduce free fall distance to a minimum.
(2) Reduce the rate of discharge of the aggregate.
(3) Spray 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

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

Source Background and Description

Source Name:	**Brooks Construction, Inc.**
Source Location:	**2711 Banks Avenue, Fort Wayne, IN 46802**
County:	**Allen**
SIC Code:	**2851**
Operation Permit No.:	**F 003-27335-00374**
Permit Reviewer:	**Jason R. Krawczyk**

On May 9, 2009, the Office of Air Quality (OAQ) had a notice published in the Fort Wayne Journal Gazette, Fort Wayne, Indiana, stating that Brooks Construction, Inc. had applied for a New Source Construction and FESOP to construct and operate a new parallel flow drum mix asphalt plant. The notice also stated that the OAQ proposed to issue a New Source Construction and FESOP for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Comments and Responses

On June 5, 2009, Ms. Lauren Pecina, the consultant for Brooks Construction, Inc, submitted comments to IDEM, OAQ on the draft New Source Construction and FESOP.

The Technical Support Document (TSD) is used by IDEM, OAQ for historical purposes. IDEM, OAQ does not make any changes to the original TSD, but the Permit will have the updated changes. The comments and revised permit language are provided below with deleted language as ~~strikeouts~~ and new language **bolded**.

Comment 1:

> The source would like to amend the frequency for determining compliance with the SO2 pound per ton of asphalt processed and sulfur content of slag limitations, from requiring a vendor certification or analyzing a sample of the slag, from every load delivered, to a less recurrent frequency because the source uses steel slag.
>
> "The requirement for a certification with every slag load is going to be an issue... Is it possible to have the permit language amended...?"

Response to Comment 1:

> IDEM agrees with the recommended changes, since specific slag usage (steel versus blast furnace) submitted by the source shows a significantly lower sulfur percentage than first estimated. In addition, IDEM agrees with the changes, taking into account steel slag test results performed at a similarly operated facility. Due to this new information, the PTE and Limited PTE have been updated (See Appendices A.1 and A.2 of this Addendum to the TSD.) The permit has been revised as follows:

...

D.1.11 Sulfur Dioxide (SO_2) Emissions and Sulfur Content

(a) Compliance with the slag limitations established in Conditions D.1.2(f) and D.1.2(g) shall be determined utilizing one of the following options. Pursuant to 326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements), compliance shall be demonstrated on a thirty (30) day calendar-month average.

(1) ~~Providing~~ **Maintaining all records of** vendor ~~analysis~~ **analyses or certifications** of slag delivered~~, if accompanied by a vendor certification~~; or

(2) Analyzing a sample of the slag delivery **if no vendor analyses or certifications are available, at least once per quarter,** to determine the sulfur content of the slag, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the eighty six (86) million British thermal units per hour burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, or other procedures approved by IDEM, OAQ.

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

...

Additional Changes

IDEM, OAQ has decided to make additional revisions to the permit as described below, with deleted language as ~~strikeouts~~ and new language **bolded**.

1. IDEM, OAQ is revising Section B - Emergency Provisions to allow the Permittee to reference a previously reported emergency under paragraph (b)(5) in the Quarterly Deviation and Compliance Monitoring Report.

...

B.14 Emergency Provisions [326 IAC 2-8-12]

...

(h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report. **Any emergencies that have been previously reported pursuant to paragraph (b)(5) of this condition and certified by an "authorized individual" need only referenced by the date of the original report.**

...

2. IDEM, OAQ is revising the slag usage limitations based upon additional information from the source indicating that they will only use steel slag and by using the most recent stack test data submitted by a similar source performing batch mix asphalt operations with steel slag aggregate.

...

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

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

(a) One (1) asphalt parallel flow drum mixer/dryer, identified as EU-01, capable of processing 250 tons per hour of raw material, equipped with one (1) 86 million (MM) British thermal units (Btu) per hour natural gas fired burner, using No. 2 distillate fuel oil, refinery blend fuel oil, or waste oil as a back-up fuel, processing **steel** slag in the aggregate mix;

equipped with one (1) high efficiency cyclone collector identified as CE-01 and one (1) fabric filter baghouse, identified as CE-02, in line, for particulate matter (PM) control, and one (1) 45.95 MMBtu/hr thermal oxidizer, identified as CE-03, as a voluntary control, for volatile organic compounds, exhausting at one (1) stack SV-1. This plant does not produce cold mix asphalt.

...

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) asphalt parallel flow drum mixer/dryer, identified as EU-01, capable of processing 250 tons per hour of raw material, equipped with one (1) 86 million (MM) British thermal units (Btu) per hour natural gas fired burner, using No. 2 distillate fuel oil, refinery blend fuel oil, or waste oil as a back-up fuel, processing **steel** slag in the aggregate mix; equipped with one (1) high efficiency cyclone collector identified as CE-01 and one (1) fabric filter baghouse, identified as CE-02, in line, for particulate matter (PM) control, and one (1) 45.95 MMBtu/hr thermal oxidizer, identified as CE-03, as a voluntary control, for volatile organic compounds, exhausting at one (1) stack SV-1. This plant does not produce cold mix asphalt.

...

...

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

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

...

(f) The SO2 emissions from the dryer/mixer shall not exceed ~~0.540~~ **0.0014** pounds per ton of asphalt processed.

(g) The sulfur content of the slag shall not exceed ~~1.10~~ **0.66** percent by weight.

(h) The **source shall only use steel slag. The steel** ~~with~~ slag usage shall not exceed ~~185,700~~ **371,400** tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

...

Due to the change in slag limits, the No. 2 fuel oil, refinery blend fuel oil, and waste oil usages were adjusted. (See Appendix A.2 of this ATSD for calculations.)

...

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

Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following fuel limitations combusted in the dryer/mixer burner and all other combustion equipment:

...

(b) <u>Single Fuel Usage Limitations:</u>

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) Natural gas usage shall not exceed 1,850 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month,

(2) No. 2 fuel oil usage shall not exceed ~~1,233,110~~ **2,638,153** gallons per twelve (12)

consecutive month period, with compliance determined at the end of each month;

(3) Refinery blend fuel oil usage shall not exceed ~~557,648~~ **1,193,050** gallons per twelve (12) consecutive month period, with compliance determined at the end of each month; and

(4) Waste oil usage shall not exceed ~~595,584~~ **750,000** gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

....

D.1.10 Multiple Fuel Usage Limitation

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

...

(2) Sulfur Dioxide (SO_2) emission calculation:

$$S = \frac{G(E_G) + O(E_O) + R(E_R) + W(E_W) + T(E_T)}{2{,}000 \text{ lbs/ton}}$$

where:

S = tons of sulfur dioxide emissions for a 12-month consecutive period
G = million cubic feet of natural gas used in the last 12 months
O = gallons of No. 2 fuel oil used in last 12 months
R = gallons of Refinery Blend fuel oil used in last 12 months
W = gallons of Waste oil used in last 12 months
T = tons of slag used in last 12 months
E_G = 0.60 lb/million cubic feet of natural gas
E_O = 71.00 lb/1000 gallons of No. 2 fuel oil
E_R = 157 lb/1000 gallons of Refinery Blend fuel oil
E_W = 147 lb/1000 gallons of Waste oil
E_T = ~~0.54~~ **0.0014** lb/ton of slag used

...

SECTION E.1 FACILITY OPERATION CONDITIONS

Emissions Unit Description: Hot-Mix Asphalt Plant

(a) One (1) asphalt parallel flow drum mixer/dryer, identified as EU-01, capable of processing 250 tons per hour of raw material, equipped with one (1) 86 million (MM) British thermal units (Btu) per hour natural gas fired burner, using No. 2 distillate fuel oil, refinery blend fuel oil, or waste oil as a back-up fuel, processing **steel** slag in the aggregate mix; equipped with one (1) high efficiency cyclone collector identified as CE-01 and one (1) fabric filter baghouse, identified as CE-02, in line, for particulate matter (PM) control, and one (1) 45.95 MMBtu/hr thermal oxidizer, identified as CE-03, as a voluntary control, for volatile organic compounds, exhausting at one (1) stack SV-1. This plant does not produce cold mix asphalt.

...

...

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

Fuel / Slag Usage Quarterly Report

Page 1 of 2

Source Name:	Brooks Construction, Inc.
Source Address:	2711 Banks Avenue, Fort Wayne, Indiana 46802
Mailing Address:	2625 Ardmore Avenue, Fort Wayne, IN 46899
FESOP Permit No.:	F003-27335-00374
Facility:	EU-01
Parameters:	Nitrogen Oxides (NOx) and Sulfur Dioxide (SO_2) Emissions

...

Limit: Sulfur dioxide (SO_2) emissions shall be less than 100 tons per twelve (12) consecutive month period based on the following equation:

$$\frac{S = G(E_G) + O(E_O) + R(E_R) + W(E_W) + T(E_T)}{2{,}000 \text{ lbs/ton}}$$

where:
S = tons of sulfur dioxide emissions for a 12-month consecutive period
G = million cubic feet of natural gas used in the last 12 months
O = gallons of No. 2 fuel oil used in last 12 months
R = gallons of Refinery Blend fuel oil used in last 12 months
W = gallons of Waste oil used in last 12 months
T = tons of slag used in last 12 months
E_G = 0.60 lb/million cubic feet of natural gas
E_O = 71.00 lb/1000 gallons of No. 2 fuel oil
E_R = 157 lb/1000 gallons of Refinery Blend fuel oil
E_W = 147 lb/1000 gallons of Waste oil
E_T = ~~0.54~~ **0.0014** lb/ton of slag used

...

3. Condition D.1.15(f) references the wrong Condition; therefore, it has been revised as follows:

...

D.1.15 Record Keeping Requirements

...

(f) To document compliance with Condition ~~D.1.11~~ **D.1.12**, the Permittee shall maintain daily records of the visible emission notations from each of the conveyors, screens, material transfer points, and dryer/mixer stack (SV-1) exhaust. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the plant did not operate that day).

...

4. Condition D.1.4 has been revised as follows to correct a typographical error:

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

Pursuant to 326 IAC 2-8-4, the Permittee shall comply with the following fuel limitations combusted in the dryer/mixer burner and all other combustion equipment:

...

(c) 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 hot oil heating system~~ shall be limited as follows:

...

5. Condition D.1.10 has been revised as follows to correct a typographical error:

...

D.1.10 Multiple Fuel Usage Limitation

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

...

IDEM Contact

(a) Questions regarding this proposed New Source Construction and FESOP can be directed to Jason R. Krawczyk 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) 232-8427 or toll free at 1-800-451-6027 extension 2-8427.

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

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

Appendix A.1: Emissions Calculations
Unlimited Emission Summary

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Asphalt Plant Maximum Capacity

Maximum Hourly Asphalt Production =	250	ton/hr								
Maximum Annual Asphalt Production =	2,190,000	ton/yr								
Annual Slag Usage =	657,000	ton/yr	0.33	% sulfur						
Maximum Fuel Input Rate (Dryer/Burner) =	86	MMBtu/hr								
Equivalent Natural Gas Usage =	753	MMCF/yr								
Equivalent No. 2 Fuel Oil Usage =	5,381,143	gal/yr, and	0.50	% sulfur						
Refinery Blend (No.2 and No. 6) Fuel Oil Limitation =	5,381,143	gal/yr, and	1.00	% sulfur						
Equivalent Used/Waste Oil Usage =	5,381,143	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine,	0.040	% lead

Unlimited/Uncontrolled Emissions

	Unlimited/Uncontrolled Potential to Emit (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Fuel Combustion (worst case)	111.93	89.19	89.19	422.42	147.98	2.69	31.64	78.76	71.03	(hydrogen chloride)
Dryer/Mixer	30660.00	7117.50	1642.50	63.51	60.23	35.04	142.35	11.67	3.39	(formaldehyde)
Dryer/Mixer Slag Processing	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	
Hot Oil Heater	0.02	0.07	0.07	0.25	0.88	0.05	0.74	0.02	0.02	(Hexane)
Thermal Oxidizer Combustion	0.38	1.53	1.53	5.74	6.44	1.11	16.91	0.38	0.36	(Hexane)
Worst Case Emissions*	**30660.40**	**7119.10**	**1644.10**	**428.64**	**155.30**	**36.20**	**159.99**	**79.16**	**71.03**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	1.21	1.21	1.21	0	0	17.96	1.86	0.31	0.10	(formaldehyde)
Material Storage Piles	1.60	0.56	0.56	0	0	0	0	0	0	
Material Processing and Handling	7.07	3.35	0.51	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	34.74	12.69	12.69	0	0	0	0	0	0	
Unpaved Roads (worst case)	103.29	26.33	2.63	0	0	0	0	0	0	
Gasoline Dispensing	0	0	0	0	0	4.34	0	1.13	0.39	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl.	0	negl.	negl.	
Total Fugitive Emissions	**147.93**	**44.14**	**17.60**	**0**	**0**	**22.29**	**1.86**	**1.44**	**0.39**	(xylenes)
Totals Unlimited/Uncontrolled PTE	**30808.33**	**7163.23**	**1661.70**	**428.64**	**155.30**	**58.49**	**161.85**	**80.60**	**71.42**	(xylenes)

negl = negligible

* Worst case emissions include the worst case emissions from Fuel Combustion and Dryer/Mixer, in addition to the Dryer/Mixer Slag Processing, Hot Oil Heater, and Thermal Oxidizer Combustion emissions.

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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

Maximum Capacity

Maximum Annual Asphalt Production =	2,190,000	ton/yr								
Maximum Fuel Input Rate =	86	MMBtu/hr								
Equivalent Natural Gas Usage =	753	MMCF/yr								
Equivalent No. 2 Fuel Oil Usage =	5,381,143	gal/yr, and	0.50	% sulfur						
Refinery Blend (No.2 and No. 6) Fuel Oil Limitation =	5,381,143	gal/yr, and	1.00	% sulfur						
Equivalent Used/Waste Oil Usage =	5,381,143	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine	0.040	% lead

Unlimited/Uncontrolled Emissions

	Emission Factor (units)				Unlimited/Uncontrolled Potential to Emit (tons/yr)				
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	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)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	12.41	41.6	0.72	5.38	33.39	111.93	**111.93**
PM10[1]	7.6	3.3	13.91	33.15	2.86	8.88	37.43	89.19	**89.19**
SO2	0.6	71.0	157.0	147.0	0.23	191.03	422.42	395.51	**422.42**
NOx	100	20.0	55.0	19.0	37.67	53.81	147.98	51.12	**147.98**
VOC	5.5	0.20	0.28	1.0	2.07	0.54	0.75	2.69	**2.69**
CO	84	5.0	5.0	5.0	31.64	13.45	13.45	13.45	**31.64**
Hazardous Air Pollutant									
HCl				26.4				71.03	**71.03**
Antimony			5.25E-03	negl			1.41E-02	negl	**1.4E-02**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.1E-01	7.5E-05	1.51E-03	3.55E-03	2.96E-01	**3.0E-01**
Beryllium	1.2E-05	4.2E-04	2.78E-05	negl	4.5E-06	1.13E-03	7.48E-05	negl	**1.1E-03**
Cadmium	1.1E-03	4.2E-04	3.98E-04	9.3E-03	4.1E-04	1.13E-03	1.07E-03	2.50E-02	**2.5E-02**
Chromium	1.4E-03	4.2E-04	8.45E-04	2.0E-02	5.3E-04	1.13E-03	2.27E-03	5.38E-02	**5.4E-02**
Cobalt	8.4E-05		6.02E-03	2.1E-04	3.2E-05		1.62E-02	5.65E-04	**1.6E-02**
Lead	5.0E-04	1.3E-03	1.51E-03	2.2	1.9E-04	3.39E-03	4.06E-03	5.9E+00	**5.92**
Manganese	3.8E-04	8.4E-04	3.00E-03	6.8E-02	1.4E-04	2.26E-03	8.07E-03	1.83E-01	**0.18**
Mercury	2.6E-04	4.2E-04	1.13E-04		9.8E-05	1.13E-03	3.04E-04		**1.1E-03**
Nickel	2.1E-03	4.2E-04	8.45E-02	1.1E-02	7.9E-04	1.13E-03	2.27E-01	2.96E-02	**0.227**
Selenium	2.4E-05	2.1E-03	6.83E-04	negl	9.0E-06	5.65E-03	1.84E-03	negl	**5.7E-03**
1.1.1-Trichloroethane			2.36E-04				6.35E-04		**6.3E-04**
1,3-Butadiene									**0.0E+00**
Acetaldehyde									**0.0E+00**
Acrolein									**0.0E+00**
Benzene	2.1E-03		2.14E-04		7.9E-04		5.76E-04		**7.9E-04**
Bis(2-ethylhexyl)phthalate				2.2E-03				5.92E-03	**5.9E-03**
Dichlorobenzene	1.2E-03			8.0E-07	4.5E-04			2.15E-06	**4.5E-04**
Ethylbenzene			6.36E-05				1.71E-04		**1.7E-04**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02		2.8E-02	1.64E-01	8.88E-02		**0.164**
Hexane	1.8E+00				6.8E-01				**0.678**
Phenol				2.4E-03				6.46E-03	**6.5E-03**
Toluene	3.4E-03		6.20E-03		1.3E-03		1.67E-02		**1.7E-02**
Total PAH Haps	negl		1.13E-03	3.9E-02	negl		3.04E-03	1.05E-01	**1.1E-01**
Polycyclic Organic Matter		3.30E-03				8.88E-03			**8.9E-03**
Xylene			1.09E-04				2.93E-04		**2.9E-04**
				Total HAPs	**0.71**	**0.19**	**0.39**	**77.66**	**78.76**

Note:
[1]Assumes PM10 = PM2.5

Methodology:
Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
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 combution:
No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
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
* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 11.1. Therefore, assumes Refinery Blend Fuel Oil emission factors equal to No. 6 Fuel Oil emissic

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

Appendix A.1: Emissions Calculations
Dryer/Mixer
Volatile Organic Compounds and Hazardous Air Pollutants

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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

Maximum Annual Asphalt Production = 2,190,000 ton/yr

	Uncontrolled Emission Factors (lb/ton)				Unlimited/Uncontrolled Potential to Emit (tons/yr)				
	Drum-Mix Plant (dryer/mixer)				Drum-Mix Plant (dryer/mixer)				
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Refinery Blend	Waste Oil	Natural Gas	No. 2 Fuel Oil	Refinery Blend	Waste Oil	**Worse Case PTE**
PM	28	28	28	28	30660.00	30660.00	30660.00	30660.00	**30660.00**
PM10	6.5	6.5	6.5	6.5	7117.50	7117.50	7117.50	7117.50	**7117.50**
PM2.5	1.5	1.5	1.5	1.5	1642.50	1642.50	1642.50	1642.50	**1642.50**
SO2	0.0034	0.011	0.058	0.058	3.72	12.05	63.51	63.51	**63.51**
NOx	0.026	0.055	0.055	0.055	28.47	60.23	60.23	60.23	**60.23**
VOC	0.032	0.032	0.032	0.032	35.04	35.04	35.04	35.04	**35.04**
CO	0.13	0.13	0.13	0.13	142.35	142.35	142.35	142.35	**142.35**
Hazardous Air Pollutant									
HCl			2.10E-04	2.10E-04			2.30E-01	2.30E-01	**0.23**
Antimony	1.80E-07	1.80E-07	1.80E-07	1.80E-07	1.97E-04	1.97E-04	1.97E-04	1.97E-04	**1.97E-04**
Arsenic	5.60E-07	5.60E-07	5.60E-07	5.60E-07	6.13E-04	6.13E-04	6.13E-04	6.13E-04	**6.13E-04**
Beryllium	negl	negl	negl	negl	negl	negl	negl.	negl	**0.00**
Cadmium	4.10E-07	4.10E-07	4.10E-07	4.10E-07	4.49E-04	4.49E-04	4.49E-04	4.49E-04	**4.49E-04**
Chromium	5.50E-06	5.50E-06	5.50E-06	5.50E-06	6.02E-03	6.02E-03	6.02E-03	6.02E-03	**6.02E-03**
Cobalt	2.60E-08	2.60E-08	2.60E-08	2.60E-08	2.85E-05	2.85E-05	2.85E-05	2.85E-05	**2.85E-05**
Lead	6.20E-07	1.50E-05	1.50E-05	1.50E-05	6.79E-04	0.02	0.02	0.02	**0.02**
Manganese	7.70E-06	7.70E-06	7.70E-06	7.70E-06	8.43E-03	8.43E-03	8.43E-03	8.43E-03	**8.43E-03**
Mercury	2.40E-07	2.60E-06	2.60E-06	2.60E-06	2.63E-04	2.85E-03	2.85E-03	2.85E-03	**2.85E-03**
Nickel	6.30E-05	6.30E-05	6.30E-05	6.30E-05	0.07	0.07	0.07	0.07	**0.07**
Selenium	3.50E-07	3.50E-07	3.50E-07	3.50E-07	3.83E-04	3.83E-04	3.83E-04	3.83E-04	**3.83E-04**
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	4.00E-05	0.04	0.04	0.04	0.04	**0.04**
Acetaldehyde			1.30E-03	1.30E-03			1.42	1.42	**1.42**
Acrolein			2.60E-05	2.60E-05			0.03	0.03	**0.03**
Benzene	3.90E-04	3.90E-04	3.90E-04	3.90E-04	0.43	0.43	0.43	0.43	**0.43**
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	2.40E-04	0.26	0.26	0.26	0.26	**0.26**
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	3.10E-03	3.39	3.39	3.39	3.39	**3.39**
Hexane	9.20E-04	9.20E-04	9.20E-04	9.20E-04	1.01	1.01	1.01	1.01	**1.01**
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	4.80E-05	0.05	0.05	0.05	0.05	**0.05**
MEK			2.00E-05	2.00E-05			0.02	0.02	**0.02**
Propionaldehyde			1.30E-04	1.30E-04			0.14	0.14	**0.14**
Quinone			1.60E-04	1.60E-04			0.18	0.18	**0.18**
Toluene	1.50E-04	2.90E-03	2.90E-03	2.90E-03	0.16	3.18	3.18	3.18	**3.18**
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	8.80E-04	0.21	0.96	0.96	0.96	**0.96**
Xylene	2.00E-04	2.00E-04	2.00E-04	2.00E-04	0.22	0.22	0.22	0.22	**0.22**
								Total HAPs	**11.67**
								Worst Single HAP	**3.39 (formaldehyde)**

Methodology

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

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

* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 11.1. Therefore, assumes Refinery Blend Fuel Oil emission factors equal to No. 6 Fuel Oi

Abbreviations

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

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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

Maximum Annual Slag Usage* = 657,000 ton/yr 0.33 % sulfur

	Emission Factor (lb/ton)**	Unlimited Potential to Emit (tons/yr)
Criteria Pollutant	Slag Processing	Slag Processing
SO2	0.0007	0.23

Methodology
* The maximum annual slag usage was estimated by the source at 30 percent total asphalt produced.

** Testing results for steel slag, obtained June 2009 from similar operations at an E & B Paving, Inc. facility located in Huntington, IN. The testing results showed a steel slag emission factor of 0.0007 lb/ton from slag containing 0.33% sulfur content.
Unlimited Potential to Emit SO2 from Slag (tons/yr) = [(Maximum Annual Slag Usage (ton/yr)] * [Emission Factor (lb/ton)] * [ton/2000 lbs]
Abbreviations
SO2 = Sulfur Dioxide

Appendix A.1: Emissions Calculations
Hot Oil Heater Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
2.0	17.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	100 **see below	5.5	84
Potential Emission in tons/yr	0.02	0.07	0.25	0.88	0.05	0.74

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

Appendix A.1: Emissions Calculations
Hot Oil Heater Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.840E-05	1.051E-05	6.570E-04	1.577E-02	2.978E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	4.380E-06	9.636E-06	1.226E-05	3.329E-06	1.840E-05

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A.1: Emissions Calculations
Thermal Oxidizer Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
46.0	402.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	32 **see below	5.5	84
Potential Emission in tons/yr	0.38	1.53	5.74	6.44	1.11	16.91

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

Appendix A.1: Emissions Calculations
Thermal Oxidizer Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.226E-04	2.415E-04	1.509E-02	3.623E-01	6.843E-04

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.006E-04	2.214E-04	2.818E-04	7.648E-05	4.226E-04

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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 =	2,190,000	tons/yr

	Emission Factor (lb/ton asphalt)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Total**
Total PM	5.2E-04	5.9E-04	NA	0.57	0.64	NA	**1.21**
Organic PM	3.4E-04	2.5E-04	NA	0.37	0.28	NA	**0.65**
TOC	0.004	0.012	0.001	4.55	13.34	1.205	**19.1**
CO	0.001	0.000	3.5E-04	1.48	0.00	0.385	**1.86**

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

PM/HAPs	**0.027**	**0.032**	**0**	**0.058**
VOC/HAPs	**0.067**	**0.170**	**0.018**	**0.255**
non-VOC/HAPs	**3.5E-04**	**3.6E-05**	**9.3E-05**	**4.8E-04**
non-VOC/non-HAPs	**0.33**	**0.97**	**0.09**	**1.39**

Total VOCs	**4.28**	**12.54**	**1.1**	**18.0**
Total HAPs	**0.09**	**0.20**	**0.018**	**0.31**
			Worst Single HAP	**0.097 (formaldehyde)**

Methodology

Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16
Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::

Total PM/PM10 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)

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

PM/PM10 Ef = 0.000332 + 0.00105(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00105(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0504(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00488(-V)e^((0.0251)(T+460)-20.43)

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

Abbreviations

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

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Organic Particulate-Based Compounds (Table 11.1-15)

					Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of Total Organic PM)**	**Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
PAH HAPs										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	9.7E-04	1.3E-03	NA	2.3E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	1.0E-04	3.9E-05	NA	1.4E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	2.6E-04	3.6E-04	NA	6.2E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	7.1E-05	1.6E-04	NA	2.3E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	2.8E-05	0.0E+00	NA	2.8E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	8.2E-06	0.0E+00	NA	8.2E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	7.1E-06	0.0E+00	NA	7.1E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	8.6E-06	0.0E+00	NA	8.6E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	2.9E-05	2.6E-05	NA	5.6E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	3.8E-04	5.8E-04	NA	9.7E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	1.4E-06	0.0E+00	NA	1.4E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	1.9E-04	4.2E-04	NA	6.0E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	2.9E-03	2.8E-03	NA	5.7E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	1.8E-06	0.0E+00	NA	1.8E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	8.9E-03	1.5E-02	NA	0.024
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	4.7E-03	5.1E-03	NA	9.7E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	8.2E-05	8.3E-05	NA	1.7E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	3.0E-03	5.0E-03	NA	8.0E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	5.6E-04	1.2E-03	NA	1.8E-03
Total PAH HAPs							**0.022**	**0.032**	**NA**	**0.054**
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	4.4E-03	0.0E+00	0	4.4E-03

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

Methodology

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

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

Abbreviations

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

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

Organic Volatile-Based Compounds (Table 11.1-16)

					Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of TOC)**	**Silo Filling and Asphalt Storage Tank (% by weight of TOC)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
VOC		VOC	---	TOC	94%	100%	**4.28**	**12.54**	**1.13**	**17.96**
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	3.0E-01	0.87	7.8E-02	1.242
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	2.1E-03	0.01	5.5E-04	0.009
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	3.2E-02	0.09	8.6E-03	0.136
Total non-VOC/non-HAPS					7.30%	1.40%	**0.332**	**0.97**	**0.088**	**1.39**
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	2.4E-03	4.27E-03	6.3E-04	7.3E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	4.4E-04	6.54E-04	1.2E-04	1.2E-03
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	2.2E-03	5.20E-03	5.9E-04	8.0E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	5.9E-04	2.14E-03	1.6E-04	2.9E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	9.6E-06	5.34E-04	2.5E-06	5.5E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	6.8E-04	3.07E-03	1.8E-04	3.9E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	5.0E-03	0.00E+00	1.3E-03	6.3E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	1.3E-02	5.07E-03	3.4E-03	0.021
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	4.0E-03	9.21E-02	1.1E-03	0.097
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	6.8E-03	1.33E-02	1.8E-03	0.022
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	8.2E-05	4.14E-05	2.2E-05	1.5E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	3.60E-05	0	3.6E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	3.3E-04	7.21E-04	8.8E-05	1.1E-03
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	3.5E-04	0.00E+00	9.3E-05	4.4E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	9.6E-03	8.27E-03	2.5E-03	0.020
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	0	5.9E-05	0.00E+00	1.6E-05	7.5E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	1.9E-02	2.67E-02	4.9E-03	0.050
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	3.6E-03	7.61E-03	9.6E-04	1.2E-02
Total volatile organic HAPs					1.50%	1.30%	**0.068**	**0.173**	**0.018**	**0.260**

Methodology

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

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

Abbreviations

TOC = Total Organic Compounds

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

MTBE = Methyl tert butyl ether

Appendix A.1: Emissions Calculations
Material Storage Piles

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

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

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)
Limestone	1.6	1.85	0.75	0.253	0.089
Sand	2.6	3.01	0.75	0.412	0.144
RAP	0.5	0.58	0.75	0.079	0.028
Gravel	1.6	1.85	0.75	0.253	0.089
Slag	3.8	4.40	0.75	0.602	0.211
			Totals	**1.60**	**0.56**

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) anticipated for a source with an annual asphalt production of 1,500,000 tons/yr

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

Appendix A.2: Emissions Calculations
Limited Emissions
Fugitive Dust Emissions - Material Processing and Handling

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

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

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

where: Ef =	Emission factor (lb/ton)	
k (PM) =	0.74	= particle size multiplier (0.74 assumed for aerodynamic diameter <=100 um)
k (PM10) =	0.35	= particle size multiplier (0.35 assumed for aerodynamic diameter <=10 um)
k (PM2.5) =	0.053	= particle size multiplier (0.053 assumed for aerodynamic diameter <=2.5 um)
U =	10.2	= worst case annual mean wind speed (Source: NOAA, 2005*)
M =	4.0	= material % moisture content of aggregate (Source: AP-42 Section 11.1.1.1)
Ef (PM) =	2.27E-03	lb PM/ton of material handled
Ef (PM10) =	1.07E-03	lb PM10/ton of material handled
Ef (PM2.5) =	1.62E-04	lb PM2.5/ton of material handled

Annual Asphalt Production Limitation =	1,238,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,176,100	tons/yr

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)	Limited PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	1.33	0.63	0.10
Front-end loader dumping of materials into feeder bins	1.33	0.63	0.10
Conveyor dropping material into dryer/mixer or batch tower	1.33	0.63	0.10
Total (tons/yr)	**4.00**	**1.89**	**0.29**

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 additivies
*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)
Crushing	0.0054	0.0024	3.18	1.41
Screening	0.025	0.0087	14.70	5.12
Conveying	0.003	0.0011	1.76	0.65
Limited Potential to Emit (tons/yr) =			**19.64**	**7.17**

Methodology

Appendix A.1: Emissions Calculations
Fugitive Dust Emissions - Unpaved Roads

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Unpaved Roads at Industrial Site

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

Maximum Annual Asphalt Production =	2,190,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	2,080,500	tons/yr
Maximum Asphalt Cement/Binder Throughput =	109,500	tons/yr
Maximum No. 2 Fuel Oil Usage =	5,381,143	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	9.3E+04	3.7E+06	350	0.066	6156.8
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	9.3E+04	1.6E+06	350	0.066	6156.8
Aspalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	3.0E+03	1.5E+05	150	0.028	86.4
Aspalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	3.0E+03	3.7E+04	150	0.028	86.4
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	5.7E+02	2.5E+04	150	0.028	16.1
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	5.7E+02	6.8E+03	150	0.028	16.1
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	5.0E+05	9.5E+06	500	0.095	46908.8
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	5.0E+05	7.4E+06	500	0.095	46908.8
	Total				**1.2E+06**	**2.2E+07**			**1.1E+05**

Average Vehicle Weight Per Trip =	18.9	tons/trip
Average Miles Per Trip =	0.090	miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Pl
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	18.9	18.9	18.9	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

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

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	5.91	1.51	0.15	lb/mile
Mitigated Emission Factor, Eext =	3.89	0.99	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	18.19	4.64	0.46	11.96	3.05	0.30	5.98	1.52	0.15
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	18.19	4.64	0.46	11.96	3.05	0.30	5.98	1.52	0.15
Aspalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.255	0.065	0.01	0.168	0.043	0.00	0.084	0.021	0.00
Aspalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.255	0.065	0.01	0.168	0.043	0.00	0.084	0.021	0.00
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.048	0.012	0.00	0.031	0.008	0.00	0.016	0.004	0.00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.048	0.012	0.00	0.031	0.008	0.00	0.016	0.004	0.00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	138.60	35.32	3.53	91.13	23.23	2.32	45.57	11.61	1.16
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	138.60	35.32	3.53	91.13	23.23	2.32	45.57	11.61	1.16
	Totals	**314.19**	**80.07**	**8.01**	**206.59**	**52.65**	**5.27**	**103.29**	**26.33**	**2.63**

Methodology

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

Abbreviations

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

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

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, emission factors from AP-42 Table 5.2-7 were used. Assuming the worst case throughput of 1,300 gallons of gasoline per day (474.5 kgal per year) and 365 days of operation per year, the total potential emission of VOC is as follows:

Gasoline Throuphput =	7,667	gallons/day
=	2,798.5	kgal/yr

Volatile Organic Compounds

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.42
Tank breathing and emptying	1.0	1.40
Vehicle refueling (displaced losses - controlled)	1.1	1.54
Spillage	0.7	0.98
Total		**4.34**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**1.13**	
Limited PTE of Single HAP (tons/yr) =	**0.39**	**Xylenes**

Methodology

Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]

PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]

PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]

PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]

*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: http://www.aehs.com/publications/catalog/contents/tph.htm

Abbreviations

VOC = Volatile Organic Compounds

PTE = Potential to Emit

Appendix A.1: Emissions Calculations
Fuel Equivalency Calculations
Fuel Combustion Units with Maximum Capacity < 100 MMBtu/hr

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

*Note: these equivalencies are related back to natural gas (assumed to be the predominant fuel used at this source).

	SO2 Equivalency						NOx Equivalency			
Fuel Type	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	1.0	MMCF natural gas / MMCF natural gas	100	lb/MMCF	1.0	MMCF natural gas / MMCF natural gas
No. 2 Fuel Oil	0.50	% by weight	71.00	lb/kgal	118.3	MMCF natural gas / 1000 gal No. 2 fuel oil	20.0	lb/kgal	0.200	MMCF natural gas / 1000 gal No. 2 fuel oil
Refinery Blend Fuel Oil	1.00	% by weight	157.00	lb/kgal	261.7	MMCF natural gas / 1000 gal refinery blend fuel oil	55.0	lb/kgal	0.550	MMCF natural gas / 1000 gal refinery blend fuel oil
Waste Oil	1.00	% by weight	147.00	lb/kgal	245.0	MMCF natural gas / 1000 gal waste oil	19.0	lb/kgal	0.190	MMCF natural gas / 1000 gal waste oil

Methodology

Fuel Equivalency = [AP-42 Emission Factor for No. 2 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 residual fuel oil (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

* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 1.3 (dated 9/98), Table 1.3-1. Therefore, assumes refinery blend fuel oil emission factors equal to residual fuel oil emission factors

Appendix A.2: Emissions Calculations
Limited Emission Summary

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Asphalt Plant Limitations

Maximum Hourly Asphalt Production =	250	ton/hr								
Annual Asphalt Production Limitation =	1,238,000	ton/yr								
Slag Usage Limitation =	371,400	ton/yr	0.66	% sulfur						
Natural Gas Limitation* =	1,850	MMCF/yr								
No. 2 Fuel Oil Limitation =	2,638,153	gal/yr, and	0.50	% sulfur						
Refinery Blend (No. 2 and No.6) Fuel Oil Limitation =	1,193,050	gal/yr, and	1.00	% sulfur						
Waste Oil Limitation =	750,000	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine,	0.040	% lead
PM Dryer/Mixer Limitation =	0.267	lb/ton of asphalt production								
PM10 Dryer/Mixer Limitation =	0.118	lb/ton of asphalt production								
PM2.5 Dryer/Mixer Limitation =	0.142	lb/ton of asphalt production								
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production								
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production								
Slag SO2 Dryer/Mixer Limitation =	0.0014	lb/ton of asphalt production								

Limited/Controlled Emissions

	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Fuel Combustion (worst case)	15.60	12.43	12.43	93.65	92.50	5.09	77.70	12.64	9.90	(hydrogen chloride)
Dryer/Mixer	165.19	73.11	88.11	35.90	34.05	19.81	80.47	6.60	1.92	(formaldehyde)
Dryer/Mixer Slag Processing	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	
Hot Oil Heater	0.02	0.07	0.07	0.25	0.88	0.05	0.74	0.02	0.02	(Hexane)
Thermal Oxidizer Combustion	0.38	1.53	1.53	5.74	6.44	1.11	16.91	0.38	0.36	(Hexane)
Worst Case and Thermal Oxidizer Emissions	**165.59**	**74.71**	**89.71**	**99.90**	**99.82**	**20.96**	**98.11**	**13.03**	**9.90**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	0.69	0.69	0.69	0	0	10.15	1.78	0.18	0.05	(formaldehyde)
Material Storage Piles	1.60	0.56	0.56	0	0	0	0	0	0	
Material Processing and Handling	4.00	1.89	0.29	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	19.64	7.17	7.17	0	0	0	0	0	0	
Unpaved Roads (worst case)	58.39	14.88	1.49	0	0	0	0	0	0	
Gasoline Dispensing	0	0	0	0	0	4.34	0	1.13	0.39	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl.	0	negl.	negl.	
Total Fugitive Emissions	**84.31**	**25.19**	**10.19**	**0**	**0**	**14.49**	**1.78**	**1.31**	**0.39**	(xylenes)
Totals Limited/Controlled Emissions	**249.90**	**99.90**	**99.90**	**99.90**	**99.82**	**35.45**	**99.90**	**14.34**	**9.90**	(hydrogen chloride)

Notes:

* Natural Gas limitation is only for Dryer/Burner. Hot Oil Heater and Thermal Oxidizer fuel usages are independent of limits.

negl = negligible

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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

Production and Fuel Limitations

Annual Asphalt Production Limitation =	1,238,000	ton/yr								
Natural Gas Limitation =	1,850	MMCF/yr								
No. 2 Fuel Oil Limitation =	2,638,153	gal/yr, and	0.50	% sulfur						
Refinery Blend (No. 2 and No. 6) Fuel Oil Limitation =	1,193,050	gal/yr, and	1.00	% sulfur						
Used/Waste Oil Limitation =	750,000	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine,	0.040	% lead

Limited Emissions

	Emission Factor (units)				Limited Potential to Emit (tons/yr)				
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Refinery Blend (lb/kgal)	Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	Refinery Blend (tons/yr)	Waste Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2	12.41	41.6	1.76	2.64	7.40	15.60	**15.60**
PM10[1]	7.6	3.3	13.91	33.15	7.03	4.35	8.30	12.43	**12.43**
SO2	0.6	71.0	157.0	147.0	0.56	93.65	93.65	55.13	**93.65**
NOx	100	20.0	55.0	19.0	92.50	26.38	32.81	7.13	**92.50**
VOC	5.5	0.20	0.28	1.0	5.09	0.26	0.17	0.38	**5.09**
CO	84	5.0	5.0	5.0	77.7	6.60	2.98	1.88	**77.70**
Hazardous Air Pollutant									
HCl				26.4				9.90	**9.90**
Antimony			5.25E-03	negl			3.13E-03	negl	**3.1E-03**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.1E-01	1.9E-04	7.39E-04	7.87E-04	4.13E-02	**4.1E-02**
Beryllium	1.2E-05	4.2E-04	2.78E-05	negl	1.1E-05	5.54E-04	1.66E-05	negl	**5.5E-04**
Cadmium	1.1E-03	4.2E-04	3.98E-04	9.3E-03	1.0E-03	5.54E-04	2.37E-04	3.49E-03	**3.5E-03**
Chromium	1.4E-03	4.2E-04	8.45E-04	2.0E-02	1.3E-03	5.54E-04	5.04E-04	7.50E-03	**7.5E-03**
Cobalt	8.4E-05		6.02E-03	2.1E-04	7.8E-05		3.59E-03	7.88E-05	**3.6E-03**
Lead	5.0E-04	1.3E-03	1.51E-03	2.2	4.6E-04	1.66E-03	9.01E-04	8.3E-01	**0.83**
Manganese	3.8E-04	8.4E-04	3.00E-03	6.8E-02	3.5E-04	1.11E-03	1.79E-03	2.55E-02	**0.03**
Mercury	2.6E-04	4.2E-04	1.13E-04		2.4E-04	5.54E-04	6.74E-05		**5.5E-04**
Nickel	2.1E-03	4.2E-04	8.45E-02	1.1E-02	1.9E-03	5.54E-04	5.04E-02	4.13E-03	**0.050**
Selenium	2.4E-05	2.1E-03	6.83E-04	negl	2.2E-05	2.77E-03	4.07E-04	negl	**2.8E-03**
1.1.1-Trichloroethane			2.36E-04				1.41E-04		**1.4E-04**
1,3-Butadiene									**0.0E+00**
Acetaldehyde									**0.0E+00**
Acrolein									**0.0E+00**
Benzene	2.1E-03		2.14E-04		1.9E-03		1.28E-04		**1.9E-03**
Bis(2-ethylhexyl)phthalate				2.2E-03				8.25E-04	**8.3E-04**
Dichlorobenzene	1.2E-03			8.0E-07	1.1E-03			3.00E-07	**1.1E-03**
Ethylbenzene			6.36E-05				3.79E-05		**3.8E-05**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02		6.9E-02	8.05E-02	1.97E-02		**0.080**
Hexane	1.8E+00				1.67				**1.665**
Phenol				2.4E-03				9.00E-04	**9.0E-04**
Toluene	3.4E-03		6.20E-03		3.1E-03		3.70E-03		**3.7E-03**
Total PAH Haps	negl		1.13E-03	3.9E-02	negl		6.74E-04	1.47E-02	**1.5E-02**
Polycyclic Organic Matter		3.30E-03				4.35E-03			**4.4E-03**
Xylene			1.09E-04				6.50E-05		**6.5E-05**
				Total HAPs	**1.75**	**0.09**	**0.09**	**10.82**	**12.64**

Note:
[1]Assumes PM10 = PM2.5

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 combution:
Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
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
* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 11.1. Therefore, assumes Refinery Blend Fuel Oil emission factors equal to No. 6 Fuel Oil emission factors.

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

Appendix A.2: Emissions Calculations
Limited Emissions
Dryer/Mixer
Volatile Organic Compounds and Hazardous Air Pollutants

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

Annual Asphalt Production Limitation =	1,238,000	ton/yr
PM Dryer/Mixer Limitation =	0.267	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.118	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.142	lb/ton of asphalt production
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production

	Emission Factor or Limitation (lb/ton)				Limited/Controlled Potential to Emit (tons/yr)				
	Drum-Mix Plant (dryer/mixer, controlled by fabric filter)				Drum-Mix Plant (dryer/mixer, controlled by fabric filter)				
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Refinery Blend	Waste Oil	Natural Gas	No. 2 Fuel Oil	Refinery Blend	Waste Oil	**Worse Case PTE**
PM	0.266861	0.266861	0.26686123	0.266861232	165.2	165.2	165.2	165.2	**165.2**
PM10	0.118112	0.118112	0.11811204	0.118112044	73.1	73.1	73.1	73.1	**73.1**
PM2.5	0.142	0.142	0.142	0.142	88.1	88.1	88.1	88.1	**88.1**
SO2	0.0034	0.011	0.058	0.058	2.1	6.8	35.9	35.9	**35.9**
NOx	0.026	0.055	0.055	0.055	16.1	34.0	34.0	34.0	**34.0**
VOC	0.032	0.032	0.032	0.032	19.8	19.8	19.8	19.8	**19.8**
CO	0.13	0.13	0.13	0.13	80.5	80.5	80.5	80.5	**80.5**
Hazardous Air Pollutant									
HCl			2.10E-04	2.10E-04			0.13	0.13	**0.13**
Antimony	1.80E-07	1.80E-07	1.80E-07	1.80E-07	1.11E-04	1.11E-04	1.11E-04	1.11E-04	**1.11E-04**
Arsenic	5.60E-07	5.60E-07	5.60E-07	5.60E-07	3.47E-04	3.47E-04	3.47E-04	3.47E-04	**3.47E-04**
Beryllium	negl	negl	negl	negl	negl	negl	negl.	negl	**0.00**
Cadmium	4.10E-07	4.10E-07	4.10E-07	4.10E-07	2.54E-04	2.54E-04	2.5E-04	2.54E-04	**2.54E-04**
Chromium	5.50E-06	5.50E-06	5.50E-06	5.50E-06	3.40E-03	3.40E-03	3.4E-03	3.40E-03	**3.40E-03**
Cobalt	2.60E-08	2.60E-08	2.60E-08	2.60E-08	1.61E-05	1.61E-05	1.6E-05	1.61E-05	**1.61E-05**
Lead	6.20E-07	1.50E-05	1.50E-05	1.50E-05	0.00	0.01	0.01	0.01	**0.01**
Manganese	7.70E-06	7.70E-06	7.70E-06	7.70E-06	4.77E-03	4.77E-03	4.77E-03	4.77E-03	**4.77E-03**
Mercury	2.40E-07	2.60E-06	2.60E-06	2.60E-06	1.49E-04	1.61E-03	1.61E-03	1.61E-03	**1.61E-03**
Nickel	6.30E-05	6.30E-05	6.30E-05	6.30E-05	0.04	0.04	0.04	0.04	**0.04**
Selenium	3.50E-07	3.50E-07	3.50E-07	3.50E-07	2.17E-04	2.17E-04	2.17E-04	2.17E-04	**2.17E-04**
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	4.00E-05	2.48E-02	2.48E-02	2.48E-02	2.48E-02	**0.02**
Acetaldehyde			1.30E-03	1.30E-03			0.80	0.80	**0.80**
Acrolein			2.60E-05	2.60E-05			0.02	0.02	**0.02**
Benzene	3.90E-04	3.90E-04	3.90E-04	3.90E-04	0.24	0.24	0.24	0.24	**0.24**
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	2.40E-04	0.15	0.15	0.15	0.15	**0.15**
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	3.10E-03	1.92	1.92	1.92	1.92	**1.92**
Hexane	9.20E-04	9.20E-04	9.20E-04	9.20E-04	0.57	0.57	0.57	0.57	**0.57**
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	4.80E-05	0.03	0.03	0.03	0.03	**0.03**
MEK			2.00E-05	2.00E-05			0.01	0.01	**0.01**
Propionaldehyde			1.30E-04	1.30E-04			0.08	0.08	**0.08**
Quinone			1.60E-04	1.60E-04			0.10	0.10	**0.10**
Toluene	1.50E-04	2.90E-03	2.90E-03	2.90E-03	0.09	1.80	1.80	1.80	**1.80**
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	8.80E-04	0.12	0.54	0.54	0.54	**0.54**
Xylene	2.00E-04	2.00E-04	2.00E-04	2.00E-04	0.12	0.12	0.12	0.12	**0.12**
								Total HAPs	**6.60**
								Worst Single HAP	**1.92** **(formaldehyde)**

Methodology

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

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

* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 11.1. Therefore, assumes Refinery Blend Fuel Oil emission factors equal to No. 6 Fuel Oil em

Abbreviations

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

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

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

Slag Usage Limitation =	371,400	ton/yr		
SO2 Slag Limitation =	0.0014	lb/ton of slag processed	0.66	% sulfur

	Emission Factor or Limitation (lb/ton)*	Limited Potential to Emit (tons/yr)
Criteria Pollutant	Slag Processing	Slag Processing
SO2	0.0014	0.26

Methodology
** Testing results for steel slag, obtained June 2009 from similar operations at an E & B Paving, Inc. facility located in Huntington, IN. The testing results showed a steel slag emission factor of 0.0007 lb/ton from slag containing 0.33% sulfur content. A safety multiplier of two (2) was used as a worse case emissions scenario.
Limited Potential to Emit SO2 from Slag (tons/yr) = (Slag Usage Limitation (ton/yr)] * [Limited Emission Factor (lb/ton)] * [ton/2000 lbs]
Abbreviations
SO2 = Sulfur Dioxide

Appendix A.2: Emissions Calculations
Hot Oil Heater Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
2.0	17.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	100 **see below	5.5	84
Potential Emission in tons/yr	0.02	0.07	0.25	0.88	0.05	0.74

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

Appendix A.1: Emissions Calculations
Hot Oil Heater Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.840E-05	1.051E-05	6.570E-04	1.577E-02	2.978E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	4.380E-06	9.636E-06	1.226E-05	3.329E-06	1.840E-05

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A.2: Emissions Calculations
Thermal Oxidizer Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
46.0	402.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	32 **see below	5.5	84
Potential Emission in tons/yr	0.38	1.53	5.74	6.44	1.11	16.91

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

Appendix A.1: Emissions Calculations
Thermal Oxidizer Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.226E-04	2.415E-04	1.509E-02	3.623E-01	6.843E-04

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.006E-04	2.214E-04	2.818E-04	7.648E-05	4.226E-04

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

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

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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 =	1,238,000	tons/yr

	Emission Factor (lb/ton asphalt)			Limited Potential to Emit (tons/yr)			
Pollutant	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Total**
Total PM	5.2E-04	5.9E-04	NA	0.32	0.36	NA	**0.69**
Organic PM	3.4E-04	2.5E-04	NA	0.21	0.157	NA	**0.37**
TOC	0.004	0.012	0.001	2.57	7.54	0.681	**10.8**
CO	0.001	0.001	3.5E-04	0.84	0.730	0.218	**1.78**

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

PM/HAPs	**0.015**	**0.018**	**0**	**0.033**
VOC/HAPs	**0.038**	**0.096**	**0.010**	**0.144**
non-VOC/HAPs	**2.0E-04**	**2.0E-05**	**5.2E-05**	**2.7E-04**
non-VOC/non-HAPs	**0.19**	**0.11**	**0.05**	**0.34**

Total VOCs	**2.42**	**7.09**	**0.6**	**10.2**
Total HAPs	**0.05**	**0.11**	**0.010**	**0.18**
			Worst Single HAP	**0.055 (formaldehyde)**

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)::

Total PM/PM10 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)

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

PM/PM10 Ef = 0.000332 + 0.00105(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00105(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0504(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00488(-V)e^((0.0251)(T+460)-20.43)

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

Abbreviations

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

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Organic Particulate-Based Compounds (Table 11.1-15)

					Speciation Profile		Limited Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of Total Organic PM)**	**Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
PAH HAPs										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	5.5E-04	7.4E-04	NA	1.3E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	5.9E-05	2.2E-05	NA	8.1E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	1.5E-04	2.0E-04	NA	3.5E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	4.0E-05	8.8E-05	NA	1.3E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	1.6E-05	0	NA	1.6E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	4.6E-06	0	NA	4.6E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	4.0E-06	0	NA	4.0E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	4.9E-06	0	NA	4.9E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	1.6E-05	1.5E-05	NA	3.1E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	2.2E-04	3.3E-04	NA	5.5E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	7.8E-07	0	NA	7.8E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	1.1E-04	2.4E-04	NA	3.4E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	1.6E-03	1.6E-03	NA	3.2E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	9.9E-07	0	NA	9.9E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	5.0E-03	8.3E-03	NA	0.013
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	2.6E-03	2.9E-03	NA	5.5E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	4.6E-05	4.7E-05	NA	9.4E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	1.7E-03	2.8E-03	NA	4.5E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	3.2E-04	6.9E-04	NA	1.0E-03
Total PAH HAPs							**0.013**	**0.018**	**NA**	**0.030**
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	2.5E-03	0	0	2.5E-03

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

Methodology

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

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

Abbreviations

PM = Particulate Matter

HAP = Hazardous Air Pollutant

POM = Polycyclic Organic Matter

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

Organic Volatile-Based Compounds (Table 11.1-16)

					Speciation Profile		Limited Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of TOC)**	**Silo Filling and Asphalt Storage Tank (% by weight of TOC)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
VOC		VOC	---	TOC	94%	100%	**2.42**	**7.09**	**0.64**	**10.15**
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	1.7E-01	2.0E-02	4.4E-02	0.231
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	1.2E-03	4.1E-03	3.1E-04	0.006
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	1.8E-02	8.3E-02	4.8E-03	0.106
Total non-VOC/non-HAPS					7.30%	1.40%	**0.188**	**0.106**	**0.050**	**0.34**
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	1.3E-03	2.4E-03	3.5E-04	4.1E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	2.5E-04	3.7E-04	6.5E-05	6.8E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	1.3E-03	2.9E-03	3.3E-04	4.5E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	3.3E-04	1.2E-03	8.9E-05	1.6E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	5.4E-06	3.0E-04	1.4E-06	3.1E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	3.9E-04	1.7E-03	1.0E-04	2.2E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	2.8E-03	0	7.5E-04	3.6E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	7.2E-03	2.9E-03	1.9E-03	0.012
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	2.3E-03	5.2E-02	6.0E-04	0.055
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	3.9E-03	7.5E-03	1.0E-03	0.012
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	4.6E-05	2.3E-05	1.2E-05	8.2E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	2.0E-05	0	2.0E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	1.9E-04	4.1E-04	5.0E-05	6.4E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	2.0E-04	0	5.2E-05	2.5E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	5.4E-03	4.7E-03	1.4E-03	0.012
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	3.3E-05	0	8.9E-06	4.2E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	1.1E-02	1.5E-02	2.8E-03	0.028
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	2.1E-03	4.3E-03	5.4E-04	6.9E-03
Total volatile organic HAPs					1.50%	1.30%	**0.039**	**0.098**	**0.010**	**0.147**

Methodology

Limited Potential to Emit (tons/yr) = [Speciation Profile (%)] * [TOC (tons/yr)]

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

Abbreviations

TOC = Total Organic Compounds

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

MTBE = Methyl tert butyl ether

Appendix A.2: Emissions Calculations
Material Storage Piles

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

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

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)
Limestone	1.6	1.85	0.75	0.253	0.089
Sand	2.6	3.01	0.75	0.412	0.144
RAP	0.5	0.58	0.75	0.079	0.028
Gravel	1.6	1.85	0.75	0.253	0.089
Slag	3.8	4.40	0.75	0.602	0.211
			Totals	**1.60**	**0.56**

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) anticipated for a source with an annual asphalt production of 1,500,000 tons/yr

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

Appendix A.1: Emissions Calculations
Material Processing and Handling
Fugitive Dust

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

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

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

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

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

Type of Activity	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)	Unlimited/Uncontrolled PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	2.36	1.12	0.17
Front-end loader dumping of materials into feeder bins	2.36	1.12	0.17
Conveyor dropping material into dryer/mixer or batch tower	2.36	1.12	0.17
Total (tons/yr)	**7.07**	**3.35**	**0.51**

Methodology

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

Material Screening and Conveying (AP-42 Section 11.19.2)

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

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)
Crushing	0.0054	0.0024	5.62	2.50
Screening	0.025	0.0087	26.01	9.05
Conveying	0.003	0.0011	3.12	1.14
Limited Potential to Emit (tons/yr) =			**34.74**	**12.69**

Methodology

Appendix A.2: Emissions Calculations
Limited Emissions
Fugitive Dust Emissions - Unpaved Roads

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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 =	1,238,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,176,100	tons/yr
Maximum Asphalt Cement/Binder Throughput =	61,900	tons/yr
No. 2 Fuel Oil Limitation =	2,638,153	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	5.3E+04	2.1E+06	350	0.066	3480.4
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	5.3E+04	8.9E+05	350	0.066	3480.4
Aspalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	1.7E+03	8.3E+04	150	0.028	48.8
Aspalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.7E+03	2.1E+04	150	0.028	48.8
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	2.8E+02	1.2E+04	150	0.028	7.9
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	2.8E+02	3.3E+03	150	0.028	7.9
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	2.8E+05	5.4E+06	500	0.095	26517.4
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	2.8E+05	4.2E+06	500	0.095	26517.4
	Total				**6.7E+05**	**1.3E+07**			**6.0E+04**

Average Vehicle Weight Per Trip =	18.9	tons/trip
Average Miles Per Trip =	0.090	miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	18.9	18.9	18.9	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

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

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	5.91	1.51	0.15	lb/mile
Mitigated Emission Factor, Eext =	3.89	0.99	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM10 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	10.28	2.62	0.26	6.76	1.72	0.17	3.38	0.86	0.09
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	10.28	2.62	0.26	6.76	1.72	0.17	3.38	0.86	0.09
Aspalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.144	0.037	0.00	0.095	0.024	0.00	0.047	0.012	0.00
Aspalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.144	0.037	0.00	0.095	0.024	0.00	0.047	0.012	0.00
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.023	0.006	0.00	0.015	0.004	0.00	0.008	0.002	0.00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.023	0.006	0.00	0.015	0.004	0.00	0.008	0.002	0.00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	78.35	19.97	2.00	51.52	13.13	1.31	25.76	6.56	0.66
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	78.35	19.97	2.00	51.52	13.13	1.31	25.76	6.56	0.66
	Totals	**177.60**	**45.26**	**4.53**	**116.78**	**29.76**	**2.98**	**58.39**	**14.88**	**1.49**

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.2: Emissions Calculations
Gasoline Fuel Transfer and Dispensing Operation

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, emission factors from AP-42 Table 5.2-7 were used. Assuming the worst case throughput of 300 gallons of gasoline per day (474.5 kgal per year) and 365 days of operation per year, the total potential emission of VOC is as follows:

Gasoline Throuphput =	7,667	gallons/day
=	2,798.5	kgal/yr

Volatile Organic Compounds

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.42
Tank breathing and emptying	1.0	1.40
Vehicle refueling (displaced losses - controlled)	1.1	1.54
Spillage	0.7	0.98
Total		**4.34**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**1.13**	
Limited PTE of Single HAP (tons/yr) =	**0.39**	**Xylenes**

Methodology

Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]

PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]

PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]

PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]

*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at:

Abbreviations

VOC = Volatile Organic Compounds

PTE = Potential to Emit

Appendix A.2: Emissions Calculations
Fuel Equivalency Calculations
Fuel Combustion Units with Maximum Capacity < 100 MMBtu/hr

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

*Note: these equivalencies are related back to natural gas (assumed to be the predominant fuel used at this source).

	SO2 Equivalency						NOx Equivalency			
Fuel Type	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	1.0	MMCF natural gas / MMCF natural gas	100	lb/MMCF	1.0	MMCF natural gas / MMCF natural gas
No. 2 Fuel Oil	0.50	% by weight	71.00	lb/kgal	118.3	MMCF natural gas / 1000 gal No. 2 fuel oil	20.0	lb/kgal	0.200	MMCF natural gas / 1000 gal No. 2 fuel oil
Refinery Blend Fuel Oil	1.00	% by weight	157.00	lb/kgal	261.7	MMCF natural gas / 1000 gal refinery blend fuel oil	55.0	lb/kgal	0.550	MMCF natural gas / 1000 gal refinery blend fuel oil
Waste Oil	1.00	% by weight	147.00	lb/kgal	245.0	MMCF natural gas / 1000 gal waste oil	19.0	lb/kgal	0.190	MMCF natural gas / 1000 gal waste oil

Methodology

Fuel Equivalency = [AP-42 Emission Factor for No. 2 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 residual fuel oil (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

* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 1.3 (dated 9/98), Table 1.3-1. Therefore, assumes refinery blend fuel oil emission factors equal to residual fuel oil emission factors

Indiana Department of Environmental Management
Office of Air Quality

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

Source Description and Location

Source Name:	**Brooks Construction, Inc.**
Source Location:	**2711 Banks Avenue, Fort Wayne, IN 46802**
County:	**Allen**
SIC Code:	**2851**
Operation Permit No.:	**F 003-27335-00374**
Permit Reviewer:	**Jason R. Krawczyk**

On January 5, 2009, the Office of Air Quality (OAQ) received an application from Brooks Construction, Inc. related to the construction and operation of a new parallel flow drum mix asphalt plant.

Existing Approvals

There have been no previous approvals issued to this source.

County Attainment Status

The source is located in Allen County.

Pollutant	Designation
SO_2	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Attainment effective February 12, 2007, for the Fort Wayne area, including Allen County, for the 8-hour ozone standard.[1]
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Not designated.

[1]Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.
Unclassifiable or attainment effective April 5, 2005, for PM2.5.

(a) Ozone Standards
Volatile organic compounds (VOC) and Nitrogen Oxides (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. Allen County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) PM2.5
Allen County has been classified as attainment for PM2.5. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM2.5 emissions, and the effective date of these rules was July 15th, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC 2-2, to include those requirements. The May 8, 2008 rule revisions require IDEM to regulate PM10 emissions as a surrogate for PM2.5 emissions until 326 IAC 2-2 is revised.

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

Fugitive Emissions

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

Background and Description of New Source Construction

The Office of Air Quality (OAQ) has reviewed an application, submitted by Brooks Construction, Inc. on January 5, 2009, relating to the construction and operation of a new stationary drum hot mix asphalt plant.

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

(a) One (1) asphalt parallel flow drum mixer/dryer, identified as EU-01, capable of processing 250 tons per hour of raw material, equipped with one (1) 86 million (MM) British thermal units (Btu) per hour natural gas fired burner, using No. 2 distillate fuel oil, refinery blend fuel oil, or waste oil as a back-up fuel, processing slag in the aggregate mix; equipped with one (1) high efficiency cyclone collector identified as CE-01 and one (1) fabric filter baghouse, identified as CE-02, in line, for particulate matter (PM) control, and one (1) 45.95 MMBtu/hr thermal oxidizer, identified as CE-03, as a voluntary control, for volatile organic compounds, exhausting at one (1) stack SV-1. This plant does not produce cold mix asphalt.

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

(b) Material Handling and conveying operations, approved for construction in 2009, consisting of the following:

(1) Two (2) cold feed systems

(2) Two (2) pug mills

(3) Four (4) Feeder Conveyors

(4) Four (4) Screens

(5) One (1) Recycled Asphalt Pavement (RAP) System

(c) One (1) liquid asphalt storage tank, identified as T-01, with a maximum storage capacity of 20,000 gallons.

(d) One (1) number two (No. 2) fuel storage tank, identified as T-02, with a maximum storage capacity of 20,000 gallons.

(e) One (1) rejuvenator storage tank, identified as T-03, with a maximum storage capacity of 20,000 gallons.

(f) One (1) waste oil storage tank, identified as T-04, with a maximum storage capacity of 20,000 gallons.

(g) One (1) hot oil heater, burning natural gas, No. 2 fuel, refinery blend fuel oil, or waste oil, nominally rated at 2.00 million British thermal units per hour (MMBtu/hr), and exhausting through

stack SV-2.

The following is a list of the Insignificant Activities:

(a) Fuel dispensing activities including the following:

(1) A gasoline fuel transfer dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day and having a capacity equal to or less than ten thousand five hundred (10,500) gallons. Such storage tanks may be in a fixed location or on mobile equipment.

(2) A petroleum fuel, other than gasoline, dispensing facility, having a storage tank capacity less than or equal to ten thousand five hundred (10,500) gallons, and dispensing three thousand five hundred (3,500) gallons per day or less.

(b) Paved and unpaved roads with limited public access.

Enforcement Issues

There are no pending enforcement actions related to this source.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

Permit Level Determination – FESOP

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

Pollutant	Potential To Emit (tons/year)
PM	Greater than 250
PM10[(1)]	Greater than 250
PM2.5	Greater than 250
SO_2	Greater than 250
NO_x	Greater than 100, Less than 250
VOC	Less then 100
CO	Greater than 100, Less than 250

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

HAPs	Potential To Emit (tons/year)
Single (HCl)	Greater than 10
Combined	Greater than 25

(a) The potential to emit (PTE) (as defined in 326 IAC 2-7-1(29)) of PM, PM10, SO_2, NO_X, and CO is greater than one hundred (100) tons per year. The PTE of all other regulated criteria pollutants are less than one hundred (100) tons per year. The source would have been subject to the provisions of 326 IAC 2-7. However, the source will be issued a New Source Construction Permit (326 IAC 2-5.1-3) and a Federally Enforceable State Operating Permit (FESOP) (326 IAC 2-8), because the source will limit emissions to less than the Title V major source threshold levels.

(b) The potential to emit (PTE) (as defined in 326 IAC 2-7-1(29)) of any single HAP is greater than ten (10) tons per year and the PTE of a combination of HAPs is greater than twenty-five (25) tons per year. Therefore, the source would have been subject to the provisions of 326 IAC 2-7. However, the source will be issued a New Source Construction Permit (326 IAC 2-5.1-3) and a FESOP (326 IAC 2-8), because the source will limit emissions of HAPs to less than the Title V major source threshold levels.

PTE of the Entire Source After Issuance of the FESOP

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

	Potential to Emit of the Entire Source After Issuance of the FESOP (tons/year) Limited/Controlled Potential Emissions								
	Criteria Pollutants							**Hazardous Air Pollutants**	
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Single HAP**
Ducted Emissions									
Fuel Combustion (worst case)	12.39	9.87	9.87	43.78	92.50	5.09	77.70	10.36	7.86 HCl
Dryer/Mixer	165.20	73.11	88.11	35.90	34.05	19.81	80.47	6.60	1.92 Formaldehyde
Dryer/Mixer Slag Processing	0.00	0.00	0.00	50.14	0.00	0.00	0.00	0.00	0.00
Hot Oil Heater	0.02	0.07	0.07	0.25	0.88	0.05	0.74	0.02	0.02 Hexane
Thermal Oxidizer Combustion	0.38	1.53	1.53	5.74	6.44	1.11	16.91	0.38	0.36 Hexane
Worst Case Emissions	**165.60**	**74.71**	**89.71**	**99.90**	**99.82**	**20.96**	**98.11**	**10.76**	**7.86 HCl**
Fugitive Emissions									
Asphalt Load-Out, Silo Filling, On-Site Yard	0.69	0.69	0.69	negl.	negl.	10.15	1.78	0.18	0.05 Formaldehyde
Material Storage Piles	1.60	0.56	0.56	negl.	negl.	negl.	negl.	negl.	negl.
Material Processing and Handling	4.00	1.89	0.29	negl.	negl.	negl.	negl.	negl.	negl.
Material Crushing, Screening, and Conveying	19.64	7.17	7.17	negl.	negl.	negl.	negl.	negl.	negl.
Paved and Unpaved Roads (worst case)	58.37	14.88	1.49	negl.	negl.	negl.	negl.	negl.	negl.
Gasoline Dispensing	negl.	negl.	negl.	negl.	negl.	4.34	negl.	1.13	0.39 Xylenes
Volatile Organic Liquid Storage Vessels	negl.	negl.	negl.	negl.	negl.	negl.	negl.	negl.	negl.
Total Fugitive Emissions	**84.30**	**25.19**	**10.19**	**negl.**	**negl.**	**14.49**	**1.78**	**1.31**	**0.39 Xylenes**
Totals Limited/Controlled Emissions	**249.90**	**99.90**	**99.90**	**99.90**	**99.82**	**35.45**	**99.90**	**12.07**	**7.86 HCl**
Title V Major Source Thresholds	NA	100	100	100	100	100	100	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	NA	NA

(1) PTE after Production Limitation.
negl. = negligible
* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant". US EPA has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions.

(a) FESOP Status
This new source is not a Title V major stationary source, because the potential to emit criteria

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

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

(a) Fuel Specifications

(1) The sulfur content of No.2 fuel oil shall not exceed 0.50 percent by weight.

(2) The sulfur content of the refinery blend fuel oil shall not exceed 1.00 percent by weight.

(3) The sulfur content of the waste fuel oil shall not exceed 1.00 percent by weight.

(4) The HCl emissions shall not exceed 26.4 pounds of HCl per 1,000 gallons of waste oil burned.

(5) The waste oil combusted shall not contain more than 0.65% ash, 0.400% chlorine, and 0.044% Lead.

(b) 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) Natural gas usage shall not exceed 1,850 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month;

(2) No. 2 fuel oil usage shall not exceed 1,233,110 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month;

(3) Refinery blend fuel oil usage shall not exceed 557,648 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month; and

(4) Waste oil usage shall not exceed 595,584 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) Multiple Fuel Usage Limitation:

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

(1) NOx emissions from the dryer/mixer and all other combustion equipment shall be less than 100 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

The Permittee shall limit fuel usage in the dryer/mixer burner and hot oil heating system according to the following formula:

$$\frac{N = G(E_G) + O(E_O) + R(E_R) + W(E_W)}{2{,}000 \text{ lbs/ton}}$$

where:
N = tons of nitrogen oxide emissions for a 12-month consecutive period
G = million cubic feet of natural gas used in the last 12 months
O = gallons of No. 2 fuel oil used in last 12 months
R = gallons of Refinery Blend fuel oil
W = gallons of Waste oil used for last 12 months
E_G = 100 lb/million cubic feet of natural gas
E_O = 20 lb/1000 gallons of No. 2 fuel oil
E_R = 55 lb/1000 gallons of Refinery Blend fuel oil
E_W = 19 lb/1000 gallons of Waste oil

(2) SO_2 emissions from the dryer/mixer and all other combustion equipment shall be less than 100 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

The Permittee shall limit fuel usage in the dryer/mixer burner and hot oil heating system according to the following formula:

$$\frac{S = G(E_G) + O(E_O) + R(E_R) + W(E_W) + T(E_T)}{2{,}000 \text{ lbs/ton}}$$

where:
S = tons of sulfur dioxide emissions for a 12-month consecutive period
G = million cubic feet of natural gas used in the last 12 months
O = gallons of No. 2 fuel oil used in last 12 months
R = gallons of Refinery Blend fuel oil used in last 12 months
W = gallons of Waste oil used in last 12 months
T = tons of slag used in last 12 months
E_G = 0.60 lb/million cubic feet of natural gas
E_O = 71.00 lb/1000 gallons of No. 2 fuel oil
E_R = 157 lb/1000 gallons of Refinery Blend fuel oil
E_W = 147 lb/1000 gallons of Waste oil
E_T = 0.54lb/ton of slag used

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

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

(a) The amount of asphalt processed shall not exceed 1,238,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(b) The PM10 emissions from the dryer/mixer shall not exceed 0.118 pounds per ton of asphalt processed.

(c) The PM2.5 emissions from the dryer/mixer shall not exceed 0.142 pounds per ton of asphalt processed.

(d) The CO emissions from the dryer/mixer shall not exceed 0.130 pounds per ton of asphalt processed.

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

(f) The SO2 emissions from the dryer/mixer shall not exceed 0.540 pounds per ton of asphalt processed.

(g) The sulfur content of the slag shall not exceed 1.10 percent by weight; and

(h) The slag usage shall not exceed 185,700 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

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

(3) Pursuant to 326 IAC 2-8, the Permittee shall control PM, PM10, and PM2.5 emissions from the unpaved roads according to the fugitive dust plan, included as Attachment A to the permit.

(b) PSD Minor Source

This new source is not a major stationary source, under PSD (326 IAC 2-2), because the potential to emit PM is limited to less than 250 tons per year and the potential to emit all other attainment regulated pollutants are less than 250 tons per year, and this source is not one of the twenty-eight (28) listed source categories, as specified in 326 IAC 2-2-1(gg)(1). Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

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

(1) The amount of asphalt processed shall not exceed 1,238,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) PM emissions from the dryer/mixer shall not exceed 0.267 pounds per ton of asphalt processed.

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

Federal Rule Applicability Determination

New Source Performance Standards (NSPS)

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

visible emissions to 20% opacity.

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

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

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

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

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

(b) The requirements of the New Source Performance Standard for Asphalt Processing and Asphalt Roofing Manufacture, 40 CFR 60, Subpart UU (326 IAC 12), are not included in the permit, since pursuant to 40 CFR 60.471, the stationary drum hot-mix asphalt plant is not an asphalt processing plant because it does not blow asphalt, or an asphalt roofing plant because it does not produce asphalt roofing products, and pursuant to 40 CFR 60.101(a) the stationary drum hot-mix asphalt plant is not a petroleum refinery because it is not engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking or reforming of unfinished petroleum derivatives.

(c) The requirements of the New Source Performance Standard for Nonmetallic Mineral Processing Plants (40 CFR 60, Subpart OOO) (326 IAC 12), are not included in the permit, since the Recycled Asphalt Pavement (RAP) system does not contain a crusher or grinding mill. The source will be receiving pre-crushed/pre-sized RAP materials, therefore, pursuant to 40 CFR 60.670(a)(2) stand-alone screening operations at plants without crushers or grinding mills are exempt.

(d) The requirements of the New Source Performance Standard for Calciners and Dryers in Mineral Industries, 40 CFR 60, Subpart UUU (326 IAC 12), are not included in the permit, since a stationary drum hot-mix asphalt plant is not a mineral processing plant, meaning that it does not process or produce any of the following minerals, their concentrates or any mixture of which the majority (>50 percent) is any of the following minerals or a combination of these minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite.

(e) The one (1) 20,000 gallon liquid asphalt storage tank, identified as T-01 is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) “Standards of Performance for Volatile Organic Liquid Storage Vessels”. The storage tank has a capacity greater than 75 m^3 (19,813 gallons) but less than 151 m^3 (39,890 gallons) and the liquid stored in the tank has a maximum true vapor pressures of less than 15.0 kPa. Therefore, pursuant to 40 CFR 60.110b(b), this tank is exempt from this rule and the requirements of this rule are not included in the permit for this tank.

(f) The one (1) 20,000 gallon #2 Fuel Oil storage tank, identified as T-02 is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) “Standards of Performance for Volatile Organic Liquid Storage Vessels”. The storage tank has a capacity greater than 75 m^3 (19,813 gallons) but less than 151 m^3 (39,890 gallons) and the liquid stored in the tank has a maximum true vapor pressures of less than 15.0 kPa. Therefore, pursuant to 40 CFR 60.110b(b), this tank is exempt from this rule and the requirements of this rule are not

included in the permit for this tank.

(g) The one (1) 20,000 gallon rejuvenator storage tank, identified as T-03 is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) "Standards of Performance for Volatile Organic Liquid Storage Vessels". The storage tank has a capacity greater than 75 m^3 (19,813 gallons) but less than 151 m^3 (39,890 gallons) and the liquid stored in the tank has a maximum true vapor pressures of less than 15.0 kPa. Therefore, pursuant to 40 CFR 60.110b(b), this tank is exempt from this rule and the requirements of this rule are not included in the permit for this tank.

(h) The one (1) 20,000 gallon waste oil storage tank, identified as T-04 is not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) "Standards of Performance for Volatile Organic Liquid Storage Vessels". The storage tank has a capacity greater than 75 m^3 (19,813 gallons) but less than 151 m^3 (39,890 gallons) and the liquid stored in the tank has a maximum true vapor pressures of less than 15.0 kPa. Therefore, pursuant to 40 CFR 60.110b(b), this tank is exempt from this rule and the requirements of this rule are not included in the permit for this tank.

(i) There are no other New Source Performance Standards (NSPS)(40 CFR Part 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

(j) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart LLLLL (326 IAC 20-71, are not included in the permit, since the hot mix asphalt plant is not a major source of HAPs, is not located at and is not part of a major source of HAP emissions, and does not engage in the preparation of asphalt flux or asphalt roofing materials.

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

Compliance Assurance Monitoring (CAM)

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

State Rule Applicability Determination

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

(b) 326 IAC 2-2 (Prevention of Significant Deterioration(PSD))
PSD applicability is discussed under the PTE of the Entire Source After Issuance of the FESOP section above.

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

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

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

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

(1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

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

(f) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
The source is subject to the requirements of 326 IAC 6-4, because the Asphalt Load-Out and On-Site Yard, Hot Oil and Asphalt Heaters, Material Screening, and Conveying, Material Processing and Handling, Material Storage Piles, and Paved Roads each have the potential to emit fugitive particulate emissions. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

(g) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is subject to the requirements of 326 IAC 6-5, because the Asphalt Load-Out and On-Site Yard, Hot Oil and Asphalt Heaters, Material Screening, and Conveying, Material Processing and Handling, Material Storage Piles, and Paved Roads have combined potential fugitive particulate emissions greater than 25 tons per year. Pursuant to 326 IAC 6-5, fugitive particulate matter emissions shall be controlled according to the Fugitive Dust Control Plan, which is included as Attachment A to the permit.

(h) 326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)
The asphalt parallel flow drum mixer/dryer, identified as emission unit EU-01, is subject to 326 IAC 7-1.1 because it has potential SO_2 emissions of greater than 25 tons per year (limited potential emissions are 93.42 tons per year). Pursuant to this rule, sulfur dioxide emissions from the dryer/mixer burner shall be limited to five-tenths (0.5) pounds per million Btu for distillate oil combustion (including No. 2 fuel oil). This equates to a maximum allowable sulfur content of (0.5% by weight) for the distillate fuel oils.

(i) 326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements)
Pursuant to this rule, the source shall submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate (pounds SO_2 per MMBtu), to the OAQ upon request.

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

(a) The amount of asphalt processed shall not exceed 1,238,000 tons per twelve (12) consecutive month period and a VOC limit of 0.032 pound of VOC per ton of hot mix asphalt produced.

Compliance with this limit shall limit the VOC PTE from the dryer/mixer to less than twenty-five (25) tons per 12 consecutive month period and shall render 326 IAC 8-1-6 (VOC Rules: General

Reduction Requirements for New Facilities) not applicable.

(j) 326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)
Pursuant to 326 IAC 8-4-1 (Applicability) and 326 IAC 8-4-3 (Petroleum Liquid Storage Facilities), all petroleum liquid storage vessels with capacities greater than one hundred fifty thousand (150,000) liters (39,000 gallons) containing VOC whose true vapor pressure is greater than 10.5 kPa (1.52 psi) shall comply with the requirements for external fixed and floating roof tanks and the specified record keeping and reporting requirements. Tank-02 and Tank-04 have a maximum capacity less than 39,000 gallons. Therefore, the requirements of this rule are not applicable to this facility and are not included in this permit.

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

(a) penetrating prime coating

(b) stockpile storage

(c) application during the months of November, December, January, February and March.

The owner or operator will not process emulsified or cutback asphalt at this source unless proper approval has been obtained from IDEM, OAQ. Therefore, this source is not subject to this rule.

(l) 326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)
Tanks-01 through -04 are each not subject to the requirements of this rule because the source is not located in Clark, Floyd, Lake, or Porter Counties.

(m) 326 IAC 10-3 (Nitrogen Oxide Reduction Program for Specific Source Category)
This source does not operate a Portland cement kiln or a blast furnace gas boiler with a heat input greater than two hundred fifty million (250,000,000) British thermal units per hour. The one (1) 86 million Btu dryer/mixer burner is not subject to this rule, therefore the requirements of 326 IAC 10-3 are not included in the permit for this source.

(n) 326 IAC 12-1 (New Source Performance Standards)
The hot-mix asphalt plant is required to comply with the requirements of 40 CFR 60.90, Subpart I, Standards of Performance for Hot-mix Asphalt Facilities, as described in the “Federal Rule Applicability” section of this TSD.

Compliance Determination, Monitoring and Testing Requirements

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

Emission Unit	Control Device	Timeframe for Testing	Pollutant	Frequency of Testing	Limit or Requirement
EU-01	CE-02	180 days after start-up	PM	Once every five (5) years	0.267 lb PM/ton of asphalt
EU-01	CE-02	180 days after publication of revised test method or 180 days after start-up whichever is later	PM10 PM2.5	Once every five (5) years	0.142 lb PM2.5/ton of asphalt; and 0.118 lb PM10 /ton of asphalt
EU-01	N/A	180 days after start-up	SO2	Once every five (5) years	0.54 lb SO2/ton of asphalt

(b) The drum mixer and aggregate dryer/burner, baghouse stack exhaust, identified as SV-1, the conveying, screening, and material transfer points have applicable compliance monitoring conditions as specified below:

Control	Parameter	Frequency	Range	Excursions and Exceedances
Conveyors, screening, material transfer points and dryer/mixer stack (SV-1) exhaust	Visible Emissions	Daily	Normal-Abnormal	Response Steps
Baghouse for the dryer/mixer	Water Pressure Drop	Daily	1.0 to 10.0 inches	Response Steps

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 Limited Potential to Emit (PTE) criteria pollutants from this proposed source to estimate whether the Limited PTE criteria pollutants will cause or contribute to a violation of any National Ambient Air Quality Standard (NAAQS).

Modeling Results
The modeling results indicate that the Limited PTE criteria pollutants from this source will not exceed the National Ambient Air Quality Standards (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 review was received on January 5, 2009.

The construction and operation of this source shall be subject to the conditions of the attached proposed New Source Construction FESOP No. 003-27335-00374. The staff recommends to the Commissioner that this New Source Construction and FESOP be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Jason R. Krawczyk 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) 232-8427 or toll free at 1-800-451-6027 extension 2-8427.

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

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

Appendix A.1: Emissions Calculations
Unlimited Emission Summary

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Asphalt Plant Maximum Capacity

Maximum Hourly Asphalt Production =	250	ton/hr								
Maximum Annual Asphalt Production =	2,190,000	ton/yr								
Annual Slag Usage =	657,000	ton/yr	1.10	% sulfur						
Maximum Fuel Input Rate (Dryer/Burner) =	86	MMBtu/hr								
Equivalent Natural Gas Usage =	753	MMCF/yr								
Equivalent No. 2 Fuel Oil Usage =	5,381,143	gal/yr, and	0.50	% sulfur						
Refinery Blend (No.2 and No. 6) Fuel Oil Limitation =	5,381,143	gal/yr, and	1.00	% sulfur						
Equivalent Used/Waste Oil Usage =	5,381,143	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine,	0.040	% lead

Unlimited/Uncontrolled Emissions

	Unlimited/Uncontrolled Potential to Emit (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Fuel Combustion (worst case)	111.93	89.19	89.19	422.42	147.98	2.69	31.64	78.76	71.03	(hydrogen chloride)
Dryer/Mixer	30660.00	7117.50	1642.50	63.51	60.23	35.04	142.35	11.67	3.39	(formaldehyde)
Dryer/Mixer Slag Processing	0.00	0.00	0.00	177.39	0.00	0.00	0.00	0.00	0.00	
Hot Oil Heater	0.02	0.07	0.07	0.25	0.88	0.05	0.74	0.02	0.02	(Hexane)
Thermal Oxidizer Combustion	0.38	1.53	1.53	5.74	6.44	1.11	16.91	0.38	0.36	(Hexane)
Worst Case Emissions*	**30660.40**	**7119.10**	**1644.10**	**605.80**	**155.30**	**36.20**	**159.99**	**79.16**	**71.03**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	1.21	1.21	1.21	0	0	17.96	1.86	0.31	0.10	(formaldehyde)
Material Storage Piles	1.60	0.56	0.56	0	0	0	0	0	0	
Material Processing and Handling	7.07	3.35	0.51	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	34.74	12.69	12.69	0	0	0	0	0	0	
Unpaved Roads (worst case)	103.29	26.33	2.63	0	0	0	0	0	0	
Gasoline Dispensing	0	0	0	0	0	4.34	0	1.13	0.39	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl.	0	negl.	negl.	
Total Fugitive Emissions	**147.93**	**44.14**	**17.60**	**0**	**0**	**22.29**	**1.86**	**1.44**	**0.39**	(xylenes)
Totals Unlimited/Uncontrolled PTE	**30808.33**	**7163.23**	**1661.70**	**605.80**	**155.30**	**58.49**	**161.85**	**80.60**	**71.42**	(xylenes)

negl = negligible

* Worst case emissions include the worst case emissions from Fuel Combustion and Dryer/Mixer, in addition to the Dryer/Mixer Slag Processing, Hot Oil Heater, and Thermal Oxidizer Combustion emissions.

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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

Maximum Capacity

Maximum Annual Asphalt Production =	2,190,000	ton/yr								
Maximum Fuel Input Rate =	86	MMBtu/hr								
Equivalent Natural Gas Usage =	753	MMCF/yr								
Equivalent No. 2 Fuel Oil Usage =	5,381,143	gal/yr, and	0.50	% sulfur						
Refinery Blend (No.2 and No. 6) Fuel Oil Limitation =	5,381,143	gal/yr, and	1.00	% sulfur						
Equivalent Used/Waste Oil Usage =	5,381,143	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine	0.040	% lead

Unlimited/Uncontrolled Emissions

	Emission Factor (units)				Unlimited/Uncontrolled Potential to Emit (tons/yr)				
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	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)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	12.41	41.6	0.72	5.38	33.39	111.93	**111.93**
PM10[1]	7.6	3.3	13.91	33.15	2.86	8.88	37.43	89.19	**89.19**
SO2	0.6	71.0	157.0	147.0	0.23	191.03	422.42	395.51	**422.42**
NOx	100	20.0	55.0	19.0	37.67	53.81	147.98	51.12	**147.98**
VOC	5.5	0.20	0.28	1.0	2.07	0.54	0.75	2.69	**2.69**
CO	84	5.0	5.0	5.0	31.64	13.45	13.45	13.45	**31.64**
Hazardous Air Pollutant									
HCl				26.4				71.03	**71.03**
Antimony			5.25E-03	negl			1.41E-02	negl	**1.4E-02**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.1E-01	7.5E-05	1.51E-03	3.55E-03	2.96E-01	**3.0E-01**
Beryllium	1.2E-05	4.2E-04	2.78E-05	negl	4.5E-06	1.13E-03	7.48E-05	negl	**1.1E-03**
Cadmium	1.1E-03	4.2E-04	3.98E-04	9.3E-03	4.1E-04	1.13E-03	1.07E-03	2.50E-02	**2.5E-02**
Chromium	1.4E-03	4.2E-04	8.45E-04	2.0E-02	5.3E-04	1.13E-03	2.27E-03	5.38E-02	**5.4E-02**
Cobalt	8.4E-05		6.02E-03	2.1E-04	3.2E-05		1.62E-02	5.65E-04	**1.6E-02**
Lead	5.0E-04	1.3E-03	1.51E-03	2.2	1.9E-04	3.39E-03	4.06E-03	5.9E+00	**5.92**
Manganese	3.8E-04	8.4E-04	3.00E-03	6.8E-02	1.4E-04	2.26E-03	8.07E-03	1.83E-01	**0.18**
Mercury	2.6E-04	4.2E-04	1.13E-04		9.8E-05	1.13E-03	3.04E-04		**1.1E-03**
Nickel	2.1E-03	4.2E-04	8.45E-02	1.1E-02	7.9E-04	1.13E-03	2.27E-01	2.96E-02	**0.227**
Selenium	2.4E-05	2.1E-03	6.83E-04	negl	9.0E-06	5.65E-03	1.84E-03	negl	**5.7E-03**
1.1.1-Trichloroethane			2.36E-04				6.35E-04		**6.3E-04**
1,3-Butadiene									**0.0E+00**
Acetaldehyde									**0.0E+00**
Acrolein									**0.0E+00**
Benzene	2.1E-03		2.14E-04		7.9E-04		5.76E-04		**7.9E-04**
Bis(2-ethylhexyl)phthalate				2.2E-03				5.92E-03	**5.9E-03**
Dichlorobenzene	1.2E-03			8.0E-07	4.5E-04			2.15E-06	**4.5E-04**
Ethylbenzene			6.36E-05				1.71E-04		**1.7E-04**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02		2.8E-02	1.64E-01	8.88E-02		**0.164**
Hexane	1.8E+00				6.8E-01				**0.678**
Phenol				2.4E-03				6.46E-03	**6.5E-03**
Toluene	3.4E-03		6.20E-03		1.3E-03		1.67E-02		**1.7E-02**
Total PAH Haps	negl		1.13E-03	3.9E-02	negl		3.04E-03	1.05E-01	**1.1E-01**
Polycyclic Organic Matter		3.30E-03				8.88E-03			**8.9E-03**
Xylene			1.09E-04				2.93E-04		**2.9E-04**
				Total HAPs	**0.71**	**0.19**	**0.39**	**77.66**	**78.76**

Note:
[1]Assumes PM10 = PM2.5

Methodology:
Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
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 combution:
No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
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
* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 11.1. Therefore, assumes Refinery Blend Fuel Oil emission factors equal to No. 6 Fuel Oil emissic

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

Appendix A.1: Emissions Calculations
Dryer/Mixer
Volatile Organic Compounds and Hazardous Air Pollutants

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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

Maximum Annual Asphalt Production = 2,190,000 ton/yr

	Uncontrolled Emission Factors (lb/ton)				Unlimited/Uncontrolled Potential to Emit (tons/yr)				
	Drum-Mix Plant (dryer/mixer)				Drum-Mix Plant (dryer/mixer)				
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Refinery Blend	Waste Oil	Natural Gas	No. 2 Fuel Oil	Refinery Blend	Waste Oil	**Worse Case PTE**
PM	28	28	28	28	30660.00	30660.00	30660.00	30660.00	**30660.00**
PM10	6.5	6.5	6.5	6.5	7117.50	7117.50	7117.50	7117.50	**7117.50**
PM2.5	1.5	1.5	1.5	1.5	1642.50	1642.50	1642.50	1642.50	**1642.50**
SO2	0.0034	0.011	0.058	0.058	3.72	12.05	63.51	63.51	**63.51**
NOx	0.026	0.055	0.055	0.055	28.47	60.23	60.23	60.23	**60.23**
VOC	0.032	0.032	0.032	0.032	35.04	35.04	35.04	35.04	**35.04**
CO	0.13	0.13	0.13	0.13	142.35	142.35	142.35	142.35	**142.35**
Hazardous Air Pollutant									
HCl			2.10E-04	2.10E-04			2.30E-01	2.30E-01	**0.23**
Antimony	1.80E-07	1.80E-07	1.80E-07	1.80E-07	1.97E-04	1.97E-04	1.97E-04	1.97E-04	**1.97E-04**
Arsenic	5.60E-07	5.60E-07	5.60E-07	5.60E-07	6.13E-04	6.13E-04	6.13E-04	6.13E-04	**6.13E-04**
Beryllium	negl	negl	negl	negl	negl	negl	negl.	negl	**0.00**
Cadmium	4.10E-07	4.10E-07	4.10E-07	4.10E-07	4.49E-04	4.49E-04	4.49E-04	4.49E-04	**4.49E-04**
Chromium	5.50E-06	5.50E-06	5.50E-06	5.50E-06	6.02E-03	6.02E-03	6.02E-03	6.02E-03	**6.02E-03**
Cobalt	2.60E-08	2.60E-08	2.60E-08	2.60E-08	2.85E-05	2.85E-05	2.85E-05	2.85E-05	**2.85E-05**
Lead	6.20E-07	1.50E-05	1.50E-05	1.50E-05	6.79E-04	0.02	0.02	0.02	**0.02**
Manganese	7.70E-06	7.70E-06	7.70E-06	7.70E-06	8.43E-03	8.43E-03	8.43E-03	8.43E-03	**8.43E-03**
Mercury	2.40E-07	2.60E-06	2.60E-06	2.60E-06	2.63E-04	2.85E-03	2.85E-03	2.85E-03	**2.85E-03**
Nickel	6.30E-05	6.30E-05	6.30E-05	6.30E-05	0.07	0.07	0.07	0.07	**0.07**
Selenium	3.50E-07	3.50E-07	3.50E-07	3.50E-07	3.83E-04	3.83E-04	3.83E-04	3.83E-04	**3.83E-04**
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	4.00E-05	0.04	0.04	0.04	0.04	**0.04**
Acetaldehyde			1.30E-03	1.30E-03			1.42	1.42	**1.42**
Acrolein			2.60E-05	2.60E-05			0.03	0.03	**0.03**
Benzene	3.90E-04	3.90E-04	3.90E-04	3.90E-04	0.43	0.43	0.43	0.43	**0.43**
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	2.40E-04	0.26	0.26	0.26	0.26	**0.26**
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	3.10E-03	3.39	3.39	3.39	3.39	**3.39**
Hexane	9.20E-04	9.20E-04	9.20E-04	9.20E-04	1.01	1.01	1.01	1.01	**1.01**
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	4.80E-05	0.05	0.05	0.05	0.05	**0.05**
MEK			2.00E-05	2.00E-05			0.02	0.02	**0.02**
Propionaldehyde			1.30E-04	1.30E-04			0.14	0.14	**0.14**
Quinone			1.60E-04	1.60E-04			0.18	0.18	**0.18**
Toluene	1.50E-04	2.90E-03	2.90E-03	2.90E-03	0.16	3.18	3.18	3.18	**3.18**
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	8.80E-04	0.21	0.96	0.96	0.96	**0.96**
Xylene	2.00E-04	2.00E-04	2.00E-04	2.00E-04	0.22	0.22	0.22	0.22	**0.22**
								Total HAPs	**11.67**
								Worst Single HAP	**3.39** **(formaldehyde)**

Methodology

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

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

* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 11.1. Therefore, assumes Refinery Blend Fuel Oil emission factors equal to No. 6 Fuel Oi

Abbreviations

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

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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

Maximum Annual Slag Usage* = 657,000 ton/yr 1.1 % sulfur

	Emission Factor (lb/ton)**	Unlimited Potential to Emit (tons/yr)
Criteria Pollutant	Slag Processing	Slag Processing
SO2	0.54	177.4

Methodology
* The maximum annual slag usage was estimated by the source at 30 percent total asphalt produced.

** Testing results for Slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from slag containing 1.10% sulfur content.
Unlimited Potential to Emit SO2 from Slag (tons/yr) = [(Maximum Annual Slag Usage (ton/yr)] * [Emission Factor (lb/ton)] * [ton/2000 lbs]
Abbreviations
SO2 = Sulfur Dioxide

Appendix A.1: Emissions Calculations
Hot Oil Heater Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
2.0	17.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	100 **see below	5.5	84
Potential Emission in tons/yr	0.02	0.07	0.25	0.88	0.05	0.74

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

Appendix A.1: Emissions Calculations
Hot Oil Heater Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.840E-05	1.051E-05	6.570E-04	1.577E-02	2.978E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	4.380E-06	9.636E-06	1.226E-05	3.329E-06	1.840E-05

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A.1: Emissions Calculations
Thermal Oxidizer Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
46.0	402.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	32 **see below	5.5	84
Potential Emission in tons/yr	0.38	1.53	5.74	6.44	1.11	16.91

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

Appendix A.1: Emissions Calculations
Thermal Oxidizer Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.226E-04	2.415E-04	1.509E-02	3.623E-01	6.843E-04

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.006E-04	2.214E-04	2.818E-04	7.648E-05	4.226E-04

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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 =	2,190,000	tons/yr

	Emission Factor (lb/ton asphalt)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Total**
Total PM	5.2E-04	5.9E-04	NA	0.57	0.64	NA	**1.21**
Organic PM	3.4E-04	2.5E-04	NA	0.37	0.28	NA	**0.65**
TOC	0.004	0.012	0.001	4.55	13.34	1.205	**19.1**
CO	0.001	0.000	3.5E-04	1.48	0.00	0.385	**1.86**

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

PM/HAPs	**0.027**	**0.032**	**0**	**0.058**
VOC/HAPs	**0.067**	**0.170**	**0.018**	**0.255**
non-VOC/HAPs	**3.5E-04**	**3.6E-05**	**9.3E-05**	**4.8E-04**
non-VOC/non-HAPs	**0.33**	**0.97**	**0.09**	**1.39**

Total VOCs	**4.28**	**12.54**	**1.1**	**18.0**
Total HAPs	**0.09**	**0.20**	**0.018**	**0.31**
			Worst Single HAP	**0.097 (formaldehyde)**

Methodology

Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16
Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::

Total PM/PM10 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)

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

PM/PM10 Ef = 0.000332 + 0.00105(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00105(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0504(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00488(-V)e^((0.0251)(T+460)-20.43)

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

Abbreviations

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

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Organic Particulate-Based Compounds (Table 11.1-15)

					Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of Total Organic PM)**	**Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
PAH HAPs										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	9.7E-04	1.3E-03	NA	2.3E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	1.0E-04	3.9E-05	NA	1.4E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	2.6E-04	3.6E-04	NA	6.2E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	7.1E-05	1.6E-04	NA	2.3E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	2.8E-05	0.0E+00	NA	2.8E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	8.2E-06	0.0E+00	NA	8.2E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	7.1E-06	0.0E+00	NA	7.1E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	8.6E-06	0.0E+00	NA	8.6E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	2.9E-05	2.6E-05	NA	5.6E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	3.8E-04	5.8E-04	NA	9.7E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	1.4E-06	0.0E+00	NA	1.4E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	1.9E-04	4.2E-04	NA	6.0E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	2.9E-03	2.8E-03	NA	5.7E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	1.8E-06	0.0E+00	NA	1.8E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	8.9E-03	1.5E-02	NA	0.024
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	4.7E-03	5.1E-03	NA	9.7E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	8.2E-05	8.3E-05	NA	1.7E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	3.0E-03	5.0E-03	NA	8.0E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	5.6E-04	1.2E-03	NA	1.8E-03
Total PAH HAPs							**0.022**	**0.032**	**NA**	**0.054**
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	4.4E-03	0.0E+00	0	4.4E-03

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

Methodology

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

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

Abbreviations

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

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

Organic Volatile-Based Compounds (Table 11.1-16)

					Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of TOC)**	**Silo Filling and Asphalt Storage Tank (% by weight of TOC)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
VOC		VOC	---	TOC	94%	100%	**4.28**	**12.54**	**1.13**	**17.96**
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	3.0E-01	0.87	7.8E-02	1.242
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	2.1E-03	0.01	5.5E-04	0.009
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	3.2E-02	0.09	8.6E-03	0.136
Total non-VOC/non-HAPS					7.30%	1.40%	**0.332**	**0.97**	**0.088**	**1.39**
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	2.4E-03	4.27E-03	6.3E-04	7.3E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	4.4E-04	6.54E-04	1.2E-04	1.2E-03
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	2.2E-03	5.20E-03	5.9E-04	8.0E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	5.9E-04	2.14E-03	1.6E-04	2.9E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	9.6E-06	5.34E-04	2.5E-06	5.5E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	6.8E-04	3.07E-03	1.8E-04	3.9E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	5.0E-03	0.00E+00	1.3E-03	6.3E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	1.3E-02	5.07E-03	3.4E-03	0.021
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	4.0E-03	9.21E-02	1.1E-03	0.097
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	6.8E-03	1.33E-02	1.8E-03	0.022
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	8.2E-05	4.14E-05	2.2E-05	1.5E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	3.60E-05	0	3.6E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	3.3E-04	7.21E-04	8.8E-05	1.1E-03
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	3.5E-04	0.00E+00	9.3E-05	4.4E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	9.6E-03	8.27E-03	2.5E-03	0.020
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	0	5.9E-05	0.00E+00	1.6E-05	7.5E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	1.9E-02	2.67E-02	4.9E-03	0.050
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	3.6E-03	7.61E-03	9.6E-04	1.2E-02
Total volatile organic HAPs					1.50%	1.30%	**0.068**	**0.173**	**0.018**	**0.260**

Methodology

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

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

Abbreviations

TOC = Total Organic Compounds

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

MTBE = Methyl tert butyl ether

Appendix A.1: Emissions Calculations
Material Storage Piles

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

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

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)
Limestone	1.6	1.85	0.75	0.253	0.089
Sand	2.6	3.01	0.75	0.412	0.144
RAP	0.5	0.58	0.75	0.079	0.028
Gravel	1.6	1.85	0.75	0.253	0.089
Slag	3.8	4.40	0.75	0.602	0.211
			Totals	**1.60**	**0.56**

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) anticipated for a source with an annual asphalt production of 1,500,000 tons/yr

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

Appendix A.2: Emissions Calculations
Limited Emissions
Fugitive Dust Emissions - Material Processing and Handling

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

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

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

where: Ef =	Emission factor (lb/ton)	
k (PM) =	0.74	= particle size multiplier (0.74 assumed for aerodynamic diameter <=100 um)
k (PM10) =	0.35	= particle size multiplier (0.35 assumed for aerodynamic diameter <=10 um)
k (PM2.5) =	0.053	= particle size multiplier (0.053 assumed for aerodynamic diameter <=2.5 um)
U =	10.2	= worst case annual mean wind speed (Source: NOAA, 2005*)
M =	4.0	= material % moisture content of aggregate (Source: AP-42 Section 11.1.1.1)
Ef (PM) =	2.27E-03	lb PM/ton of material handled
Ef (PM10) =	1.07E-03	lb PM10/ton of material handled
Ef (PM2.5) =	1.62E-04	lb PM2.5/ton of material handled

Annual Asphalt Production Limitation =	1,238,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,176,100	tons/yr

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)	Limited PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	1.33	0.63	0.10
Front-end loader dumping of materials into feeder bins	1.33	0.63	0.10
Conveyor dropping material into dryer/mixer or batch tower	1.33	0.63	0.10
Total (tons/yr)	**4.00**	**1.89**	**0.29**

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 additivies
*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)
Crushing	0.0054	0.0024	3.18	1.41
Screening	0.025	0.0087	14.70	5.12
Conveying	0.003	0.0011	1.76	0.65
Limited Potential to Emit (tons/yr) =			**19.64**	**7.17**

Methodology

Appendix A.1: Emissions Calculations
Fugitive Dust Emissions - Unpaved Roads

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Unpaved Roads at Industrial Site

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

Maximum Annual Asphalt Production =	2,190,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	2,080,500	tons/yr
Maximum Asphalt Cement/Binder Throughput =	109,500	tons/yr
Maximum No. 2 Fuel Oil Usage =	5,381,143	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	9.3E+04	3.7E+06	350	0.066	6156.8
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	9.3E+04	1.6E+06	350	0.066	6156.8
Aspalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	3.0E+03	1.5E+05	150	0.028	86.4
Aspalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	3.0E+03	3.7E+04	150	0.028	86.4
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	5.7E+02	2.5E+04	150	0.028	16.1
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	5.7E+02	6.8E+03	150	0.028	16.1
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	5.0E+05	9.5E+06	500	0.095	46908.8
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	5.0E+05	7.4E+06	500	0.095	46908.8
	Total				**1.2E+06**	**2.2E+07**			**1.1E+05**

Average Vehicle Weight Per Trip =	18.9	tons/trip
Average Miles Per Trip =	0.090	miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Pl
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	18.9	18.9	18.9	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

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

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	5.91	1.51	0.15	lb/mile
Mitigated Emission Factor, Eext =	3.89	0.99	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	18.19	4.64	0.46	11.96	3.05	0.30	5.98	1.52	0.15
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	18.19	4.64	0.46	11.96	3.05	0.30	5.98	1.52	0.15
Aspalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.255	0.065	0.01	0.168	0.043	0.00	0.084	0.021	0.00
Aspalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.255	0.065	0.01	0.168	0.043	0.00	0.084	0.021	0.00
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.048	0.012	0.00	0.031	0.008	0.00	0.016	0.004	0.00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.048	0.012	0.00	0.031	0.008	0.00	0.016	0.004	0.00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	138.60	35.32	3.53	91.13	23.23	2.32	45.57	11.61	1.16
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	138.60	35.32	3.53	91.13	23.23	2.32	45.57	11.61	1.16
	Totals	**314.19**	**80.07**	**8.01**	**206.59**	**52.65**	**5.27**	**103.29**	**26.33**	**2.63**

Methodology

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

Abbreviations

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

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

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, emission factors from AP-42 Table 5.2-7 were used. Assuming the worst case throughput of 1,300 gallons of gasoline per day (474.5 kgal per year) and 365 days of operation per year, the total potential emission of VOC is as follows:

Gasoline Throughput =	7,667	gallons/day
=	2,798.5	kgal/yr

Volatile Organic Compounds

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.42
Tank breathing and emptying	1.0	1.40
Vehicle refueling (displaced losses - controlled)	1.1	1.54
Spillage	0.7	0.98
Total		**4.34**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**1.13**	
Limited PTE of Single HAP (tons/yr) =	**0.39**	**Xylenes**

Methodology

Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]

PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]

PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]

PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]

*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: http://www.aehs.com/publications/catalog/contents/tph.htm

Abbreviations

VOC = Volatile Organic Compounds

PTE = Potential to Emit

Appendix A.1: Emissions Calculations
Fuel Equivalency Calculations
Fuel Combustion Units with Maximum Capacity < 100 MMBtu/hr

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

*Note: these equivalencies are related back to natural gas (assumed to be the predominant fuel used at this source).

	SO2 Equivalency						NOx Equivalency			
Fuel Type	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	1.0	MMCF natural gas / MMCF natural gas	100	lb/MMCF	1.0	MMCF natural gas / MMCF natural gas
No. 2 Fuel Oil	0.50	% by weight	71.00	lb/kgal	118.3	MMCF natural gas / 1000 gal No. 2 fuel oil	20.0	lb/kgal	0.200	MMCF natural gas / 1000 gal No. 2 fuel oil
Refinery Blend Fuel Oil	1.00	% by weight	157.00	lb/kgal	261.7	MMCF natural gas / 1000 gal refinery blend fuel oil	55.0	lb/kgal	0.550	MMCF natural gas / 1000 gal refinery blend fuel oil
Waste Oil	1.00	% by weight	147.00	lb/kgal	245.0	MMCF natural gas / 1000 gal waste oil	19.0	lb/kgal	0.190	MMCF natural gas / 1000 gal waste oil

Methodology

Fuel Equivalency = [AP-42 Emission Factor for No. 2 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 residual fuel oil (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

* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 1.3 (dated 9/98), Table 1.3-1. Therefore, assumes refinery blend fuel oil emission factors equal to residual fuel oil emission factors

Appendix A.2: Emissions Calculations
Limited Emission Summary

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Asphalt Plant Limitations

Maximum Hourly Asphalt Production =	250	ton/hr								
Annual Asphalt Production Limitation =	1,238,000	ton/yr								
Slag Usage Limitation =	185,700	ton/yr	1.10	% sulfur						
Natural Gas Limitation* =	1,850	MMCF/yr								
No. 2 Fuel Oil Limitation =	1,233,110	gal/yr, and	0.50	% sulfur						
Refinery Blend (No. 2 and No.6) Fuel Oil Limitation =	557,648	gal/yr, and	1.00	% sulfur						
Waste Oil Limitation =	595,584	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine,	0.040	% lead
PM Dryer/Mixer Limitation =	0.267	lb/ton of asphalt production								
PM10 Dryer/Mixer Limitation =	0.118	lb/ton of asphalt production								
PM2.5 Dryer/Mixer Limitation =	0.142	lb/ton of asphalt production								
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production								
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production								
Slag SO2 Dryer/Mixer Limitation =	0.540	lb/ton of asphalt production								

Limited/Controlled Emissions

	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Fuel Combustion (worst case)	12.39	9.87	9.87	43.78	92.50	5.09	77.70	10.36	7.86	(hydrogen chloride)
Dryer/Mixer	165.20	73.11	88.11	35.90	34.05	19.81	80.47	6.60	1.92	(formaldehyde)
Dryer/Mixer Slag Processing	0.00	0.00	0.00	50.14	0.00	0.00	0.00	0.00	0.00	
Hot Oil Heater	0.02	0.07	0.07	0.25	0.88	0.05	0.74	0.02	0.02	(Hexane)
Thermal Oxidizer Combustion	0.38	1.53	1.53	5.74	6.44	1.11	16.91	0.38	0.36	(Hexane)
Worst Case and Thermal Oxidizer Emissions	**165.60**	**74.71**	**89.71**	**99.90**	**99.82**	**20.96**	**98.11**	**10.76**	**7.86**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	0.69	0.69	0.69	0	0	10.15	1.78	0.18	0.05	(formaldehyde)
Material Storage Piles	1.60	0.56	0.56	0	0	0	0	0	0	
Material Processing and Handling	4.00	1.89	0.29	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	19.64	7.17	7.17	0	0	0	0	0	0	
Unpaved Roads (worst case)	58.37	14.88	1.49	0	0	0	0	0	0	
Gasoline Dispensing	0	0	0	0	0	4.34	0	1.13	0.39	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl.	0	negl.	negl.	
Total Fugitive Emissions	**84.30**	**25.19**	**10.19**	**0**	**0**	**14.49**	**1.78**	**1.31**	**0.39**	(xylenes)
Totals Limited/Controlled Emissions	**249.90**	**99.90**	**99.90**	**99.90**	**99.82**	**35.45**	**99.90**	**12.07**	**7.86**	(hydrogen chloride)

Notes:

* Natural Gas limitation is only for Dryer/Burner. Hot Oil Heater and Thermal Oxidizer fuel usages are independent of limits.

negl = negligible

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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

Production and Fuel Limitations

Annual Asphalt Production Limitation =	1,238,000	ton/yr								
Natural Gas Limitation =	1,850	MMCF/yr								
No. 2 Fuel Oil Limitation =	1,233,110	gal/yr, and	0.50	% sulfur						
Refinery Blend (No. 2 and No. 6) Fuel Oil Limitation =	557,648	gal/yr, and	1.00	% sulfur						
Used/Waste Oil Limitation =	595,584	gal/yr, and	1.00	% sulfur	0.65	% ash	0.400	% chlorine,	0.040	% lead

Limited Emissions

	Emission Factor (units)				Limited Potential to Emit (tons/yr)				
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Refinery Blend (lb/kgal)	Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	Refinery Blend (tons/yr)	Waste Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2	12.41	41.6	1.76	1.23	3.46	12.39	**12.39**
PM10[1]	7.6	3.3	13.91	33.15	7.03	2.03	3.88	9.87	**9.87**
SO2	0.6	71.0	157.0	147.0	0.56	43.78	43.78	43.78	**43.78**
NOx	100	20.0	55.0	19.0	92.50	12.33	15.34	5.66	**92.50**
VOC	5.5	0.20	0.28	1.0	5.09	0.12	0.08	0.30	**5.09**
CO	84	5.0	5.0	5.0	77.7	3.08	1.39	1.49	**77.70**
Hazardous Air Pollutant									
HCl				26.4				7.86	**7.86**
Antimony			5.25E-03	negl			1.46E-03	negl	**1.5E-03**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.1E-01	1.9E-04	3.45E-04	3.68E-04	3.28E-02	**3.3E-02**
Beryllium	1.2E-05	4.2E-04	2.78E-05	negl	1.1E-05	2.59E-04	7.75E-06	negl	**2.6E-04**
Cadmium	1.1E-03	4.2E-04	3.98E-04	9.3E-03	1.0E-03	2.59E-04	1.11E-04	2.77E-03	**2.8E-03**
Chromium	1.4E-03	4.2E-04	8.45E-04	2.0E-02	1.3E-03	2.59E-04	2.36E-04	5.96E-03	**6.0E-03**
Cobalt	8.4E-05		6.02E-03	2.1E-04	7.8E-05		1.68E-03	6.25E-05	**1.7E-03**
Lead	5.0E-04	1.3E-03	1.51E-03	2.2	4.6E-04	7.77E-04	4.21E-04	6.6E-01	**0.66**
Manganese	3.8E-04	8.4E-04	3.00E-03	6.8E-02	3.5E-04	5.18E-04	8.36E-04	2.02E-02	**0.02**
Mercury	2.6E-04	4.2E-04	1.13E-04		2.4E-04	2.59E-04	3.15E-05		**2.6E-04**
Nickel	2.1E-03	4.2E-04	8.45E-02	1.1E-02	1.9E-03	2.59E-04	2.36E-02	3.28E-03	**0.024**
Selenium	2.4E-05	2.1E-03	6.83E-04	negl	2.2E-05	1.29E-03	1.90E-04	negl	**1.3E-03**
1.1.1-Trichloroethane			2.36E-04				6.58E-05		**6.6E-05**
1,3-Butadiene									**0.0E+00**
Acetaldehyde									**0.0E+00**
Acrolein									**0.0E+00**
Benzene	2.1E-03		2.14E-04		1.9E-03		5.97E-05		**1.9E-03**
Bis(2-ethylhexyl)phthalate				2.2E-03				6.55E-04	**6.6E-04**
Dichlorobenzene	1.2E-03			8.0E-07	1.1E-03			2.38E-07	**1.1E-03**
Ethylbenzene			6.36E-05				1.77E-05		**1.8E-05**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02		6.9E-02	3.76E-02	9.20E-03		**0.069**
Hexane	1.8E+00				1.67				**1.665**
Phenol				2.4E-03				7.15E-04	**7.1E-04**
Toluene	3.4E-03		6.20E-03		3.1E-03		1.73E-03		**3.1E-03**
Total PAH Haps	negl		1.13E-03	3.9E-02	negl		3.15E-04	1.16E-02	**1.2E-02**
Polycyclic Organic Matter		3.30E-03				2.03E-03			**2.0E-03**
Xylene			1.09E-04				3.04E-05		**3.0E-05**
				Total HAPs	**1.75**	**0.04**	**0.04**	**8.59**	**10.36**

Note:
[1]Assumes PM10 = PM2.5

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 combution:
Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
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
* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 11.1. Therefore, assumes Refinery Blend Fuel Oil emission factors equal to No. 6 Fuel Oil emission factors.

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

Appendix A.2: Emissions Calculations
Limited Emissions
Dryer/Mixer
Volatile Organic Compounds and Hazardous Air Pollutants

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

Annual Asphalt Production Limitation =	1,238,000	ton/yr
PM Dryer/Mixer Limitation =	0.267	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.118	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.142	lb/ton of asphalt production
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production

	Emission Factor or Limitation (lb/ton)				Limited/Controlled Potential to Emit (tons/yr)				
	Drum-Mix Plant (dryer/mixer, controlled by fabric filter)				Drum-Mix Plant (dryer/mixer, controlled by fabric filter)				
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Refinery Blend	Waste Oil	Natural Gas	No. 2 Fuel Oil	Refinery Blend	Waste Oil	**Worse Case PTE**
PM	0.266884	0.266884	0.26688351	0.266883508	165.2	165.2	165.2	165.2	**165.2**
PM10	0.118118	0.118118	0.11811772	0.118117721	73.1	73.1	73.1	73.1	**73.1**
PM2.5	0.142	0.142	0.142	0.142	88.1	88.1	88.1	88.1	**88.1**
SO2	0.0034	0.011	0.058	0.058	2.1	6.8	35.9	35.9	**35.9**
NOx	0.026	0.055	0.055	0.055	16.1	34.0	34.0	34.0	**34.0**
VOC	0.032	0.032	0.032	0.032	19.8	19.8	19.8	19.8	**19.8**
CO	0.13	0.13	0.13	0.13	80.5	80.5	80.5	80.5	**80.5**
Hazardous Air Pollutant									
HCl			2.10E-04	2.10E-04			0.13	0.13	**0.13**
Antimony	1.80E-07	1.80E-07	1.80E-07	1.80E-07	1.11E-04	1.11E-04	1.11E-04	1.11E-04	**1.11E-04**
Arsenic	5.60E-07	5.60E-07	5.60E-07	5.60E-07	3.47E-04	3.47E-04	3.47E-04	3.47E-04	**3.47E-04**
Beryllium	negl	negl	negl	negl	negl	negl	negl.	negl	**0.00**
Cadmium	4.10E-07	4.10E-07	4.10E-07	4.10E-07	2.54E-04	2.54E-04	2.5E-04	2.54E-04	**2.54E-04**
Chromium	5.50E-06	5.50E-06	5.50E-06	5.50E-06	3.40E-03	3.40E-03	3.4E-03	3.40E-03	**3.40E-03**
Cobalt	2.60E-08	2.60E-08	2.60E-08	2.60E-08	1.61E-05	1.61E-05	1.6E-05	1.61E-05	**1.61E-05**
Lead	6.20E-07	1.50E-05	1.50E-05	1.50E-05	0.00	0.01	0.01	0.01	**0.01**
Manganese	7.70E-06	7.70E-06	7.70E-06	7.70E-06	4.77E-03	4.77E-03	4.77E-03	4.77E-03	**4.77E-03**
Mercury	2.40E-07	2.60E-06	2.60E-06	2.60E-06	1.49E-04	1.61E-03	1.61E-03	1.61E-03	**1.61E-03**
Nickel	6.30E-05	6.30E-05	6.30E-05	6.30E-05	0.04	0.04	0.04	0.04	**0.04**
Selenium	3.50E-07	3.50E-07	3.50E-07	3.50E-07	2.17E-04	2.17E-04	2.17E-04	2.17E-04	**2.17E-04**
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	4.00E-05	2.48E-02	2.48E-02	2.48E-02	2.48E-02	**0.02**
Acetaldehyde			1.30E-03	1.30E-03			0.80	0.80	**0.80**
Acrolein			2.60E-05	2.60E-05			0.02	0.02	**0.02**
Benzene	3.90E-04	3.90E-04	3.90E-04	3.90E-04	0.24	0.24	0.24	0.24	**0.24**
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	2.40E-04	0.15	0.15	0.15	0.15	**0.15**
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	3.10E-03	1.92	1.92	1.92	1.92	**1.92**
Hexane	9.20E-04	9.20E-04	9.20E-04	9.20E-04	0.57	0.57	0.57	0.57	**0.57**
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	4.80E-05	0.03	0.03	0.03	0.03	**0.03**
MEK			2.00E-05	2.00E-05			0.01	0.01	**0.01**
Propionaldehyde			1.30E-04	1.30E-04			0.08	0.08	**0.08**
Quinone			1.60E-04	1.60E-04			0.10	0.10	**0.10**
Toluene	1.50E-04	2.90E-03	2.90E-03	2.90E-03	0.09	1.80	1.80	1.80	**1.80**
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	8.80E-04	0.12	0.54	0.54	0.54	**0.54**
Xylene	2.00E-04	2.00E-04	2.00E-04	2.00E-04	0.12	0.12	0.12	0.12	**0.12**
								Total HAPs	**6.60**
								Worst Single HAP	**1.92** **(formaldehyde)**

Methodology
Limited/Controlled Potential to Emit (tons/yr) = (Annual Asphalt Production Limitation (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-3, 11.1-7, 11.1-8, 11.1-10, and 11.1-12
* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 11.1. Therefore, assumes Refinery Blend Fuel Oil emission factors equal to No. 6 Fuel Oil em

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

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

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

Slag Usage Limitation =	185,700	ton/yr		
SO2 Slag Limitation =	0.540	lb/ton of slag processed	1.10	% sulfur

	Emission Factor or Limitation (lb/ton)*	Limited Potential to Emit (tons/yr)
Criteria Pollutant	Slag Processing	Slag Processing
SO2	0.540	50.14

Methodology
* Testing results for Slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from slag containing 1.10% sulfur content.
Limited Potential to Emit SO2 from Slag (tons/yr) = (Slag Usage Limitation (ton/yr)] * [Limited Emission Factor (lb/ton)] * [ton/2000 lbs]
Abbreviations
SO2 = Sulfur Dioxide

Appendix A.2: Emissions Calculations
Hot Oil Heater Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
2.0	17.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	100 **see below	5.5	84
Potential Emission in tons/yr	0.02	0.07	0.25	0.88	0.05	0.74

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

Appendix A.1: Emissions Calculations
Hot Oil Heater Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	1.840E-05	1.051E-05	6.570E-04	1.577E-02	2.978E-05

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	4.380E-06	9.636E-06	1.226E-05	3.329E-06	1.840E-05

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Appendix A.2: Emissions Calculations
Thermal Oxidizer Natural Gas Combustion Only
MM BTU/HR <100

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
46.0	402.5

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	28.5	32 **see below	5.5	84
Potential Emission in tons/yr	0.38	1.53	5.74	6.44	1.11	16.91

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas
Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03
Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 5 for HAPs emissions calculations.

Appendix A.1: Emissions Calculations
Thermal Oxidizer Natural Gas Combustion Only
MM BTU/HR <100
HAPs Emissions

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

	HAPs - Organics				
	Benzene	Dichlorobenzene	Formaldehyde	Hexane	Toluene
Emission Factor in lb/MMcf	2.1E-03	1.2E-03	7.5E-02	1.8E+00	3.4E-03
Potential Emission in tons/yr	4.226E-04	2.415E-04	1.509E-02	3.623E-01	6.843E-04

	HAPs - Metals				
	Lead	Cadmium	Chromium	Manganese	Nickel
Emission Factor in lb/MMcf	5.0E-04	1.1E-03	1.4E-03	3.8E-04	2.1E-03
Potential Emission in tons/yr	1.006E-04	2.214E-04	2.818E-04	7.648E-05	4.226E-04

Methodology is the same as page 4.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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 =	1,238,000	tons/yr

	Emission Factor (lb/ton asphalt)			Limited Potential to Emit (tons/yr)			
Pollutant	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Load-Out**	**Silo Filling**	**On-Site Yard**	**Total**
Total PM	5.2E-04	5.9E-04	NA	0.32	0.36	NA	**0.69**
Organic PM	3.4E-04	2.5E-04	NA	0.21	0.157	NA	**0.37**
TOC	0.004	0.012	0.001	2.57	7.54	0.681	**10.8**
CO	0.001	0.001	3.5E-04	0.84	0.730	0.218	**1.78**

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

PM/HAPs	**0.015**	**0.018**	**0**	**0.033**
VOC/HAPs	**0.038**	**0.096**	**0.010**	**0.144**
non-VOC/HAPs	**2.0E-04**	**2.0E-05**	**5.2E-05**	**2.7E-04**
non-VOC/non-HAPs	**0.19**	**0.11**	**0.05**	**0.34**

Total VOCs	**2.42**	**7.09**	**0.6**	**10.2**
Total HAPs	**0.05**	**0.11**	**0.010**	**0.18**
			Worst Single HAP	**0.055 (formaldehyde)**

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)::

Total PM/PM10 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)

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

PM/PM10 Ef = 0.000332 + 0.00105(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00105(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0504(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00488(-V)e^((0.0251)(T+460)-20.43)

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

Abbreviations

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

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

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

Organic Particulate-Based Compounds (Table 11.1-15)

					Speciation Profile		Limited Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of Total Organic PM)**	**Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
PAH HAPs										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	5.5E-04	7.4E-04	NA	1.3E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	5.9E-05	2.2E-05	NA	8.1E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	1.5E-04	2.0E-04	NA	3.5E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	4.0E-05	8.8E-05	NA	1.3E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	1.6E-05	0	NA	1.6E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	4.6E-06	0	NA	4.6E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	4.0E-06	0	NA	4.0E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	4.9E-06	0	NA	4.9E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	1.6E-05	1.5E-05	NA	3.1E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	2.2E-04	3.3E-04	NA	5.5E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	7.8E-07	0	NA	7.8E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	1.1E-04	2.4E-04	NA	3.4E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	1.6E-03	1.6E-03	NA	3.2E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	9.9E-07	0	NA	9.9E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	5.0E-03	8.3E-03	NA	0.013
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	2.6E-03	2.9E-03	NA	5.5E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	4.6E-05	4.7E-05	NA	9.4E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	1.7E-03	2.8E-03	NA	4.5E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	3.2E-04	6.9E-04	NA	1.0E-03
Total PAH HAPs							**0.013**	**0.018**	**NA**	**0.030**
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	2.5E-03	0	0	2.5E-03

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

Methodology

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

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

Abbreviations

PM = Particulate Matter

HAP = Hazardous Air Pollutant

POM = Polycyclic Organic Matter

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

Organic Volatile-Based Compounds (Table 11.1-16)

					Speciation Profile		Limited Potential to Emit (tons/yr)			
Pollutant	**CASRN**	**Category**	**HAP Type**	**Source**	**Load-out and Onsite Yard (% by weight of TOC)**	**Silo Filling and Asphalt Storage Tank (% by weight of TOC)**	**Load-out**	**Silo Filling**	**Onsite Yard**	**Total**
VOC		VOC	---	TOC	94%	100%	**2.42**	**7.09**	**0.64**	**10.15**
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	1.7E-01	2.0E-02	4.4E-02	0.231
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	1.2E-03	4.1E-03	3.1E-04	0.006
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	1.8E-02	8.3E-02	4.8E-03	0.106
Total non-VOC/non-HAPS					7.30%	1.40%	**0.188**	**0.106**	**0.050**	**0.34**
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	1.3E-03	2.4E-03	3.5E-04	4.1E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	2.5E-04	3.7E-04	6.5E-05	6.8E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	1.3E-03	2.9E-03	3.3E-04	4.5E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	3.3E-04	1.2E-03	8.9E-05	1.6E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	5.4E-06	3.0E-04	1.4E-06	3.1E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	3.9E-04	1.7E-03	1.0E-04	2.2E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	2.8E-03	0	7.5E-04	3.6E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	7.2E-03	2.9E-03	1.9E-03	0.012
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	2.3E-03	5.2E-02	6.0E-04	0.055
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	3.9E-03	7.5E-03	1.0E-03	0.012
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	4.6E-05	2.3E-05	1.2E-05	8.2E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	2.0E-05	0	2.0E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	1.9E-04	4.1E-04	5.0E-05	6.4E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	2.0E-04	0	5.2E-05	2.5E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	5.4E-03	4.7E-03	1.4E-03	0.012
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	3.3E-05	0	8.9E-06	4.2E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	1.1E-02	1.5E-02	2.8E-03	0.028
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	2.1E-03	4.3E-03	5.4E-04	6.9E-03
Total volatile organic HAPs					1.50%	1.30%	**0.039**	**0.098**	**0.010**	**0.147**

Methodology

Limited Potential to Emit (tons/yr) = [Speciation Profile (%)] * [TOC (tons/yr)]

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

Abbreviations

TOC = Total Organic Compounds

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

MTBE = Methyl tert butyl ether

Appendix A.2: Emissions Calculations
Material Storage Piles

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

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

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10 (tons/yr)
Limestone	1.6	1.85	0.75	0.253	0.089
Sand	2.6	3.01	0.75	0.412	0.144
RAP	0.5	0.58	0.75	0.079	0.028
Gravel	1.6	1.85	0.75	0.253	0.089
Slag	3.8	4.40	0.75	0.602	0.211
			Totals	**1.60**	**0.56**

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) anticipated for a source with an annual asphalt production of 1,500,000 tons/yr

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

Appendix A.1: Emissions Calculations
Material Processing and Handling
Fugitive Dust

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

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

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

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

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

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

Type of Activity	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)	Unlimited/Uncontrolled PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	2.36	1.12	0.17
Front-end loader dumping of materials into feeder bins	2.36	1.12	0.17
Conveyor dropping material into dryer/mixer or batch tower	2.36	1.12	0.17
Total (tons/yr)	**7.07**	**3.35**	**0.51**

Methodology

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

Material Screening and Conveying (AP-42 Section 11.19.2)

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

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)
Crushing	0.0054	0.0024	5.62	2.50
Screening	0.025	0.0087	26.01	9.05
Conveying	0.003	0.0011	3.12	1.14
Limited Potential to Emit (tons/yr) =			**34.74**	**12.69**

Methodology

Appendix A.2: Emissions Calculations
Limited Emissions
Fugitive Dust Emissions - Unpaved Roads

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

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 =	1,238,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,176,100	tons/yr
Maximum Asphalt Cement/Binder Throughput =	61,900	tons/yr
No. 2 Fuel Oil Limitation =	1,233,110	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	5.3E+04	2.1E+06	350	0.066	3480.4
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	5.3E+04	8.9E+05	350	0.066	3480.4
Aspalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	1.7E+03	8.3E+04	150	0.028	48.8
Aspalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.7E+03	2.1E+04	150	0.028	48.8
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	1.3E+02	5.7E+03	150	0.028	3.7
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.3E+02	1.6E+03	150	0.028	3.7
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	2.8E+05	5.4E+06	500	0.095	26517.4
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	2.8E+05	4.2E+06	500	0.095	26517.4
	Total				**6.7E+05**	**1.3E+07**			**6.0E+04**

Average Vehicle Weight Per Trip =	18.9	tons/trip
Average Miles Per Trip =	0.090	miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	18.9	18.9	18.9	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

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

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	5.91	1.51	0.15	lb/mile
Mitigated Emission Factor, Eext =	3.89	0.99	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM10 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	10.28	2.62	0.26	6.76	1.72	0.17	3.38	0.86	0.09
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	10.28	2.62	0.26	6.76	1.72	0.17	3.38	0.86	0.09
Aspalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.144	0.037	0.00	0.095	0.024	0.00	0.047	0.012	0.00
Aspalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.144	0.037	0.00	0.095	0.024	0.00	0.047	0.012	0.00
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.011	0.003	0.00	0.007	0.002	0.00	0.004	0.001	0.00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.011	0.003	0.00	0.007	0.002	0.00	0.004	0.001	0.00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	78.34	19.97	2.00	51.51	13.13	1.31	25.76	6.56	0.66
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	78.34	19.97	2.00	51.51	13.13	1.31	25.76	6.56	0.66
	Totals	**177.55**	**45.25**	**4.53**	**116.75**	**29.75**	**2.98**	**58.37**	**14.88**	**1.49**

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.2: Emissions Calculations
Gasoline Fuel Transfer and Dispensing Operation

Company Name: **Brooks Construction, Inc.**
Source Address: **2711 Banks Avenue, Fort Wayne, IN 46802**
Permit Number: **003-27335-00374**
Reviewer: **Jason R. Krawczyk**

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling less than or equal to 1,300 gallons per day, emission factors from AP-42 Table 5.2-7 were used. Assuming the worst case throughput of 300 gallons of gasoline per day (474.5 kgal per year) and 365 days of operation per year, the total potential emission of VOC is as follows:

Gasoline Throuphput =	7,667	gallons/day
=	2,798.5	kgal/yr

Volatile Organic Compounds

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.42
Tank breathing and emptying	1.0	1.40
Vehicle refueling (displaced losses - controlled)	1.1	1.54
Spillage	0.7	0.98
Total		**4.34**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**1.13**	
Limited PTE of Single HAP (tons/yr) =	**0.39**	**Xylenes**

Methodology

Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]

PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]

PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]

PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]

*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at:

Abbreviations

VOC = Volatile Organic Compounds

PTE = Potential to Emit

Appendix A.2: Emissions Calculations
Fuel Equivalency Calculations
Fuel Combustion Units with Maximum Capacity < 100 MMBtu/hr

Company Name: Brooks Construction, Inc.
Source Address: 2711 Banks Avenue, Fort Wayne, IN 46802
Permit Number: 003-27335-00374
Reviewer: Jason R. Krawczyk

*Note: these equivalencies are related back to natural gas (assumed to be the predominant fuel used at this source).

	SO2 Equivalency						NOx Equivalency			
Fuel Type	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	1.0	MMCF natural gas / MMCF natural gas	100	lb/MMCF	1.0	MMCF natural gas / MMCF natural gas
No. 2 Fuel Oil	0.50	% by weight	71.00	lb/kgal	118.3	MMCF natural gas / 1000 gal No. 2 fuel oil	20.0	lb/kgal	0.200	MMCF natural gas / 1000 gal No. 2 fuel oil
Refinery Blend Fuel Oil	1.00	% by weight	157.00	lb/kgal	261.7	MMCF natural gas / 1000 gal refinery blend fuel oil	55.0	lb/kgal	0.550	MMCF natural gas / 1000 gal refinery blend fuel oil
Waste Oil	1.00	% by weight	147.00	lb/kgal	245.0	MMCF natural gas / 1000 gal waste oil	19.0	lb/kgal	0.190	MMCF natural gas / 1000 gal waste oil

Methodology

Fuel Equivalency = [AP-42 Emission Factor for No. 2 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 residual fuel oil (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

* Emission Factors for Refinery Blend not avaible in AP-42 Chapter 1.3 (dated 9/98), Table 1.3-1. Therefore, assumes refinery blend fuel oil emission factors equal to residual fuel oil emission factors

Minor Source Criteria Pollutant Modeling

Screening Form - Raw Data

Permit Summary

Permit Number: F003-27335-00374
Company Name: Brooks Construction Company, Inc.
Source Location: 2711 Banks Avenue, Fort Wayne, IN 46802
County: Elkhart
SIC Code: 2951
Permit Reviewer: Jason R. Krawczyk

Source Specific Information

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

Unit ID	Stack ID	CO	NO_X	PM_{10}	Pb	SO_2
EU-01	SV-1	22.39954338	22.78995434	17.05707763	0.150684932	22.80821918
Max. Emissions Rate *(lb/hr)* **:**		*22.39954338*	*22.78995434*	*17.05707763*	*0.150684932*	*22.80821918*

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.

					Closest building related to stack:			Closest Property Line (ft)
Stack ID	Stack Height (ft)	Flow Rate (acfm)	Stack Temp. (^oF)	Stack Diameter (ft)	Height (ft)	Width (ft)	Length (ft)	
SV-1	24	113313	1450	7.08	15	39	36.5	220
0								
0								
0								
0								

Minor Source Criteria Pollutant Modeling

SCREEN3 Data

Permit Summary

Permit Number:	F003-27335-00374
Company Name:	Brooks Construction Company, Inc.
Source Location:	2711 Banks Avenue, Fort Wayne, IN 46802
County:	Elkhart
SIC Code:	2951
Permit Reviewer:	Jason R. Krawczyk

SCREEN3 Modeling Data

TABLE 3 - Pollutant Modeling Data - grams per second

Pollutant:	CO	NO_X	PM_{10}	Pb	SO_2
Totals (g/s):	*2.822342466*	*2.871534247*	*2.149191781*	*0.018986301*	*2.873835617*

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^3/s)	Stack M-Value
					Height (m)	Width (m)	Length (m)			
SV-1	7.317073171	14.63249794	1060.93	2.158536585	4.573170732	11.8902439	11.12804878	67.07317073	53.54614337	113590.416
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!

Minor Source Criteria Pollutant Modeling

Screening Form - Modeling Results

Permit Summary

Permit Number: F003-27335-00374
Company Name: Brooks Construction Company, Inc.
Source Location: 2711 Banks Avenue, Fort Wayne, IN 46802
County: Elkhart
SIC Code: 2951
Permit Reviewer: Jason R. Krawczyk

Modeling Method

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

- ☑ **SCREEN3**
- ☐ **AERSCREEN**
- ☐ **ISC3**
- ☐ **AERMOD**

Date Modeling Completed: _____
Modeler: Jason R. Krawczyk

Modeling Results

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

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

Pollutant:	CO	NO_X	PM_{10}	Pb	SO_2
Concentration ($\mu g/m^3$):	*318.8*	*324.4*	*242.8*	*2.145*	*324.7*

TABLE 6 - Pollutants Maximum Concentration ($\mu g/m^3$):

Averaging Period	CO	NO_X	PM_{10}	Pb	SO_2
1-hour modeled concentration	318.8				
NAAQ Standard	**40000**				
PASS or **FAIL**	PASS				
3-hour modeled concentration					292.23
NAAQ Standard					**1300**
PASS or **FAIL**					PASS
8-hour modeled concentration	223.16				
NAAQ Standard/CEP Benchmark	**10000**				
PASS or **FAIL**	PASS				
24-hour modeled concentration			97.12	0.858	129.88
NAAQ Standard			**150**	**1.5**	**365**
PASS or **FAIL**			PASS	PASS	PASS
Annual modeled concentration		25.952	19.424		25.976
NAAQ Standard/CEP Benchmark		**100**	**50**		**80**
PASS or **FAIL**		PASS	PASS		PASS

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

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant

DATE: July 13, 2009

RE: Brooks Construction, Inc. / 003-27335-00374

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

In order to conserve paper and reduce postage costs, IDEM's Office of Air Quality is now sending many permit decisions on CDs in Adobe PDF format. The enclosed CD contains information regarding the company named above.

This permit is also available on the IDEM website at:
http://www.in.gov/ai/appfiles/idem-caats/

If you would like to request a paper copy of the permit document, please contact IDEM's central file room at:

Indiana Government Center North, Room 1201
100 North Senate Avenue, MC 50-07
Indianapolis, IN 46204
Phone: 1-800-451-6027 (ext. 4-0965)
Fax (317) 232-8659

Please Note: *If you feel you have received this information in error, or would like to be removed from the Air Permits mailing list, please contact Patricia Pear with the Air Permits Administration Section at 1-800-451-6027, ext. 3-6875 or via e-mail at PPEAR@IDEM.IN.GOV.*

Enclosures
CD Memo.dot 11/14/08

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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

TO: John Brooks
Brooks Construction, Inc.
2625 Ardmore Ave.
Fort Wayne, IN 46802

DATE: July 13, 2009

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

SUBJECT: Final Decision
New Source Construction & Federally Enforceable State Operating Permit
003-27335-00374

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
Lauren E. Pecina - Bruce Carter and Associates
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

Final Applicant Cover letter.dot 11/30/07

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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

July 13, 2009

TO: Allen County Public Library

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

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

Applicant Name: Brooks Construction, Inc.
Permit Number: 003-27335-00374

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures
Final Library.dot 11/30/07

Mail Code 61-53

IDEM Staff	GHOTOPP 7/13/2009 Brooks Construction Inc 003-27335-00374 Final			AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**	

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		John Brooks Brooks Construction Inc 6525 Ardmore Ave Ft Wayne IN 46802 (Source CAATS) via confirmed delivery									
2		Daniel & Sandy Trimmer 15021 Yellow River Road Columbia City IN 46725 *(Affected Party)*									
3		Duane & Deborah Clark Clark Farms 6973 E. 500 S. Columbia City IN 46725 *(Affected Party)*									
4		Mr. Victor Locke WPTA-TV P.O.Box 2121 Fort Wayne IN 46801 *(Affected Party)*									
5		Allen County Public Library 900 Library Plaza, P.O. Box 2270 Fort Wayne IN 46802 *(Library)*									
6		Fort Wayne City Council and Mayors Office One Main Street Fort Wayne IN 46802 *(Local Official)*									
7		Mr. John E. Hampton Plumbers & Steamfitters, Local 166 2930 W Ludwig Rd Fort Wayne IN 46818-1328 *(Affected Party)*									
8		Mr. Larry Gregoricka 505 Hintz Rd. Owosso MI 48867 *(Affected Party)*									
9		Allen Co. Board of Commissioners One Main St. Fort Wayne IN 46802 *(Local Official)*									
10		Fort Wayne-Allen County Health Department 1 E Main Street, 5th Floor Fort Wayne IN 46802-1810 *(Health Department)*									
11		Lauren Pecina Bruce Carter Associates 616 S 4th Street Elkhart IN 46516 *(Consultant)*									
12		Tom Henry One Main Street Fort Wayne IN 46802 *(Affected Party)*									
13		Mr. Ray Linville 2902 Covington Road Fort Wayne IN 46802 (Affected Party)									
14		Emma Rogers 437 E. Masterson Ave Fort Wayne IN 46803 *(Affected Party)*									
15		Evangelina Robles 2520 LaFontain Street Fort Wayne IN 46802 *(Affected Party)*									

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is $50,000 per piece subject to a limit of $50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is $500. The maximum indemnity payable is $25,000 for registered mail, sent with optional postal insurance. See ***Domestic Mail Manual*** **R900, S913**, and **S921** for limitations of coverage on inured and COD mail. See ***International Mail Manual*** for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
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Mail Code 61-53

IDEM Staff	GHOTOPP 7/13/2009 Brooks Construction Inc 003-27335-00374 Final			AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender	▶	Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204	Type of Mail: **CERTIFICATE OF MAILING ONLY**	

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee Remarks
1		Luis 2520 LaFontain Street Fort Wayne IN 46802 (Affected Party)									
2		Allen County Development Corporation 1 W Superior St Fort Wayne IN 46802 *(Affected Party)*									
3		Seon Telford 2808 SW 66th Street Hollywood FL 33023 *(Affected Party)*									
4		Ramiro Rodriguez 2528 Monmouth Ave Fort Wayne IN 46809 *(Affected Party)*									
5		James Deaton 2302 LaFontain Street Fort Wayne IN 46802 *(Affected Party)*									
6		Smith & Buckland 2500 McKinley Avenue Fort Wayne IN 46802 *(Affected Party)*									
7		Kelly Box & Packaging 2801 Covington Rd Fort Wayne IN 46802 *(Affected Party)*									
8		Indiana Michigan Power Company P.O. Box 16428 Columbus OH 43216 *(Affected Party)*									
9		Omnisource 7575 W Jefferson Blvd Fort Wayne IN 46809 *(Affected Party)*									
10		Benchmark Construction 2800 Banks Avenue Fort Wayne IN 46802 *(Affected Party)*									
11		LLC 2200 LaFontain Street Fort Wayne IN 46802 *(Affected Party)*									
12		Paul G. Moss 1 East Main Street, Room 102 Fort Wayne IN 46802 *(Affected Party)*									
13		Bill Brown 1 East Main Street Fort Wayne IN 46802 (Affected Party)									
14											
15											

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