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: February 14, 2012

RE: Brooks Construction Company, Inc./003-30740-03112

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

Notice of Decision: Approval - Effective Immediately

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

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

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

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

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

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

Enclosures
FNPER.dot12/03/07

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Federally Enforceable State Operating Permit Renewal
OFFICE OF AIR QUALITY

Brooks Construction Company, Inc.
3930 Hardrock Road
Ft. Wayne, Indiana 46819

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

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

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-8 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17. This permit also addresses certain new source review requirements for existing equipment and is intended to fulfill the new source review procedures pursuant to 326 IAC 2-8-11.1, 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.: F003-30740-00351	
Issued by:	Issuance Date: February 14, 2012
Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Expiration Date: February 14, 2022

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SECTION A SOURCE SUMMARY

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

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

The Permittee owns and operates a stationary hot-mix asphalt production operation, and a cold-mix asphalt production operation. The hot-mix production operation consists of one (1) drum-mix plant and one (1) batch-mix plant. Electric arc furnace steel mill slag, and/or asbestos-free recycled shingles are processed in the aggregate mix. This source does not process blast furnace slag in the aggregate mix, and does not crush any recycled asphalt pavement (RAP), and/or grind any shingles on-site.

Source Address:	3930 Hardrock Road, Ft. Wayne, Indiana 46819
General Source Phone Number:	(260) 478-1990
SIC Code:	2951 (Asphalt Paving Mixtures and Blocks)
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:

Drum-mix Plant

(a) One (1) drum-mix, hot-mix asphalt plant, consisting of the following:

(1) one (1) hot-mix asphalt drum dryer/mixer, identified as #2, constructed in 1992, with a maximum throughput capacity of 400 tons of raw material per hour, processing electric arc steel mill slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) 96.8 million British thermal units per hour (MMBtu/hr) natural gas fired, or landfill gas (LFG)/natural gas co-fired, dryer burner, identified as #3, using No. 2 distillate fuel oil, No. 4, No. 5, and No. 6 refinery blend/residual fuel oils, and reclaimed/waste oil as back-up fuels, having one (1) inertial knockout box and one (1) baghouse in series for particulate matter control, and exhausting to stack SV1-D; and

(2) Material handling and conveying, including:

(A) one (1) drag slat hot-mix conveyor;

(B) three (3) feed conveyors; and

(C) one (1) screen.

Batch-mix Plant

(b) One (1) batch-mix, hot-mix asphalt plant, consisting of the following:

(1) one (1) aggregate rotary dryer, identified as ID #4, constructed in 1989, with a maximum throughput capacity of 220 tons of raw material per hour, processing electric arc steel mill slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) 84.0 million British thermal units per hour (MMBtu/hr) natural gas-fired aggregate dryer burner, identified as #5, using No. 2 distillate fuel oil as a back-up fuel, having one (1) cyclone and one (1) baghouse in series for particulate matter control, and exhausting to stack SV1-B; and

(2) One (1) hot-mix asphalt batch tower, consisting of the following:

(A) one (1) hot elevator;

(B) one (1) screen;

(C) four (4) hot bins, each with a maximum holding capacity of 40 tons;

(D) one (1) aggregate hopper, with a maximum holding capacity of 6,000 pounds (lbs);

(E) one (1) asphalt hopper, with a maximum holding capacity of 600 lbs;

(F) one (1) pugmill, with a maximum holding capacity of 6,000 lbs; and

(G) one (1) skip hoist with a maximum holding capacity of 6,000 lbs.

(c) General material feeding, conveying, and handling operations, including:

(1) one (1) cold feed system consisting of ten (10) bins with a total maximum holding capacity of 200 tons;

(2) storage silos consisting of five (5) bins with a total maximum storage capacity of 900 tons;

(3) two (2) recycled asphalt pavement (RAP) feed bins, each with a maximum holding capacity of 30 tons;

(4) Raw material storage piles, with a total maximum storage capacity of 101,500 tons, including:

(i) Aggregate storage pile(s), total capacity 50,000 tons;

(ii) Reclaimed asphalt pavement (RAP) storage pile(s), total capacity 40,000 tons;

(iii) Steel Slag storage pile(s), total capacity 10,000 tons; and

(iv) Recycled asphalt shingles storage pile(s), total capacity 3,000 tons.

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

(d) cold-mix (stockpile mix) asphalt manufacturing operations and storage piles.

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) natural gas-fired combustion sources with heat input equal to or less than ten (10) MMBtu per hour:

(1) one (1) direct-fired, natural gas-fired hot oil heater, constructed in 1982, with a maximum heat input rating of 1.4 MMBtu per hour, using No. 2 distillate oil as a back-up fuel, uncontrolled and exhausting to stack SV2;

(2) one (1) direct-fired, natural gas-fired hot oil heater, constructed in 1991, with a maximum heat input rating of 1.4 MMBtu per hour, using No. 2 oil as a back-up fuel, uncontrolled and exhausting to stack SV3; and

(2) one (1) direct-fired, natural gas-fired hot oil heater, constructed in 2007, with a maximum heat input rating of 2.0 MMBtu per hour, using No. 2 oil as a back-up fuel, uncontrolled and exhausting fugitively.

(b) other categories with emissions below insignificant thresholds:

(1) storage tanks emitting less than one (1) ton per year of any single HAP and less than fifteen (15) lbs per day of VOCs including: and

(A) one (1) liquid asphalt storage tank, identified as #20A, constructed in 1985, with a maximum storage capacity of 340,000 gallons, uncontrolled and exhausting to one (1) stack, identified as SV4;

(B) one (1) liquid asphalt storage tank, identified as #20B, constructed in 1969, with a maximum storage capacity of 15,000 gallons, uncontrolled and exhausting to one (1) stack, identified as SV5;

(C) four (4) liquid asphalt storage tanks, identified as #20E, #20F, #20G, and #20H, constructed in 2006, each with a maximum storage capacity of 30,000 gallons, uncontrolled and exhausting to the atmosphere;

(D) two (2) fuel storage tanks, identified as #20J and #20K, constructed in 2006, each with a maximum storage capacity of 20,000 gallons, uncontrolled and exhausting to the atmosphere; and

(E) one (1) fuel storage tank, identified as ID #20L, approved for construction in 2012, with a maximum storage capacity of 20,000 gallons, uncontrolled and exhausting to the atmosphere.

(2) Cutting, grinding, and welding operations located in the shop [326 IAC 6-3-2];

(c) replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment;

(d) one (1) QA lab and one (1) State lab as defined in 326 IAC 2-7-1(21)(D); and

(e) paved and unpaved roads and parking lots with public access [326 IAC 6-4][326 IAC 6-5].

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

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

SECTION B GENERAL CONDITIONS

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

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

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

(a) This permit, F003-30740-00351, is issued for a fixed term of ten (10) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.

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

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

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

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

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

B.4 Enforceability [326 IAC 2-8-6] [IC 13-17-12]

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

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

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

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

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

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

(a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

(b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

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

(a) A certification required by this permit meets the requirements of 326 IAC 2-8-5(a)(1) if:

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

(2) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) The Permittee may use the attached Certification Form, or its equivalent, with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.

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

B.9 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]

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

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

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

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

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

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

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

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

The submittal by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

B.10 Compliance Order Issuance [326 IAC 2-8-5(b)]

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

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

(a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:

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

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

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

The Permittee shall implement the PMPs.

(b) If required by specific condition(s) in Section D of this permit where no PMP was previously required, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:

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

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

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

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

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

The PMP extension notification does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

The Permittee shall implement the PMPs.

(c) A copy of the PMPs shall be submitted to IDEM, OAQ upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions. The PMPs and their submittal do not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

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

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

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

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

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

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

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

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

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

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

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

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

(A) A description of the emergency;

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

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.

(g) Operations may continue during an emergency only if the following conditions are met:

(1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

(2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:

(A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and

(B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.

B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]

(a) All terms and conditions of permits established prior to F003-30740-00351 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised, or

(3) deleted.

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

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

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

B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)][326 IAC 2-8-7(a)][326 IAC 2-8-8]

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

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

(1) That this permit contains a material mistake.

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

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

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

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

B.16 Permit Renewal [326 IAC 2-8-3(h)]

(a) The application for renewal shall be submitted using the application form or forms prescribed by IDEM, OAQ and shall include the information specified in 326 IAC 2-8-3. Such information shall be included in the application for each emission unit at this source, except those emission units included on the trivial or insignificant activities list contained in 326 IAC 2-7-1(21) and 326 IAC 2-7-1(40). The renewal application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

Request for renewal shall be submitted to:

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

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

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

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

(c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified, pursuant to 326 IAC 2-8-3(g), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

B.17 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]

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

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

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

Any such application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

B.18 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

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

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

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

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

(4) The Permittee notifies the:

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

and

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

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

(5) The Permittee maintains records on-site, on a rolling five (5) year basis, which document all such changes and emission trades that are subject to 326 IAC 2-8-15(b)(1) and (c). The Permittee shall make such records available, upon reasonable request, for public review.

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

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

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

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

B.19 Source Modification Requirement [326 IAC 2-8-11.1]

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

B.20 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]

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

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

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

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

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

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

B.21 Transfer of Ownership or Operational Control [326 IAC 2-8-10]

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

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

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

Any such application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

B.22 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16][326 IAC 2-1.1-7]

(a) The Permittee shall pay annual fees to IDEM, OAQ no later than thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.

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

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

B.23 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

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

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

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

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

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

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

(a) Pursuant to 326 IAC 2-8:

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

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

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

(4) The potential to emit greenhouse gases (GHGs) from the entire source shall be limited to less than one hundred thousand (100,000) tons of CO_2 equivalent emissions (CO_2e) per twelve (12) consecutive month period.

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

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

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

C.3 Opacity [326 IAC 5-1]

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

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

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

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

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

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

The Permittee shall not operate an incinerator except as provided in 326 IAC 4-2 or in this permit. The Permittee shall not operate a refuse incinerator or refuse burning equipment except as provided in 326 IAC 9-1-2 or in this permit.

C.6 Fugitive Dust Emissions [326 IAC 6-4]

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

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

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

C.8 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

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

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

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

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

(A) Asbestos removal or demolitions start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

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

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

All required notifications shall be submitted to:

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

The notice shall include a signed certification from the owner or operator that the information provided in this notification is correct and that only Indiana licensed workers and project supervisors will be used to implement the asbestos removal project. The notifications do not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(e) Procedures for Asbestos Emission Control
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.

(f) Demolition and Renovation
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).

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

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

C.9 Performance Testing [326 IAC 3-6]

(a) For performance testing required by this permit, a test protocol, except as provided elsewhere in this permit, shall be submitted to:

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

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.10 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order under 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

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

C.11 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]

Unless otherwise specified in this permit, for all monitoring requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or of initial start-up, whichever is later, to begin such monitoring. If due to circumstances beyond the Permittee's control, any monitoring equipment required by this permit cannot be installed and operated no later than ninety (90) days after permit issuance or the date of initial startup, whichever is later, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

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

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

The notification which shall be submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

C.12 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]

(a) When required by any condition of this permit, an analog instrument used to measure a parameter related to the operation of an air pollution control device shall have a scale such that the expected maximum reading for the normal range shall be no less than twenty percent (20%) of full scale.

(b) The Permittee may request that the IDEM, OAQ approve the use of an instrument that does not meet the above specifications provided the Permittee can demonstrate that an alternative instrument specification will adequately ensure compliance with permit conditions requiring the measurement of the parameters.

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

C.13 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

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

(a) The Permittee shall maintain the most recently submitted written emergency reduction plans (ERPs) consistent with safe operating procedures.

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

C.14 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]

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

C.15 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

Upon detecting an excursion where a response step is required by the D Section or an exceedance of a limitation in this permit:

(a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.

(b) The response shall include minimizing the period of any startup, shutdown, or malfunction. The response may include, but is not limited to, the following:

(1) initial inspection and evaluation;

(2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or

(3) any necessary follow-up actions to return operation to normal or usual manner of operation.

(c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:

(1) monitoring results;

(2) review of operation and maintenance procedures and records; and/or

(3) inspection of the control device, associated capture system, and the process.

(d) Failure to take reasonable response steps shall be considered a deviation from the permit.

(e) The Permittee shall record the reasonable response steps taken.

C.16 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ, no later than seventy-five (75) days after the date of the test.

(b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The response action documents submitted pursuant to this condition do require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

C.17 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

(a) Records of all required monitoring data, reports, and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. Support information includes the following:

(1) All calibration and maintenance records.

(2) All original strip chart recordings for continuous monitoring instrumentation.

(3) Copies of all reports required by the FESOP.

Records of required monitoring information include the following:

(4) The date, place, as defined in this permit, and time of sampling or measurements.

(5) The dates analyses were performed.

(6) The company or entity that performed the analyses.

(7) The analytical techniques or methods used.

(8) The results of such analyses.

(9) The operating conditions as existing at the time of sampling or measurement.

These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, for all record keeping requirements not already legally required, the Permittee shall be allowed up to ninety (90) days from the date of permit issuance or the date of initial start-up, whichever is later, to begin such record keeping.

C.18 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of this paragraph. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall

include a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

(b) The address for report submittal is:

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

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

(d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit “calendar year” means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

C.19 Compliance with 40 CFR 82 and 326 IAC 22-1

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

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Hot-mix Asphalt Production Operation

Drum-mix Plant

(a) One (1) drum-mix, hot-mix asphalt plant, consisting of the following:

(1) one (1) hot-mix asphalt drum dryer/mixer, identified as #2, constructed in 1992, with a maximum throughput capacity of 400 tons of raw material per hour, processing electric arc steel mill slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) 96.8 million British thermal units per hour (MMBtu/hr) natural gas fired, or landfill gas (LFG)/natural gas co-fired, dryer burner, identified as #3, using No. 2 distillate fuel oil, No. 4, No. 5, and No. 6 refinery blend/residual fuel oils, and reclaimed/waste oil as back-up fuels, having one (1) inertial knockout box and one (1) baghouse in series for particulate matter control, and exhausting to stack SV1-D; and

(2) Material handling and conveying, including:

(A) one (1) drag slat hot-mix conveyor;

(B) three (3) feed conveyors; and

(C) one (1) screen.

Batch-mix Plant

(b) One (1) batch-mix, hot-mix asphalt plant, consisting of the following:

(1) one (1) aggregate rotary dryer, identified as ID #4, constructed in 1989, with a maximum throughput capacity of 220 tons of raw material per hour, processing electric arc steel mill slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) 84.0 million British thermal units per hour (MMBtu/hr) natural gas-fired aggregate dryer burner, identified as #5, using No. 2 distillate fuel oil as a back-up fuel, having one (1) cyclone and one (1) baghouse in series for particulate matter control, and exhausting to stack SV1-B; and

(2) One (1) hot-mix asphalt batch tower, consisting of the following:

(A) one (1) hot elevator;

(B) one (1) screen;

(C) four (4) hot bins, each with a maximum holding capacity of 40 tons;

(D) one (1) aggregate hopper, with a maximum holding capacity of 6,000 pounds (lbs);

(E) one (1) asphalt hopper, with a maximum holding capacity of 600 lbs;

(F) one (1) pugmill, with a maximum holding capacity of 6,000 lbs; and

(G) one (1) skip hoist with a maximum holding capacity of 6,000 lbs.

(c) General material feeding, conveying, and handling operations, including:

(1) one (1) cold feed system consisting of ten (10) bins with a total maximum holding capacity of 200 tons;

(2) storage silos consisting of five (5) bins with a total maximum storage capacity of 900 tons;

(3) two (2) recycled asphalt pavement (RAP) feed bins, each with a maximum holding capacity of 30 tons;

(4) Raw material storage piles, with a total maximum storage capacity of 101,500 tons, including:

(i) Aggregate storage pile(s), total capacity 50,000 tons;

(ii) Reclaimed asphalt pavement (RAP) storage pile(s), total capacity 40,000 tons;

(iii) Steel Slag storage pile(s), total capacity 10,000 tons; and

(iv) Recycled asphalt shingles storage pile(s), total capacity 3,000 tons.

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

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

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

D.1.1 PSD Minor Limit [326 IAC 2-2]]

In order to render 326 IAC 2-2 not applicable;

Drum-mix Plant

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

(b) PM emissions from the drum-mix dryer/mixer shall not exceed 0.272 pounds per ton of asphalt processed.

Batch-mix Plant

(c) The amount of hot-mix asphalt processed in the batch-mix asphalt plant shall not exceed 143,975 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(d) PM emissions from the batch-mix dryer/mixer shall not exceed 0.893 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.

D.1.2 FESOP Limits: PM10, PM2.5, NOx, VOC, and CO [326 IAC 2-8-4][326 IAC 2-2][326 IAC 8-1-6]

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

Drum-mix Plant

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

(b) The PM10 emissions from the drum-mix dryer/mixer shall not exceed 0.128 pounds per ton of asphalt processed.

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

(d) The SO2 emissions from the drum-mix dryer/mixer shall not exceed 0.058 pounds per ton of asphalt processed.

(e) The NOx emissions from the drum-mix dryer/mixer shall not exceed 0.055 pounds per ton of asphalt processed.

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

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

Batch-mix Plant

(h) The amount of hot-mix asphalt processed in the batch-mix asphalt plant shall not exceed 143,975 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(i) The PM10 emissions from the batch-mix dryer/mixer shall not exceed 0.268 pounds per ton of asphalt processed.

(j) The PM2.5 emissions from the batch-mix dryer/mixer shall not exceed 0.278 pounds per ton of asphalt processed.

(k) The NOx emissions from the batch-mix dryer/mixer shall not exceed 0.120 pounds per ton of asphalt processed.

(l) The VOC emissions from the batch-mix dryer/mixer shall not exceed 0.0082 pounds per ton of asphalt processed.

(m) The CO emissions from the batch-mix dryer/mixer shall not exceed 0.40 pounds per ton of asphalt processed.

Silo Filling Process

(n) The VOC emissions from the silo filling process shall not exceed 0.0122 pounds per ton of asphalt processed in the drum-mix asphalt plant and the batch-mix asphalt plant, combined.

Compliance with these limits, combined with the potential to emit PM10, PM2.5, SO2, NOx, VOC, and CO from all other emission units at this source, shall limit the source-wide total potential to emit of PM10, PM2.5, SO2, NOx, VOC, and CO to less than 100 tons per 12 consecutive month

period, each, and shall render 326 IAC 2-7 (Part 70 Permits), and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), not applicable.

Additionally, compliance with the limits in conditions D.1.2(f) and D.1.2(m) shall limit the VOC emissions from the dryer/mixer and the silo filling process, each, to less than twenty-five (25) tons per twelve (12) consecutive month period and shall render 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities) not applicable.

D.1.3 FESOP Limits: SO2, NOx, GHGs as CO2e, and HAPs [326 IAC 2-8-4][326 IAC 2-2][326 IAC 2-4.1]

Pursuant to 326 IAC 2-8-4, and in order to render 326 IAC 2-2 and 326 IAC 2-4.1 not applicable, the Permittee shall comply with the following:

(a) Fuel and Slag Specifications

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

(2) The sulfur content of the No. 4, No. 5, and No. 6 refinery blend/residual fuel oils shall not exceed 1.00% by weight.

(3) The sulfur content of the reclaimed/waste oil shall not exceed 1.00% by weight.

(4) The reclaimed/waste oil combusted in the dryer burner shall not contain more than 1.00% ash, 0.40% chlorine, and 0.01% lead.

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

(6) The sulfur content of the electric arc furnace steel slag shall not exceed 0.66% by weight.

(7) The SO2 emissions from the dryer/mixer shall not exceed 0.0014 pounds per ton of electric arc furnace steel slag processed in the aggregate mix.

(b) Single Fuel and Slag Usage Limitations:

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

(A) Natural gas usage drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, shall not exceed 1,584 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month;

(B) Landfill gas usage in the drum-mix dryer/mixer burner shall not exceed 1,681 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month;

(C) No. 2 fuel oil usage in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, shall not exceed 2,465,749 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month;

(D) Refinery blend / Residual (No. 4, No. 5, and No. 6) fuel oil usage in the drum-mix dryer/mixer burner shall not exceed 557,542 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month;

(E) Reclaimed/waste oil usage in the drum-mix dryer/mixer burner shall not exceed 595,470 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month; and

Note: The source is only permitted to burn the above-mentioned fuels in the associated dryer/mixer burner(s).

(c) Multiple Fuel and Slag Usage Limitation:
When combusting more than one fuel per twelve (12) consecutive month period in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, in conjunction with the use of steel slag in the aggregate mix, emissions from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall be limited as follows:

(1) SO2 emissions from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall not exceed 87.53 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) NOx emissions from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall not exceed 96.13 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(3) CO2 equivalent emissions (CO2e) from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall not exceed 95,738.19 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

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

Compliance with these limits, combined with the potential to emit SO2, NOx, greenhouse gasses (CO2e), and HAPs from all other emission units at this source, shall limit the source-wide total potential to emit of SO2 and NOX to less than 100 tons per twelve (12) consecutive month period, each, greenhouse gases to less than 100,000 tons CO_2 equivalent emissions (CO_2e) per 12 consecutive month period, any single HAP to less than ten (10) tons per twelve (12) consecutive month period, and total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period and shall render the requirements of 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable.

D.1.4 Sulfur Dioxide (SO2) [326 IAC 7-1.1-1] [326 IAC 7-2-1]

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

(1) The sulfur dioxide (SO2) emissions from the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, each, shall not exceed five tenths (0.5) pounds per MMBtu when combusting distillate oil.

(2) The sulfur dioxide (SO2) emissions from the drum-mix dryer/mixer burner shall not exceed one and six tenths (1.6) pounds per MMBtu heat input when combusting residual oil.

Note: No. 2 fuel oil is considered distillate oil, No. 4 fuel oil, No. 5 fuel oil, and No. 6 fuel oil, and reclaimed/waste oil are considered residual oils.

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

D.1.5 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan is required for these facilities and any corresponding control devices. Section B - Preventive Maintenance Plan contains the Permittee's obligation with regard to the preventive maintenance plan required by this condition.

Compliance Determination Requirements

D.1.6 Particulate Control (PM/PM10/PM2.5)

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

(b) In order to comply with Conditions D.1.1(d), D.1.2(i), and D.1.2(j), the baghouse for particulate control shall be in operation and control emissions from the batch-mix dryer/mixer at all times when the dryer/mixer is in operation.

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

(a) In order to demonstrate compliance with Conditions D.1.1(b), D.1.2(b), and D.1.2(c), the Permittee shall perform PM, PM10, and PM2.5 testing of the drum-mix dryer/mixer not later than five (5) years from the most recent valid compliance demonstration, utilizing methods approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable particulate matter.

(b) In order to demonstrate compliance with Conditions D.1.1(d), D.1.2(i), and D.1.2(j), the Permittee shall perform PM, PM10, and PM2.5 testing of the batch-mix dryer/mixer not later than five (5) years from the most recent valid compliance demonstration, utilizing methods approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable particulate matter.

D.1.8 Sulfur Dioxide (SO_2) Emissions and Sulfur Content

Fuel Oil

(a) Compliance with the fuel limitations established in Conditions D.1.3(a)(1) through D.1.3(a)(3), and D.1.4, 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 vendor analysis of fuel delivered, if accompanied by a vendor certification; or

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

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

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

(3) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the 120 MMBtu/hr 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.

Steel Slag

(c) Compliance with the steel slag limitations established in Condition D.1.3(a)(6) 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 Steel slag delivery if no vendor analyses or certifications are available, at least once per quarter, to determine the sulfur content of the Steel slag, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the 120 MMBtu/hr burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, or other procedures approved by IDEM, OAQ.

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

D.1.9 Hydrogen Chloride (HCl) Emissions and Ash, Chlorine, and Lead Content

The Permittee shall demonstrate compliance with the reclaimed/waste oil ash, chlorine, and lead content limits established in Condition D.1.3(a)(4), by providing a vendor analysis of each fuel delivery accompanied by a vendor certification.

D.1.10 Multiple Fuel and Slag Usage Limitations

In order to comply with the Condition D.1.3(c) when combusting more than one fuel per twelve (12) consecutive month period in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, in conjunction with the use of steel slag in the aggregate mix, the Permittee shall limit fuel usage according to the following formulas:

(a) Sulfur Dioxide (SO2) Emission Calculation

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

where:
S = tons of sulfur dioxide emissions for a 12-month consecutive period;
G = million cubic feet of natural gas used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in the last 12 months;
L = million cubic feet of landfill gas used in drum-mix dryer/mixer burner in the last 12 months;
O = gallons of No. 2 fuel oil used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in the last 12 months;
R = gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil used in drum-mix dryer/mixer in the last 12 months; and
W = gallons of reclaimed/waste oil used in drum-mix dryer/mixer in the last 12 months
T = tons of steel slag used in the last 12 months.

Emission Factors
E_G = 0.60 lb/million cubic feet of natural gas;
E_L = 6.2 lb/million cubic feet of landfill gas;
E_O = 71.0 lb/1000 gallons of No. 2 fuel oil;
E_R = 157 lb/1000 gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil;
E_W = 147 lb/1000 gallons of reclaimed/waste oil; and
E_T = 0.0014 lb/ton of steel slag used.

(b) Nitrogen Oxides (NOx) Emission Calculation

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

where:
N = tons of nitrogen oxide emissions for a 12-month consecutive period;
G = million cubic feet of natural gas used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in the last 12 months;
L = million cubic feet of landfill gas used in drum-mix dryer/mixer burner in the last 12 months;
O = gallons of No. 2 fuel oil used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in the last 12 months;
R = gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil used in drum-mix dryer/mixer in the last 12 months; and
W = gallons of reclaimed/waste oil used in drum-mix dryer/mixer in the last 12 months.

Emission Factors
E_G = 100 lb/million cubic feet of natural gas;
E_L = 70.6 lb/million cubic feet of landfill gas;
E_O = 20.0 lb/1000 gallons of No. 2 fuel oil;
E_R = 55.0 lb/1000 gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil; and
E_W = 19.0 lb/1000 gallons of reclaimed/waste oil.

(c) CO2 Equivalent (CO2e) Emission Calculations

$$CO_2 = \frac{[G(X_G) + O(X_O) + R(X_R) + W(X_W)]}{2{,}000}$$

Note: Biogenic CO2 emissions from the combustion of the landfill gas are not included in the Total CO_2e emissions.

$$CH_4 = \frac{[G(X_G) + L(X_L) + O(X_O) + R(X_R) + W(X_W)]}{2{,}000}$$

$$N_2O = \frac{[G(X_G) + L(X_L) + O(X_O) + R(X_R) + W(X_W)]}{2{,}000}$$

$CO_2e = \sum[(CO_2 \times CO_2\ GWP) + (CH_4 \times CH_4\ GWP) + (N_2O \times N_2O\ GWP)]$

Where:
CO_2 = tons of CO_2 emissions for previous 12 consecutive month period;
CH_4 = tons of CH_4 emissions for previous 12 consecutive month period;
N_2O = tons of N_2O emissions for previous 12 consecutive month period;
CO_2e = tons of CO_2e equivalent emissions for previous 12 consecutive month period;
G = million cubic feet of natural gas used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in previous 12 months;
L = million cubic feet of landfill gas used in drum-mix dryer/mixer burner in the last 12 months;
O = gallons of No. 2 fuel oil used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in previous 12 months;
R = gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil used in drum-mix dryer/mixer in previous 12 months; and
W = gallons of reclaimed/waste oil used in drum-mix dryer/mixer in previous 12 months.

Emission Factors - CO2:
X_G = 120,161.84 pounds per million cubic feet of natural gas;
X_O = 22,501.41 x 10^{-3} pounds per gallon of No. 2 fuel oil;
X_R = 24,835.04 x 10^{-3} pounds per gallon of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil; and
X_W = 22,024.15 x 10^{-3} pounds per gallon of reclaimed/waste oil.

Emission Factors - CH4:
X_G = 2.49 pounds per million cubic feet of natural gas;
X_L = 5.93 pounds per million cubic feet of landfill gas;
X_O = 0.00091 pounds per gallon of No. 2 fuel oil;
X_R = 0.00100 pounds per gallon of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil; and
X_W = 0.00089 pounds per gallon of reclaimed/waste oil.

Emission Factors - N2O:
X_G = 2.20 pounds per million cubic feet of natural gas;
X_L = 1.17 pounds per million cubic feet of landfill gas;
X_O = 0.00026 pounds per gallon of No. 2 fuel oil;
X_R = 0.00053 pounds per gallon of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil; and
X_W = 0.00018 pounds per gallon of reclaimed/waste oil.

Greenhouse Warming Potentials (GWP)
Carbon dioxide (CO2) = 1
Methane (CH4) = 21
Nitrous oxide (N2O) = 310

D.1.11 Shingle Asbestos Content

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

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

(2) Analyzing a sample of the factory second shingles delivery to determine the asbestos content of the factory second shingles, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A determination of noncompliance pursuant to any of the methods specified above shall not be refuted by evidence of compliance pursuant to the other method.

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

D.1.12 Visible Emissions Notations

(a) Visible emission notations from the drum-mix asphalt plant conveyors, screens, material transfer points, and drum dryer/mixer stack (SV1-D) exhaust shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(b) Visible emission notations from the batch-mix asphalt plant conveyors, screens, material transfer points, and batch dryer/mixer stack (SV1-B) exhaust shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.

(c) 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.

(d) 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.

(e) 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.

(f) If abnormal emissions are observed, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. An abnormal visible emission notation is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

D.1.13 Parametric Monitoring

(a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the drum-mix dryer/mixer, at least once per day when the drum-mix dryer/mixer is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 2.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee’s obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above-mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

(b) The Permittee shall record the pressure drop across the baghouse used in conjunction with the dryer/mixer, at least once per day when the batch-mix dryer/mixer is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 2.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee’s obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above-mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

The instrument used for determining the pressure shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated

or replaced at least once every six (6) months, or other time period specified by the manufacturer. The Permittee shall maintain records of the manufacturer specifications, if used.

D.1.14 Broken or Failed Bag Detection

In the event that bag failure has been observed:

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

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

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

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

D.1.15 Record Keeping Requirements

(a) To document the compliance status with Conditions D.1.1(a), D.1.1(c), D.1.2(a), and D.1.2(h), the Permittee shall keep monthly records of the amount of asphalt processed through the dryer/mixer.

(b) To document the compliance status with Conditions D.1.3 and D.1.4, the Permittee shall maintain records in accordance with (1) through (10) below. Records maintained for (1) through (10) below shall be taken monthly and shall be complete and sufficient to establish compliance with the limits established in Conditions D.1.3 and D.1.4.

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

(2) Actual fuel usage, sulfur content, heat content, and equivalent sulfur dioxide, nitrogen oxide, and CO2 equivalent (CO2e) emission rates for each fuel used at the source since the last compliance determination period;

(3) Actual reclaimed/waste oil usage, ash, chlorine, and lead content, and equivalent hydrogen chloride (HCL) emission rate for all reclaimed/waste oil used at the source since the last compliance determination period;

(4) A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and

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

(i) Fuel supplier certifications;

(ii) The name of the fuel supplier; and

(iii) A statement from the fuel supplier that certifies the sulfur content of the No. 2 fuel oil, No. 4 fuel oil, No. 5 fuel oil, No. 6 fuel oil, and reclaimed/waste oil, and the ash, chlorine, and lead content of reclaimed/waste oil.

(6) Actual steel slag usage, sulfur content, and equivalent sulfur dioxide emission rates for all steel slag used at the source since the last compliance determination period;

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

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

(i) Steel slag supplier certifications;

(ii) The name of the steel slag supplier; and

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

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

(10) If the shingle supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:

(A) Shingle supplier certifications;

(B) The name of the shingle supplier(s); and

(C) A statement from the shingle supplier(s) that certifies the asbestos content of the shingles from their company.

(d) To document the compliance status with Condition D.1.12(a), the Permittee shall maintain records of visible emission notations of the drum-mix asphalt plant conveyors, screens, material transfer points, and dryer/mixer stack (SV1-D) exhaust once per day. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the process did not operate that day).

(e) To document the compliance status with Condition D.1.12(b), the Permittee shall maintain records of visible emission notations of the batch-mix asphalt plant conveyors, screens, material transfer points, and dryer/mixer stack (SV1-B) exhaust once per day. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the process did not operate that day).

(f) To document the compliance status with Condition D.1.13(a), the Permittee shall maintain records once per day of the pressure drop across the baghouse used in conjunction with the drum-mix dryer/mixer during normal operation. The Permittee shall include in its daily record when the pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g., the process did not operate that day).

(g) To document the compliance status with Condition D.1.13(b), the Permittee shall maintain records once per day of the pressure drop across the baghouse used in conjunction with the batch-mix dryer/mixer during normal operation. The Permittee shall include in its daily record when the pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g., the process did not operate that day).

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

D.1.16 Reporting Requirements

A quarterly summary of the information to document compliance status with Conditions D.1.1(a), D.1.1(c), D.1.2(a), D.1.2(h), and D.1.3, shall be submitted using the reporting forms located at the end of this permit, or their equivalent, not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee’s obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1)by the “authorized individual” as defined by 326 IAC 2-1.1-1(1).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(d) cold-mix (stockpile mix) asphalt manufacturing operations and storage piles.

(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 Volatile Organic Compounds (VOC) [326 IAC 8-5-2]

Pursuant to 326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving), the use of cutback asphalt or asphalt emulsion shall not contain 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.

D.2.2 Volatile Organic Compounds (VOC) [326 IAC 2-8-4] [326 IAC 2-2]

(a) Pursuant to 326 IAC 2-8-4, the VOC emissions from the sum of the liquid binders shall not exceed 46.49 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(b) Liquid binders used in the production of cold mix asphalt shall be defined as follows:

(1) Cut back asphalt rapid cure, containing a maximum of 25.3% of the liquid binder by weight of VOC solvent and 95.0% by weight of VOC solvent evaporating.

(2) Cut back asphalt medium cure, containing a maximum of 28.6% of the liquid binder by weight of VOC solvent and 70.0% by weight of VOC solvent evaporating.

(3) Cut back asphalt slow cure, containing a maximum of 20.0% of the liquid binder by weight of VOC solvent and 25.0% by weight of VOC solvent evaporating.

(4) Emulsified asphalt with solvent, containing a maximum of 15.0% of liquid binder by weight of VOC solvent and 46.4% by weight of the VOC solvent in the liquid blend evaporating. The percent oil distillate in emulsified asphalt with solvent liquid, as determined by ASTM, must be seven percent (7%) or less of the total emulsion by volume.

(5) Other asphalt with solvent binder, containing a maximum 25.9% of the liquid binder of VOC solvent and 2.5% by weight of the VOC solvent evaporating.

(c) When using only one type of liquid binder per twelve (12) consecutive month period, the usage of liquid binder shall be limited as follows:

(1) The amount of VOC solvent used in rapid cure cutback asphalt shall not exceed 48.94 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(2) The amount of VOC solvent used in medium cure cutback asphalt shall not exceed 66.42 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(3) The amount of VOC solvent used in slow cure cutback asphalt shall not exceed 185.97 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(4) The amount of VOC solvent used in emulsified asphalt shall not exceed 100.20 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(5) The amount of VOC solvent used in all other asphalt shall not exceed 1,859.70 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(d) When using more than one liquid binder per twelve (12) consecutive month period, VOC emissions shall be limited as follows:

(1) The VOC solvent allotments in (1) through (5) above shall be adjusted when more than one type of binder is used per twelve (12) consecutive month period with compliance determined at the end of each month. In order to determine the tons of VOC emitted per each type of binder, use the following formula and divide the tons of VOC solvent used for each type of binder by the corresponding adjustment factor listed in the table that follows.

$$\text{VOC emitted (tons/yr)} = \frac{\text{VOC solvent used for each binder (tons/yr)}}{\text{Adjustment factor}}$$

Type of binder	adjustment factor
cutback asphalt rapid cure	1.053
cutback asphalt medium cure	1.429
cutback asphalt slow cure	4.000
emulsified asphalt	2.155
other asphalt	40.0

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

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

D.2.3 Record Keeping Requirements

(a) To document the compliance status with Condition D.2.2, the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC emission limits established in Condition D.2.2.

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

(2) Actual asphalt binder usage in the production of cold mix asphalt since the last compliance determination period;

(3) Actual VOC solvent content by weight of the asphalt binder used in the production of cold mix asphalt since the last compliance determination period; and

(4) Actual amount of VOC solvent used in the production of cold mix asphalt, and the amount of VOC emitted since the last compliance determination period.

Records may include: delivery tickets, manufacturer's data, material safety data sheets (MSDS), and other documents necessary to verify the type and amount used. Test results of ASTM tests for asphalt cutback and asphalt emulsion may be used to document volatilization.

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

D.2.4 Reporting Requirements

A quarterly summary of the information to document the compliance status with Condition D.2.2 shall be submitted no later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

SECTION E.1 NSPS REQUIREMENTS

Emissions Unit Description: Hot-mix Asphalt Production Operation

(a) One (1) drum-mix, hot-mix asphalt plant, consisting of the following:

(1) one (1) hot-mix asphalt drum dryer/mixer, identified as #2, constructed in 1992, with a maximum throughput capacity of 400 tons of raw material per hour, processing electric arc steel mill slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) 96.8 million British thermal units per hour (MMBtu/hr) natural gas fired, or landfill gas (LFG)/natural gas co-fired, dryer burner, identified as #3, using No. 2 distillate fuel oil, No. 4, No. 5, and No. 6 refinery blend/residual fuel oils, and reclaimed/waste oil as back-up fuels, having one (1) inertial knockout box and one (1) baghouse in series for particulate matter control, and exhausting to stack SV1-D; and

(2) Material handling and conveying, including:

(A) one (1) drag slat hot-mix conveyor;

(B) three (3) feed conveyors; and

(C) one (1) screen.

(b) One (1) batch-mix, hot-mix asphalt plant, consisting of the following:

(1) one (1) aggregate rotary dryer, identified as ID #4, constructed in 1989, with a maximum throughput capacity of 220 tons of raw material per hour, processing electric arc steel mill slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) 84.0 million British thermal units per hour (MMBtu/hr) natural gas-fired aggregate dryer burner, identified as #5, using No. 2 distillate fuel oil as a back-up fuel, having one (1) cyclone and one (1) baghouse in series for particulate matter control, and exhausting to stack SV1-B; and

(2) One (1) hot-mix asphalt batch tower, consisting of the following:

(A) one (1) hot elevator;

(B) one (1) screen;

(C) four (4) hot bins, each with a maximum holding capacity of 40 tons;

(D) one (1) aggregate hopper, with a maximum holding capacity of 6,000 pounds (lbs);

(E) one (1) asphalt hopper, with a maximum holding capacity of 600 lbs;

(F) one (1) pugmill, with a maximum holding capacity of 6,000 lbs; and

(G) one (1) skip hoist with a maximum holding capacity of 6,000 lbs.

(c) General material feeding, conveying, and handling operations, including:

(1) one (1) cold feed system consisting of ten (10) bins with a total maximum holding capacity of 200 tons;

(2) storage silos consisting of five (5) bins with a total maximum storage capacity of 900 tons;

(3) two (2) recycled asphalt pavement (RAP) feed bins, each with a maximum holding capacity of 30 tons;

(4) Raw material storage piles, with a total maximum storage capacity of 101,500 tons, including:

(i) Aggregate storage pile(s), total capacity 50,000 tons;

(ii) Reclaimed asphalt pavement (RAP) storage pile(s), total capacity 40,000 tons;

(iii) Steel Slag storage pile(s), total capacity 10,000 tons; and

(iv) Recycled asphalt shingles storage pile(s), total capacity 3,000 tons.

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

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

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

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

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

(b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

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

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

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

(a) 40 CFR 60.90

(b) 40 CFR 60.91

(c) 40 CFR 60.92

(d) 40 CFR 60.93

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

The Permittee shall perform the stack testing required under NSPS 40 CFR 60, Subpart I, utilizing methods as approved by the Commissioner to document compliance with Condition E.1.2. These tests shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, Indiana 46819
FESOP Permit No.: F003-30740-00351

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 Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, Indiana 46819
FESOP Permit No.: F003-30740-00351

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: _____

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

FESOP Quarterly Report

Source Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, Indiana 46819
FESOP Permit No.: F003-30740-00351
Facility: Drum-Mix, Hot-Mix Asphalt Plant (#2)
Parameter: **Hot-mix Asphalt Production (Drum)**
Limit: The amount of hot-mix asphalt produced in the drum-mix asphalt plant shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	Hot-mix Asphalt Produced This Month (tons)	Hot-mix Asphalt Produced Previous 11 Months (tons)	12 Month Total Hot-mix Asphalt Produced (tons)
Month 1			
Month 2			
Month 3			

Facility: Batch-Mix, Hot-Mix Asphalt Plant (#4)
Parameter: **Hot-mix Asphalt Production (Batch)**
Limit: The amount of hot-mix asphalt produced in the batch-mix asphalt plant shall not exceed 143,975 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

QUARTER:_____ YEAR:_____

Month	Column 1	Column 2	Column 1 + Column 2
	Hot-mix Asphalt Produced This Month (tons)	Hot-mix Asphalt Produced Previous 11 Months (tons)	12 Month Total Hot-mix Asphalt Produced (tons)
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.
☐ Deviation/s occurred in this quarter.
Deviation has been reported on:_____

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

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

FESOP Quarterly Report

Source Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, Indiana 46819
FESOP Permit No.: F003-30740-00351
Facility: Drum-Mix Dryer/Mixer (SV1-D) and Batch-Mix Dryer/Mixer (SV1-D), Combined.

Parameter: **Fuel & Slag Usage / SO2, NOx, and CO2e emissions**

Emission Limits: *Sulfur dioxide (SO_2)* shall not exceed 87.53 tons per twelve (12) consecutive month period, with compliance determined at the end of each month, using the equation found in Condition D.1.110(a).

Nitrogen oxides (NOx) emissions shall not exceed 96.13 tons per twelve (12) consecutive month period, with compliance determined at the end of each month, using the equation found in Condition D.1.10(b).

CO2 equivalent emissions (CO2e) shall not exceed 95,738.19 tons per twelve (12) consecutive month period, with compliance determined at the end of each month, using the equation found in Condition D.1.10(c).

Fuel & Slag Limits: When combusting only one type of fuel per twelve (12) consecutive month period in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, in conjunction with the use of steel slag in the aggregate mix, fuel and slag usage shall not exceed the following:

Fuel Type (Units)	Fuel Usage Limit (per 12 consecutive month period)
Natural Gas (million cubic feet)	1,584
Landfill Gas (million cubic feet)	1,681
No. 2 Distillate Fuel Oil (gallons)	2,465,749
Refinery blend / Residual (No. 4, No. 5, and No. 6) Fuel Oil (gallons)	557,542
Waste Oil (gallons)	595,470

Facility: Cold-mix Asphalt Production

Parameter: **Binder Usage / VOC Emissions**

Emission Limits: VOC emissions from the sum of the binders shall not exceed 46.49 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

Type of Binder	Binder Usage Limit (per 12 consecutive month period)
Cutback Asphalt Rapid Cure	48.94
Cutback Asphalt Medium Cure	66.42
Cutback Asphalt Slow Cure	185.97
Emulsified Asphalt	100.20
Other Asphalt	1,859.70

FESOP Quarterly Report - Fuel & Slag Usage / SO2, NOx, and CO2e emissions

QUARTER: _____ YEAR:_____

Month	Fuel Types / Slag (units)	Column 1	Column 2	Column 1 + Column 2	Equation Results		
		Usage This Month	Usage Previous 11 Months	Usage 12 Month Total	Sulfur Dioxide (SO2) Emissions (tons per 12 months)	Nitrogen Oxides (NOx) Emissions (tons per 12 months)	CO2 equivalent (CO2e) Emissions (tons per 12 months)
Month	Natural Gas (million cubic feet)						
	Landfill Gas (million cubic feet)						
	No. 2 Fuel Oil (gallons)						
	Refinery Blend/Residual Fuel Oil (gallons)						
	Reclaimed/Waste Fuel Oil (gallons)						
	Steel Slag Usage (tons)						
Month	Natural Gas (million cubic feet)						
	Landfill Gas (million cubic feet)						
	No. 2 Fuel Oil (gallons)						
	Refinery Blend/Residual Fuel Oil (gallons)						
	Reclaimed/Waste Fuel Oil (gallons)						
	Steel Slag Usage (tons)						
Month	Natural Gas (million cubic feet)						
	Landfill Gas (million cubic feet)						
	No. 2 Fuel Oil (gallons)						
	Refinery Blend/Residual Fuel Oil (gallons)						
	Reclaimed/Waste Fuel Oil (gallons)						
	Steel Slag Usage (tons)						

☐ No deviation occurred in this reporting period.

☐ Deviation/s occurred in this reporting period.

Deviation has been reported on:_____

Submitted by: _____ Date: _____

Title / Position: _____ Phone:_____

Signature:_____

FESOP Quarterly Report - Binder Usage / VOC Emissions

QUARTER: _____ YEAR:_____

Month	Fuel Types (units)	Column 1 Usage This Month	Column 2 Usage Previous 11 Months	Column 1 + Column 2 Usage 12 Month Total	Equation Results VOC Emissions (tons per 12 months)
Month 1	Cutback asphalt rapid cure liquid binder (million cubic feet)				
	Cutback asphalt medium cure liquid binder (gallons)				
	Cutback asphalt slow cure liquid binder (gallons)				
	Emulsified asphalt with solvent liquid binder				
	Other asphalt with solvent liquid binder				
Month 2	Cutback asphalt rapid cure liquid binder (million cubic feet)				
	Cutback asphalt medium cure liquid binder (gallons)				
	Cutback asphalt slow cure liquid binder (gallons)				
	Emulsified asphalt with solvent liquid binder				
	Other asphalt with solvent liquid binder				
Month 3	Cutback asphalt rapid cure liquid binder (million cubic feet)				
	Cutback asphalt medium cure liquid binder (gallons)				
	Cutback asphalt slow cure liquid binder (gallons)				
	Emulsified asphalt with solvent liquid binder				
	Other asphalt with solvent liquid binder				

☐ No deviation occurred in this reporting period.
☐ Deviation/s occurred in this reporting period.
Deviation has been reported on:_____

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

VOC Emitted (tons/day) = $\frac{\text{VOC solvent used for each binder (tons/day)}}{\text{Adjustment factor}}$

Type of Binder	Adjustment Factor
Cutback Asphalt Rapid Cure	1.053
Cutback Asphalt Medium Cure	1.429
Cutback Asphalt Slow Cure	4.0
Emulsified Asphalt	2.155
Other Asphalt	40.0

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 Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, Indiana 46819
FESOP Permit No.: F003-30740-00351

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

This report shall be submitted quarterly based on a calendar year. Proper notice submittal under Section B – Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C-General Reporting. Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".	
☐ 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: _____

FEDERALLY ENFORCEABLE
STATE OPERATING PERMIT RENEWAL
OFFICE OF AIR QUALITY

Brooks Construction Company Inc.
3930 Hardrock Road
Ft. Wayne, IN 46819

Attachment A

HOT-MIX ASPHALT CONCRETE PLANT

FUGITIVE PARTICULATE MATTER EMISSIONS CONTROL PLAN

FESOP Renewal No.: F003-30740-00351

(a) Fugitive particulate matter (dust) emissions from paved roads, unpaved roads, and parking lots shall be controlled by one or more of the following measures:

(1) Paved roads and parking lots:

(A) Cleaning by vacuum sweeping on an as needed basis (monthly at a minimum).

(B) Power brooming while wet either from rain or application of water.

(2) Unpaved roads and parking lots:

(A) Paving with asphalt.

(B) Treating with emulsified asphalt on an as needed basis.

(C) Treating with water on an as needed basis.

(D) Double 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.

DEFINITIONS:

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

REFERENCE:

The Indiana Administrative Code, Title 326 Air Pollution Control Board, Article 6. Particulate Rules, weblink: http://www.in.gov/legislative/iac/T03260/A00060.PDF? . See page 12 for Rule 5. Fugitive Particulate Matter Emission Limitations.

FEDERALLY ENFORCEABLE
STATE OPERATING PERMIT RENEWAL

OFFICE OF AIR QUALITY

Brooks Construction Company Inc.
3930 Hardrock Road
Ft. Wayne, IN 46819

Attachment B

Title 40: Protection of Environment

PART 60—NEW SOURCE PERFORMANCE STANDARDS

SUBPART I - STANDARDS OF PERFORMANCE
FOR HOT MIX ASPHALT FACILITIES

FESOP Renewal No.: F003-30740-00351

40 CFR 60, SUBPART I — STANDARDS OF PERFORMANCE FOR HOT MIX ASPHALT FACILITIES

§ 60.90 Applicability and designation of affected facility.

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

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

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

§ 60.91 Definitions.

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

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

[51 FR 12325, Apr. 10, 1986]

§ 60.92 Standard for particulate matter.

(a) On and after the date on which the performance test required to be conducted by §60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:

(1) Contain particulate matter in excess of 90 mg/dscm (four hundredths (0.04) gr/dscf).

(2) Exhibit 20 percent opacity, or greater.

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

§ 60.93 Test methods and procedures.

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

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

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

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

[54 FR 6667, Feb. 14, 1989]

Reference

The US EPA Electronic Code of Federal Regulations - 40 CFR 60, Subpart I: Standards of Performance for Hot Mix Asphalt Facilities weblink:
http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=875648a88dd2168ac2096fe26e3e4c98&rgn=div6&view=text&node=40:6.0.1.1.1.20&idno=40

Indiana Department of Environmental Management
Office of Air Quality

Addendum to the Technical Support Document (ATSD) for a Federally Enforceable State Operating Permit (FESOP) Renewal

Source Background and Description

Source Name:	Brooks Construction Company, Inc.
Source Location:	3930 Hardrock Road, Ft. Wayne, IN 46819
County:	Allen
SIC Code:	2951 (Asphalt Paving Mixtures and Blocks)
Permit Renewal No.:	F003-30740-00351
Permit Reviewer:	Hannah L. Desrosiers

On January 10, 2012, the Office of Air Quality (OAQ) had a notice published in Fort Wayne Journal Gazette, Fort Wayne, Indiana, stating that Brooks Construction Company, Inc. had applied for a renewal of its FESOP issued on April 25, 2007. The notice also stated that the OAQ proposed to issue a FESOP Renewal for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Comments and Responses

No comments were received during the public notice period.

Additional Changes

The Technical Support Document (TSD) is used by IDEM, OAQ for historical purposes. IDEM, OAQ does not make any changes to the original TSD and supporting documents, but the Permit will contain the changes documented in this ATSD.

IDEM, OAQ has decided to make additional revisions to the permit, as described, as follows:

(a) On October 27, 2010, the Indiana Air Pollution Control Board issued revisions to 326 IAC 2. These revisions resulted in changes to the rule sites listed in the permit. These changes are not changes to the underlining provisions. The change is only to site of these rules in Section B - Operational Flexibility. IDEM, OAQ has clarified the rule sites for the Preventive Maintenance Plan.

(b) IDEM, OAQ has clarified the Permittee's responsibility with regards to record keeping.

(c) IDEM, OAQ has clarified the interaction of the Quarterly Deviation and Compliance Monitoring Report and the Emergency Provisions.

The Permit has been revised as follows, with deleted language shown as ~~strikeouts~~ and new language **bolded**. Permit conditions and the Table of Contents have been renumbered as needed to accommodate the above-listed revisions.

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

******

B.18 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

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

******

(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)(2), (c)(1), and (d)~~ **(b)(1) and (c)**. The Permittee shall make such records available, upon reasonable request, for public review.

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

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

(c) Alternative Operating Scenarios [326 IAC 2-8-15 ~~(d)~~ **(c)**]

******

C.17 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. ~~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.~~**Support information includes the following:**

(1) All calibration and maintenance records.

(2) All original strip chart recordings for continuous monitoring instrumentation.

(3) Copies of all reports required by the FESOP.

Records of required monitoring information include the following:

(4) The date, place, as defined in this permit, and time of sampling or measurements.

(5) The dates analyses were performed.

(6) The company or entity that performed the analyses.

(7) The analytical techniques or methods used.

(8) The results of such analyses.

(9) The operating conditions as existing at the time of sampling or measurement.

These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

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C.18 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. **Proper notice submittal under Section B –Emergency Provisions satisfies the reporting requirements of this paragraph**. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.

******

QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT

Source Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, Indiana 46819
FESOP Permit No.: F003-30740-00351

Months: _____ to _____ Year: _____

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. **Proper notice submittal under Section B – Emergency Provisions satisfies the reporting requirements of paragraph (a) of Section C-General Reporting.** Any deviation from the requirements of this permit, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".

******

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No other changes have been made to the permit.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Ms. Hannah Desrosiers at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5374 or toll free at 1-800-451-6027 extension 4-5374.

(b) A copy of the findings is available on the Internet at: 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

Indiana Department of Environmental Management
Office of Air Quality

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

Source Background and Description

Source Name:	Brooks Construction Company, Inc.
Source Location:	3930 Hardrock Road, Ft. Wayne, IN 46819
County:	Allen
SIC Code:	2951 (Asphalt Paving Mixtures and Blocks)
Permit Renewal No.:	F003-30740-00351
Permit Reviewer:	Hannah L. Desrosiers

The Office of Air Quality (OAQ) has reviewed an operating permit renewal application from Brooks Construction Company, Inc. relating to the continued operation of a stationary hot-mix asphalt production operation, and a cold-mix asphalt production operation.

History

On July 26, 2011, Brooks Construction Company, Inc. submitted an application to the OAQ requesting to renew its operating permit. Brooks Construction Company, Inc. has confirmed that the hot-mix asphalt production operation consists of one (1) drum-mix plant and one (1) batch-mix plant.

Brooks Construction Company, Inc. has requested the flexibility to use electric arc furnace steel slag and asbestos-free recycled shingles in their aggregate mix, and has indicated that they do not intend to process blast furnace slag in the aggregate mix, crush any recycled asphalt pavement (RAP), and/or grind any kind of recycled asphalt shingles (RAS), asbestos-free or otherwise, on-site.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units:

(a) One (1) drum-mix, hot-mix asphalt plant, consisting of the following:

(1) one (1) hot-mix asphalt drum dryer/mixer, identified as #2, constructed in 1992, with a maximum throughput capacity of 400 tons of raw material per hour, processing electric arc steel mill slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) 96.8 million British thermal units per hour (MMBtu/hr) natural gas fired, or landfill gas (LFG)/natural gas co-fired, dryer burner, identified as #3, using No. 2 distillate fuel oil, No. 4, No. 5, and No. 6 refinery blend/residual fuel oils, and reclaimed/waste oil as back-up fuels, having one (1) inertial knockout box and one (1) baghouse in series for particulate matter control, and exhausting to stack SV1-D; and

(2) Material handling and conveying, including:

(A) one (1) drag slat hot-mix conveyor;

(B) three (3) feed conveyors; and

(C) one (1) screen.

(b) One (1) batch-mix, hot-mix asphalt plant, consisting of the following:

(1) one (1) aggregate rotary dryer, identified as ID #4, constructed in 1989, with a maximum throughput capacity of 220 tons of raw material per hour, processing electric arc steel mill slag, and asbestos-free recycled asphalt shingles in the aggregate mix, equipped with one (1) 84.0 million British thermal units per hour (MMBtu/hr) natural gas-fired aggregate dryer burner, identified as #5, using No. 2 distillate fuel oil as a back-up fuel, having one (1) cyclone and one (1) baghouse in series for particulate matter control, and exhausting to stack SV1-B; and

(2) One (1) hot-mix asphalt batch tower, consisting of the following:

(A) one (1) hot elevator;

(B) one (1) screen;

(C) four (4) hot bins, each with a maximum holding capacity of 40 tons;

(D) one (1) aggregate hopper, with a maximum holding capacity of 6,000 pounds (lbs);

(E) one (1) asphalt hopper, with a maximum holding capacity of 600 lbs;

(F) one (1) pugmill, with a maximum holding capacity of 6,000 lbs; and

(G) one (1) skip hoist with a maximum holding capacity of 6,000 lbs.

(c) General material feeding, conveying, and handling operations, including:

(1) one (1) cold feed system consisting of ten (10) bins with a total maximum holding capacity of 200 tons;

(2) storage silos consisting of five (5) bins with a total maximum storage capacity of 900 tons;

(3) two (2) recycled asphalt pavement (RAP) feed bins, each with a maximum holding capacity of 30 tons;

(4) Raw material storage piles, with a total maximum storage capacity of 101,500 tons, including:

(i) Aggregate storage pile(s), total capacity 50,000 tons;

(ii) Reclaimed asphalt pavement (RAP) storage pile(s), total capacity 40,000 tons;

(iii) Steel Slag storage pile(s), total capacity 10,000 tons; and

(iv) Recycled asphalt shingles storage pile(s), total capacity 3,000 tons.

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

(d) cold-mix (stockpile mix) asphalt manufacturing operations and storage piles.

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

No unpermitted emission units were discovered operating at this existing source during this review process.

Emission Units and Pollution Control Equipment Removed From the Source

No emission units have been removed from this existing source during this review process.

Insignificant Activities

The source also consists of the following insignificant activities:

(a) natural gas-fired combustion sources with heat input equal to or less than ten (10) MMBtu per hour:

(1) one (1) direct-fired, natural gas-fired hot oil heater, constructed in 1982, with a maximum heat input rating of 1.4 MMBtu per hour, using No. 2 distillate oil as a back-up fuel, uncontrolled and exhausting to stack SV2;

(2) one (1) direct-fired, natural gas-fired hot oil heater, constructed in 1991, with a maximum heat input rating of 1.4 MMBtu per hour, using No. 2 oil as a back-up fuel, uncontrolled and exhausting to stack SV3; and

(2) one (1) direct-fired, natural gas-fired hot oil heater, constructed in 2007, with a maximum heat input rating of 2.0 MMBtu per hour, using No. 2 oil as a back-up fuel, uncontrolled and exhausting fugitively.

(b) other categories with emissions below insignificant thresholds:

(1) storage tanks emitting less than one (1) ton per year of any single HAP and less than fifteen (15) lbs per day of VOCs including: and

(A) one (1) liquid asphalt storage tank, identified as #20A, constructed in 1985, with a maximum storage capacity of 340,000 gallons, uncontrolled and exhausting to one (1) stack, identified as SV4;

(B) one (1) liquid asphalt storage tank, identified as #20B, constructed in 1969, with a maximum storage capacity of 15,000 gallons, uncontrolled and exhausting to one (1) stack, identified as SV5;

(C) four (4) liquid asphalt storage tanks, identified as #20E, #20F, #20G, and #20H, constructed in 2006, each with a maximum storage capacity of 30,000 gallons, uncontrolled and exhausting to the atmosphere;

(D) two (2) fuel storage tanks, identified as #20J and #20K, constructed in 2006, each with a maximum storage capacity of 20,000 gallons, uncontrolled and exhausting to the atmosphere; and

(E) one (1) fuel storage tank, identified as ID #20L, approved for construction in 2012, with a maximum storage capacity of 20,000 gallons, uncontrolled and exhausting to the atmosphere.

(2) Cutting, grinding, and welding operations located in the shop [326 IAC 6-3-2];

(c) replacement or repair of electrostatic precipitators, bags in baghouses and filters in other air filtration equipment;

(d) one (1) QA lab and one (1) State lab as defined in 326 IAC 2-7-1(21)(D); and

(e) paved and unpaved roads and parking lots with public access [326 IAC 6-4][326 IAC 6-5].

Existing Approvals

Brooks Construction Company, Inc. was issued its second FESOP Renewal (No. F003-23353-00351) on April 25, 2007.

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

Enforcement Issue

There are no pending enforcement actions related to this existing source.

Emission Calculations

See Appendices A.1 and A.2 of this TSD for detailed emission calculations.

> Emission Factors for Landfill Gas, originally taken from F003-14035-00351, issued February 8, 2002, were supplied by EMCON (Andover, MA). To form a conservative estimate, the emissions in this spreadsheet reflects total landfill gas combustion; however, this fuel, when used, must be co-fired with natural gas, and the maximum usable landfill gas to natural gas ratio is 90% landfill gas/10% natural gas.

County Attainment Status

The source is located in Allen County. The following attainment status designations are applicable to Allen County:

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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.
$PM_{2.5}$	Unclassifiable or attainment effective April 5, 2005.
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.	

(Air Pollution Control Board; 326 IAC 1-4-3; filed Dec 26, 2007, 1:43 p.m.: 20080123-IR-326070308FRA)

(a) Ozone Standards
Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Allen County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

(b) PM2.5
Allen County has been classified as attainment for $PM_{2.5}$. On May 8, 2008, U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for $PM_{2.5}$ emissions. These rules became effective on July 15, 2008. On May 4, 2011, the air pollution control board issued an emergency rule establishing the direct $PM_{2.5}$ significant level at ten (10) tons per year. This rule became effective, June 28, 2011. Therefore, direct $PM_{2.5}$ and SO_2 emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.

(c) Other Criteria Pollutants
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, from the affected facilties to which the New Source Performance Standard is applicable, are counted toward the determination of PSD, Emission Offset, and Part 70 Permit applicability.

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source.

Pollutant	tons/year
PM	80,031.58
PM10[(1)]	15,773.49
PM2.5	2,919.93
SO2	676.52
NOx	285.20
VOC	42,219.92
CO	622.79
GHG's as CO_2e	138,562.99
Total HAPs [(2)]	11,075.50
Maximum (Worst Case) HAP	3,792.44 (xylene)

NOTES

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

(2) HAPs include 2,2,4-trimethylpentane, 2-butanone, acetaldehyde, acrolein, benzene, bis(2-ethylhexyl)phthalate, carbon disulfide, chloromethane, cumene, ethylbenzene, formaldehyde, hydrogen chloride (HCl), hexane, methyl chloroform, methyl ethyl ketone (MEK), methyl-tert-butylether, phenol, polycyclic organic matter (POM), propionaldehyde, quinone, toluene, total polycyclic aromatic hydrocarbon (PAH) HAPs, xylene, and arsenic, cadmium, chromium, lead, manganese, mercury, nickel, and selenium compounds.

(3) Appendices A.1 and A.2, of this TSD, reflect the unrestricted, uncontrolled, potential emissions of the source.

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM10, PM2.5, SO2, NOX, VOC, and CO is equal to or greater than 100 tons per year. However, the Permittee has agreed to limit the source's PM10, PM2.5, SO2, NOX, VOC, and CO emissions to less than Title V levels, therefore the Permittee will be issued a FESOP Renewal.

(b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of Green House Gasses (GHGs) is equal to or greater than one hundred thousand (100,000) tons of CO_2 equivalent emissions (CO_2e) per year. However, the Permittee has agreed to limit the source's GHGs emissions to less than Title V levels, therefore the Permittee will be issued a FESOP Renewal.

This source has the potential to emit 81,134.51 tons of biogenic CO_2 per year. On July 20, 2011 U.S. EPA issued a deferral of Biogenic CO_2 emissions from PSD and Title V. Therefore, these CO2 emissions were not included in the listed GHG emissions.

(c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is equal to or greater than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is equal to or greater than twenty-five (25) tons per year. However, the Permittee has agreed to limit the source's single HAP emissions and total HAP emissions below Title V levels. Therefore, the Permittee will be issued a FESOP Renewal.

Potential to Emit After Issuance

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

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Process/ Emission Unit	Potential To Emit of the Entire Source after Issuance of Renewal (tons/year)									
	PM	PM_{10}*	$PM_{2.5}$*	SO_2	NO_x	VOC	CO	GHGs** as CO_2e	Total HAPs	Worst Single HAP
Ducted Emissions										
Drum Dryer Fuel Combustion (1) (worst case)	38.83	38.83	38.83	43.77	59.34	2.33	35.61	51,258.06	11.85	8.49 (HCL)
Drum Dryer/Mixer (2) (Process)	136.00	64.00	71.00	29.00	27.50	16.00	65.00	16,626.00	5.33	1.55 (formaldehyde)
Batch Dryer Fuel Combustion (1) (worst case)	1.23	2.80	2.80	43.77	36.79	2.02	30.91	44,480.13	0.71	0.66 (hexane)
Batch Dryer/Mixer (2) and Batch Tower (Process)	64.28	19.29	20.03	6.33	8.64	0.59	28.80	2,674.72	0.56	0.19 (xylenes)
Dryer/Mixer Slag Processing (3)	0	0	0	0.80	0	0	0	0	0	N/A
Hot Oil Heater Fuel Combustion (worst case)	0.30	0.50	0.50	10.66	3.00	0.12	1.77	3,394.05	0.05	0.04 (hexane)
Worst Case Emissions α	**200.58**	**83.78**	**91.52**	**99.00**	**99.13**	**18.14**	**97.67**	**99,132.24**	**12.61**	**8.49 (HCL)**
Fugitive Emissions										
Asphalt Load-Out and On-Site Yard (3)	0.63	0.63	0.63	0	0	9.80	1.65	0	0.16	0.05 (formaldehyde)
Material Storage Piles	1.59	0.55	0.55	0	0	0	0	0	0	N/A
Material Processing and Handling (3)	3.70	1.75	0.26	0	0	0	0	0	0	N/A
Material Screening, and Conveying (3)	15.21	5.33	5.33	0	0	0	0	0	0	N/A
Unpaved and Paved Roads (worst case) (1)	27.29	6.96	0.70	0	0	0	0	0	0	N/A
Cold Mix Asphalt Production (4)	0	0	0	0	0	46.49	0	0	12.13	4.18 (xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0	0	0	0	N/A
Volatile Organic Liquid Storage Vessels ***	0	0	0	0	0	negl.	0	0	negl.	negl.
Total Fugitive Emissions	**48.42**	**15.22**	**7.47**	**0**	**0**	**56.29**	**1.65**	**0**	**12.29**	**4.18 (xylenes)**
Total Limited/ Controlled Emissions	**249.00**	**99.00**	**99.00**	**99.00**	**99.13**	**74.43**	**99.32**	**99,132.24**	**24.90**	**8.49 (xylenes)**
Title V Major Source Thresholds	NA	100	100	100	100	100	100	100,000	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	100,000	NA	NA
Emission Offset/ Nonattainment NSR Major Source Thresholds	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

negl = negligible N/A = Not applicable HCL = hydrogen chloride

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

** The 100,000 CO2e threshold represents the Title V and PSD subject to regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.

*** Fugitive emissions from each of the volatile organic liquid storage tanks were calculated using the EPA Tanks 4.0.9d program and were determined to be negligible.

α Worst Case Emissions (tons/yr) = Worst Case Emissions from Drum Dryer Fuel Combustion and Drum Dryer/Mixer (process) + Worst Case Emissions from Batch Dryer Fuel Combustion and Batch Dryer/Mixer and Batch Tower (Process) + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion

(1) Limited PTE based upon annual production and fuel usage limits to comply with 326 IAC 2-2 (PSD) and 326 IAC 2-8 (FESOP).

(2) Limited PTE based upon annual production limit and lb/ton emission limits to comply with 326 IAC 2-2 (PSD) and 326 IAC 2-8 (FESOP).

(3) Limited PTE based upon annual production limit to comply with 326 IAC 2-2 (PSD) & 326 IAC 2-8 (FESOP).

(4) Limited PTE based upon maximum annual VOC usage limit to comply with 326 IAC 2-8 (FESOP).

(a) FESOP Status

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

(1) Pursuant to 326 IAC 2-8-4, PM10, PM2.5, SO2, NOx, VOC, and CO emissions from the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, shall be limited as follows:

Drum-mix Plant

(A) The amount of hot-mix asphalt processed in the drum-mix asphalt plant shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is an existing requirement for this source.*

(B) The PM10 emissions from the drum-mix dryer/mixer shall not exceed 0.128 pounds per ton of asphalt processed. *This is a change from 0.098 pounds per ton of asphalt processed. This is a Title I change.*

(C) The PM2.5 emissions from the drum-mix dryer/mixer shall not exceed 0.142 pounds per ton of asphalt processed. *This is a new requirement for this source. This is a Title I change.*

(D) The SO2 emissions from the drum-mix dryer/mixer shall not exceed 0.058 pounds per ton of asphalt processed. *This is a new requirement for this source. This is a Title I change.*

(E) The NOx emissions from the drum-mix dryer/mixer shall not exceed 0.055 pounds per ton of asphalt processed. *This is a new requirement for this source. This is a Title I change.*

(F) The VOC emissions from the drum-mix dryer/mixer shall not exceed 0.032 pounds per ton of asphalt processed. *This is a new requirement for this source. This is a Title I change.*

(G) The CO emissions from the drum-mix dryer/mixer shall not exceed 0.130 pounds per ton of asphalt processed. *This is an existing requirement for this source.*

Batch-mix Plant

(H) The amount of hot-mix asphalt processed in the batch-mix asphalt plant shall not exceed 143,975 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is an existing requirement for this source.*

(I) The PM10 emissions from the batch-mix dryer/mixer shall not exceed 0.268 pounds per ton of asphalt processed. *This is a change from 0.098 pounds per ton of asphalt processed. This is a Title I change.*

(J) The PM2.5 emissions from the batch-mix dryer/mixer shall not exceed 0.278 pounds per ton of asphalt processed. *This is a new requirement for this source. This is a Title I change.*

(K) The NOx emissions from the batch-mix dryer/mixer shall not exceed 0.120 pounds per ton of asphalt processed. *This is an existing requirement for this source.*

(L) The VOC emissions from the batch-mix dryer/mixer shall not exceed 0.0082 pounds per ton of asphalt processed. *This is a new requirement for this source. This is a Title I change.*

(M) The CO emissions from the batch-mix dryer/mixer shall not exceed 0.40 pounds per ton of asphalt processed. *This is an existing requirement for this source.*

Silo Filling Process

(N) The VOC emissions from the silo filling process shall not exceed 0.0122 pounds per ton of asphalt processed in the drum-mix asphalt plant and the batch-mix asphalt plant, combined. *This is an existing requirement for this source.*

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

(2) Pursuant to 326 IAC 2-8, the Permittee shall continue to control PM, PM10, and PM2.5 emissions from the unpaved roads according to the fugitive dust plan, included as Attachment A to the permit. *This is an existing requirement for this source.*

(3) Pursuant to 326 IAC 2-8-4, the SO2, NOx, Green House Gasses (GHGs as CO2e), and HAP emissions from the dryer/mixer and hot oil heater shall be limited as follows:

(A) <u>Fuel and Slag Specifications</u>

(i) The sulfur content of the No. 2 distillate fuel oil shall not exceed 0.50% by weight. *This is an existing requirement for this source.*

(ii) The sulfur content of the No. 4, No. 5, and No. 6 refinery blend/residual fuel oils shall not exceed 1.00% by weight. *This is an existing requirement for this source.*

(iii) The sulfur content of the reclaimed/waste oil shall not exceed 1.00% by weight. *This is an existing requirement for this source.*

(iv) The reclaimed/waste oil combusted in the dryer burner shall not contain more than 0.40% chlorine. *This is an existing requirement for this source.*

(v) The reclaimed/waste oil combusted in the dryer burner shall not contain more than 1.00% ash and 0.01% lead. *This is a new requirement for this source. This is a Title I change.*

(vi) The HCl emissions shall not exceed 26.4 pounds of HCl per 1,000 gallons of reclaimed/waste oil burned. *This is a new requirement for this source. This is a Title I change.*

(vii) The sulfur content of the electric arc furnace steel slag shall not exceed 0.66% by weight. *This is a new requirement for this source. This is a Title I change.*

(viii) The SO2 emissions from the dryer/mixer shall not exceed 0.0014 pounds per ton of electric arc furnace steel slag processed in the aggregate mix. *This is a new requirement for this source. This is a Title I change.*

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

(i) Natural gas usage drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, shall not exceed 1,584 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from the equivalency of 1 MMCF of natural gas per every 8.6 gallons of No. 2 fuel oil, based on SO2 emissions. This is a Title I change*;

(ii) Landfill gas usage in the drum-mix dryer/mixer burner shall not exceed 1,681 million cubic feet (MMCF) per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from the equivalency of 1 MMCF of natural gas per every 89.2 gallons of No. 2 fuel oil, based on SO2 emissions. This is a Title I change*;

(iii) No. 2 fuel oil usage in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, shall not exceed 2,465,749 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from 2,574,477 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. This is a Title I change;*

(iv) Refinery blend / Residual (No. 4, No. 5, and No. 6) fuel oil usage, combined, shall not exceed 557,542 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month; *This is a change from the equivalency of 1,000 gallons of No. 4 fuel oil per every 2,158 gallons of No. 2 fuel oil, 1,000 gallons of No. 5 fuel oil per every 2,259 gallons of No. 2 fuel oil, and 1,000 gallons of No. 6 fuel oil per every 2,259 gallons of No. 2 fuel oil, based on SO2 emissions. This is a Title I change*;

(v) Reclaimed/waste oil usage in the drum-mix dryer/mixer burner shall not exceed 595,470 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. This is also a change from the equivalency of 1,000 gallons of waste oil per every 2,115 gallons of No. 2 fuel oil, based on SO2 emissions. This is a Title I change*; and

Note: The source is only permitted to burn the above-mentioned fuels in the associated dryer/mixer burner(s).

(vi) A steel slag usage limit is not required for the source to comply with their FESOP SO2 Limit, since unlimited use results in a PTE SO2 of only 3.80 tons/yr (see TSD Appendix A.1, page 6 of 19). To form a conservative estimate, SO2 emissions are based on the "worst case" assumption that steel slag usage corresponds to 100% of the aggregate used to produce the hot-mix asphalt (see TSD Appendix A.2, page 6 of 19).

(C) Multiple Fuel and Slag Usage Limitation:
When combusting more than one fuel per twelve (12) consecutive month period in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, in conjunction with the use of steel slag in the aggregate mix, emissions from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall be limited as follows:

(i) SO2 emissions from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall not exceed 87.53 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a Title I change*;

The Permittee shall limit fuel and slag usage in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, according to the following formula: *This is a change from determining fuel usage by equivalency.*

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

where:
S = tons of sulfur dioxide emissions for a 12-month consecutive period;
G = million cubic feet of natural gas used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in the last 12 months;
L = million cubic feet of landfill gas used in drum-mix dryer/mixer burner in the last 12 months;
O = gallons of No. 2 fuel oil used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in the last 12 months;
R = gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil used in drum-mix dryer/mixer in the last 12 months;
W = gallons of reclaimed/waste oil used in drum-mix dryer/mixer in the last 12 months; and
T = tons of steel slag used in the last 12 months.

Emission Factors
E_G = 0.60 lb/million cubic feet of natural gas;
E_L = 6.2 lb/million cubic feet of landfill gas;
E_O = 71.0 lb/1000 gallons of No. 2 fuel oil;
E_R = 157 lb/1000 gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil;
E_W = 147 lb/1000 gallons of reclaimed/waste oil; and
E_T = 0.0014 lb/ton of steel slag used.

(ii) NOx emissions from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall not exceed 96.13 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a Title I change*;

The Permittee shall limit fuel and slag usage in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, according to the following formula: *This is a change from determining fuel usage by equivalency.*

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

where:

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

G = million cubic feet of natural gas used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in the last 12 months;

L = million cubic feet of landfill gas used in drum-mix dryer/mixer burner in the last 12 months;

O = gallons of No. 2 fuel oil used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in the last 12 months;

R = gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil used in drum-mix dryer/mixer in the last 12 months; and

W = gallons of reclaimed/waste oil used in drum-mix dryer/mixer in the last 12 months.

Emission Factors

E_G = 100 lb/million cubic feet of natural gas;

E_L = 70.6 lb/million cubic feet of landfill gas;

E_O = 20.0 lb/1000 gallons of No. 2 fuel oil;

E_R = 55.0 lb/1000 gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil; and

E_W = 19.0 lb/1000 gallons of reclaimed/waste oil.

(iii) CO2 equivalent emissions (CO2e) from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall not exceed 95,738.19 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a new requirement for this source. This is a Title I change.*

The Permittee shall limit fuel and slag usage in the drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, according to the following formulas:

$$CO_2 = \frac{[G(X_G) + O(X_O) + R(X_R) + W(X_W)]}{2{,}000}$$

$$CH_4 = \frac{[G(X_G) + L(X_L) + O(X_O) + R(X_R) + W(X_W)]}{2{,}000}$$

$$N_2O = \frac{[G(X_G) + L(X_L) + O(X_O) + R(X_R) + W(X_W)]}{2{,}000}$$

$$CO_2e = \sum[(CO_2 \times CO_2\ GWP) + (CH_4 \times CH_4\ GWP) + (N_2O \times N_2O\ GWP)]$$

Note: On July 20, 2011, U.S. EPA issued a deferral of Biogenic CO2 emissions from PSD and Title V. Therefore, the Biogenic CO2 emissions from the combustion of the landfill gas are not included in the Total CO_2e emissions.

Where:

CO_2 = tons of CO_2 emissions for previous 12 consecutive month period;

CH_4 = tons of CH_4 emissions for previous 12 consecutive month period;

N_2O = tons of N_2O emissions for previous 12 consecutive month period;

CO_2e = tons of CO_2e equivalent emissions for previous 12 consecutive month period;

G = million cubic feet of natural gas used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in previous 12 months;
L = million cubic feet of landfill gas used in drum-mix dryer/mixer burner in the last 12 months;
O = gallons of No. 2 fuel oil used in drum-mix dryer/mixer burner and the batch-mix dryer/mixer burner, combined, in previous 12 months;
R = gallons of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil used in drum-mix dryer/mixer in previous 12 months; and
W = gallons of reclaimed/waste oil used in drum-mix dryer/mixer in previous 12 months.

Emission Factors - CO2:
X_G = 120,161.84 pounds per million cubic feet of natural gas;
X_O = 22,501.41 x 10^{-3} pounds per gallon of No. 2 fuel oil;
X_R = 24,835.04 x 10^{-3} pounds per gallon of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil; and
X_W = 22,024.15 x 10^{-3} pounds per gallon of reclaimed/waste oil.

Emission Factors - CH4:
X_G = 2.49 pounds per million cubic feet of natural gas;
X_L = 5.93 pounds per million cubic feet of landfill gas;
X_O = 0.00091 pounds per gallon of No. 2 fuel oil;
X_R = 0.00100 pounds per gallon of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil; and
X_W = 0.00089 pounds per gallon of reclaimed/waste oil.

Emission Factors - N2O:
X_G = 2.20 pounds per million cubic feet of natural gas;
X_L = 1.17 pounds per million cubic feet of landfill gas;
X_O = 0.00026 pounds per gallon of No. 2 fuel oil;
X_R = 0.00053 pounds per gallon of refinery blend / residual (No. 4, No. 5 or No. 6) fuel oil; and
X_W = 0.00018 pounds per gallon of reclaimed/waste oil.

Greenhouse Warming Potentials (GWP)

Carbon dioxide (CO2)	= 1
Methane (CH4)	= 21
Nitrous oxide (N2O)	= 310

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

Note: Since the source does not intend to grind shingles at this plant, they will be required to use/purchase only supplier certified asbestos-free post consumer waste and/or factory seconds shingles in their aggregate mix. This requirement will be included, because it is the physical act of grinding that releases asbestos into the air. Therefore, the company performing the grinding would need to test the shingles prior to grinding, in order for the testing to be effective. A new condition limiting the use of asphalt shingles in the aggregate mix to only those that are asbestos-free, has been added to the permit. *This is a new requirement for this source. This is a Title I change.*

Compliance with these limits, combined with the potential to emit SO2, NOx, Green House Gasses (GHGs), and HAPs from all other emission units at this source, shall limit the source-wide total potential to emit of SO2 and NOX to less than 100 tons per twelve (12) consecutive month period, each, GHGs to less than 100,000 tons CO_2 equivalent emissions (CO_2e) per 12 consecutive month period, any single HAP to less than ten (10) tons per twelve (12) consecutive month period, and total HAPs to less than twenty-five (25) tons per twelve (12) consecutive month period and shall render the requirements of 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP) not applicable.

(4) Pursuant to 326 IAC 2-8-4, the VOC emissions from cold-mix (cutback) asphalt production shall be limited as follows:

(A) VOC emissions from the sum of the binders shall not exceed 46.49 tons per twelve (12) consecutive month period with compliance determined at the end of each month. *This is a change from 65.61 tons of VOC emissions emitted per twelve (12) consecutive months. This is a Title I change.*

(B) Liquid binders used in the production of cold mix asphalt shall be defined as follows:

(i) Cut back asphalt rapid cure, containing a maximum of 25.3% of the liquid binder by weight of VOC solvent and 95.0% by weight of VOC solvent evaporating. *This is an existing requirement for this source.*

(ii) Cut back asphalt medium cure, containing a maximum of 28.6% of the liquid binder by weight of VOC solvent and 70.0% by weight of VOC solvent evaporating. *This is an existing requirement for this source.*

(iii) Cut back asphalt slow cure, containing a maximum of 20.0% of the liquid binder by weight of VOC solvent and 25.0% by weight of VOC solvent evaporating. *This is an existing requirement for this source.*

(iv) Emulsified asphalt with solvent, containing a maximum of 15.0% of liquid binder by weight of VOC solvent and 46.4% by weight of the VOC solvent in the liquid blend evaporating. The percent oil distillate in emulsified asphalt with solvent liquid, as determined by ASTM, must be seven percent (7%) or less of the total emulsion by volume. *This is an existing requirement for this source.*

(v) Other asphalt with solvent binder, containing a maximum 25.9% of the liquid binder of VOC solvent and 2.5% by weight of the VOC solvent evaporating. *This is an existing requirement for this source.*

(C) When using only one type of liquid binder per twelve (12) consecutive month period, the usage of liquid binder shall be limited as follows:

(i) The amount of VOC solvent used in rapid cure cutback asphalt shall not exceed 48.94 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from 69.06 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis. This is a Title I change.*

(ii) The amount of VOC solvent used in medium cure cutback asphalt shall not exceed 66.42 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from*

93.72 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis. This is a Title I change.

(iii) The amount of VOC solvent used in slow cure cutback asphalt shall not exceed 185.97 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from 262.43 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis. This is a Title I change.*

(iv) The amount of VOC solvent used in emulsified asphalt shall not exceed 100.20 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from 141.39 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis. This is a Title I change.*

(v) The amount of VOC solvent used in all other asphalt shall not exceed 1,859.70 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is a change from 2,624.28 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis. This is a Title I change.*

(D) When using more than one liquid binder per twelve (12) consecutive month period, VOC emissions shall be limited as follows:

(i) The VOC solvent allotments in (C)(i) through (C)(v) above shall be adjusted when more than one type of binder is used per twelve (12) consecutive month period with compliance determined at the end of each month. In order to determine the tons of VOC emitted per each type of binder, use the following formula and divide the tons of VOC solvent used for each type of binder by the corresponding adjustment factor listed in the table that follows.

$$\text{VOC emitted (tons/yr)} = \frac{\text{VOC solvent used for each binder (tons/yr)}}{\text{Adjustment factor}}$$

Type of Binder	**Adjustment Factor**	~~adjustment ratio~~
Cutback Asphalt Rapid Cure	1.053	~~1~~
Cutback Asphalt Medium Cure	1.429	~~1.36~~
Cutback Asphalt Slow Cure	4.000	~~3.8~~
Emulsified Asphalt	2.155	~~2.04~~
Other Asphalt	40.0	~~38~~

This is a Title I change.

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

(b) PSD Minor Source

This existing source is not a major stationary source, under PSD (326 IAC 2-2), because the potential to emit PM is still limited to less than 250 tons per year, the potential to emit all other attainment regulated criteria pollutants are less than 250 tons per year, the potential to emit

greenhouse gases (GHGs) is limited to less than the PSD subject to regulation threshold of one hundred thousand (100,000) tons of CO_2 equivalent emissions (CO_2e) 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:

Drum-mix Plant

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

(b) PM emissions from the drum-mix dryer/mixer shall not exceed 0.272 pounds per ton of asphalt processed. *This is a change from 0.193 pounds per ton of asphalt processed. This is a Title I change.*

Batch-mix Plant

(c) The amount of hot-mix asphalt processed in the batch-mix asphalt plant shall not exceed 143,975 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(d) PM emissions from the batch-mix dryer/mixer shall not exceed 0.893 pounds per ton of asphalt processed. *This is a change from 0.193 pounds per ton of asphalt processed. This is a Title I change.*

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

(e) CO2 equivalent emissions (CO2e) from the drum-mix dryer/mixer and the batch-mix dryer/mixer, combined, shall not exceed 95,738.19 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with this limit, combined with the potential to emit greenhouse gases (GHGs) from all other emission units at this source, shall limit the source-wide total potential to emit GHGs to less than 100,000 tons of CO_2 equivalent emissions (CO_2e) per 12 consecutive month period and shall render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

Note: On July 20, 2011, U.S. EPA issued a deferral of Biogenic CO2 emissions from PSD and Title V. Therefore, the Biogenic CO2 emissions from the combustion of the landfill gas are not included in the Total CO_2e emissions.

Federal Rule Applicability

New Source Performance Standards (NSPS)

(a) <u>40 CFR 60, Subpart I - Standards for Hot-mix Asphalt Facilities</u>
The existing stationary drum-mix, hot-mix asphalt plant, constructed in 1992, and the existing stationary batch-mix, hot-mix asphalt plant, constructed in 1989, are each still subject to the New Source Performance Standard, 40 CFR 60, Subpart I (326 IAC 12), because each continues to meet the definition of a hot-mix asphalt facility pursuant to the rule and was constructed after June 11, 1973. *This is an existing requirement for this source.*

The units subject to this rule include the following:

(1) Dryers

(2) Systems for screening, handling, storing, and weighing hot aggregate

(3) Systems for loading, transferring, and storing mineral filler

(4) Systems for mixing hot-mix asphalt

(5) The loading, transfer, and storage systems associated with emission control systems

Therefore, pursuant to 40 CFR 60.92(a), particulate matter emissions from the above listed units, shall not exceed four hundredths (0.04) grains per dry standard cubic foot (gr/dscf), and visible emissions shall not exceed twenty percent (20%) opacity.

The source will comply with this rule by using a baghouse to limit particulate matter emissions from each dryer/mixer to less than four hundredths (0.04) gr/dscf, and by applying the management techniques outlined in their Fugitive Dust Plan (included as Attachment A of the permit).

The hot-mix asphalt facilities are still subject to the following portions of 40 CFR 60, Subpart I (included as Attachment B of the permit):

(1) 40 CFR 60.90.

(2) 40 CFR 60.91.

(3) 40 CFR 60.92.

(4) 40 CFR 60.93.

Note: this NSPS includes testing requirements applicable to this source.

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

(b) <u>40 CFR 60, Subpart Dc - Standards for Small Industrial/Commercial/Institutional Steam Generating Units</u>

(1) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc (326 IAC 12), are not included in the permit, for the drum-mix dryer/mixer, identified as #2, or the batch-mix rotary dryer/mixer, identified as #4, because each of the dryer burners is a direct-fired process unit and not a steam generating unit, as defined in 40 CFR 60.41c.

(2) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc (326 IAC 12), are not included in the permit, for the two (2) 1.4 MMBtu/hr hot oil heaters, and the one (1) 2.0 MMBtu/hr hot oil heater, because each heater is a direct-fired process unit and not a steam generating unit, as defined in 40 CFR 60.41c.

(c) <u>40 CFR 60, Subpart Kb - Standards for Volatile Organic Liquid Storage Vessels</u>

(1) The requirements of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels, 40 CFR 60, Subpart Kb (326 IAC 12), are not included in the permit for the existing 340,000 gallon storage tank (ID No. 20A), since although the tank was constructed in 1985, after the rule applicability date of July 23, 1984, the tank has a maximum storage capacity greater than 151 cubic meters (75 m^3) (39,890 gallons), and the liquid stored in the tank has a maximum true vapor pressure of less than fifteen kiloPascals (15.0 kPa).

(2) The requirements of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels, 40 CFR 60, Subpart Kb (326 IAC 12), are not included in the permit for

the existing 30,000 gallon tanks (ID Nos. 20E, 20F, 20G, 20H, 20J and 20K), or the existing 20,000 gallon storage tanks (ID Nos. 20J, and 20K), since although the tanks were constructed in 2006, after the rule applicability date of July 23, 1984, and each tank has a maximum storage capacity greater than seventy-five cubic meters (75 m^3) (19,813 gallons) but less than 151 m^3 (39,890 gallons), the liquid stored in each tank has a maximum true vapor pressure of less than fifteen kiloPascals (15.0 kPa).

(3) The requirements of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels, 40 CFR 60, Subpart Kb (326 IAC 12), are not included in the permit for the existing 15,000 gallon liquid asphalt storage tank (ID #20B), because tank was constructed in 1969, before the rule applicability date of July 23, 1984, the tank has a maximum storage capacity of less than seventy-five cubic meters (75 m^3) (19,813 gallons), and the liquid stored in the tank has a maximum true vapor pressure of less than fifteen kiloPascals (15.0 kPa).

(4) The requirements of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels, 40 CFR 60, Subpart Kb (326 IAC 12), are not included in the permit for the new 20,000 gallon storage tank, identified as #20L, since although the tank is approved for construction in 2012, after the rule applicability date of July 23, 1984, and the tank has a maximum storage capacity greater than seventy-five cubic meters (75 m^3) (19,813 gallons) but less than 151 m^3 (39,890 gallons), the liquid stored in the tank has a maximum true vapor pressure of less than fifteen kiloPascals (15.0 kPa).

(d) <u>40 CFR 60, Subpart UU - Standards for Asphalt Processing and Asphalt Roofing Manufacture</u>
The requirements of the New Source Performance Standard for Asphalt Processing and Asphalt Roofing Manufacture, 40 CFR 60, Subpart UU (2U) (326 IAC 12), are not included in the permit, because the existing stationary drum-mix, hot-mix asphalt plant, and the existing stationary batch-mix, hot-mix asphalt plant, each, still do not meet the definition of an asphalt processing plant, since neither unit blows asphalt, or an asphalt roofing plant since neither unit produces asphalt roofing products, and finally pursuant to §60.101(a) the stationary drum-mix, hot-mix asphalt plant and the existing stationary batch-mix, hot-mix asphalt plant, each, are still not a petroleum refinery since neither unit is 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.

(e) <u>40 CFR 60, Subpart OOO - Standards for Nonmetallic Mineral Processing Plants</u>
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 source still does not crush or grind any Recycled Asphalt Pavement (RAP), Recycled Asphalt Shingles (RAS), or other nonmetallic minerals. Instead, the source will be receiving pre-crushed/pre-sized materials for use in its aggregate mixes. Therefore, pursuant to 40 CFR 60.670(a)(2) stand-alone screening operations at plants without crushers or grinding mills are exempt.

(f) <u>40 CFR 60, Subpart UUU - Standards for Calciners and Dryers in Mineral Industries</u>
The requirements of the New Source Performance Standard for Calciners and Dryers in Mineral Industries, 40 CFR 60, Subpart UUU (3U) (326 IAC 12), are not included in the permit, because the stationary drum-mix, hot-mix asphalt plant, and the existing stationary batch-mix, hot-mix asphalt plant, each, still do not meet the definition of a mineral processing plant, since neither unit processes or produces 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.

(g) There are no other New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR 60) included in the permit.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

(a) 40 CFR 63, Subpart DDDDD - NESHAPs for Industrial, Commercial, and Institutional Boilers and Process Heaters

The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD (5D) (326 IAC 20), are not included in the permit, as follows:

On June 8, 2007, the United States Court of Appeals for the District of Columbia Circuit (in *National Resource Defense Council, Sierra Club, Environmental Integrity Project vs. EPA*, No. 04-1385), vacated 40 CFR 63, Subpart DDDDD in its entirety. Additionally, since State Rule 326 IAC 20-95 incorporated the requirements of the NESHAP 40 CFR 63, Subpart DDDDD by reference, the requirements of 326 IAC 20-95 are no longer effective. However, since NESHAP 40 CFR Part 63, Subpart DDDDD has been vacated, Section 112(j) of the Clean Air Act, major sources of Hazardous Air Pollutants (HAPs), in specified source categories, requires a case-by-case MACT determination when EPA fails to promulgate a scheduled MACT Standard by the regulatory deadline. Brooks Construction Company, Inc. is still considered an area source under Section 112 of the Clean Air Act, MACT Standards. Therefore, this source is not subject to a case-by-case MACT determination.

(b) 40 CFR 63, Subpart LLLLL - NESHAPs for Asphalt Processing and Asphalt Roofing Manufacturing

The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart LLLLL (5L) (326 IAC 20-71), are not included in the permit, because the stationary drum-mix, hot-mix asphalt plant, and the batch-mix, hot-mix asphalt plant, each, still do not meet the definition of an asphalt processing plant or an asphalt roofing manufacturing facility, since neither unit engages in the preparation of asphalt flux or asphalt roofing materials. Additionally, this existing source is not a major source of HAPs, and is not located at nor is it a part of a major source of HAP emissions.

(c) 40 CFR 63, Subpart CCCCCC - NESHAP for the Source Category Identified as Gasoline Dispensing Facilities (GDF)

The requirements of this National Emission Standards for Hazardous Air Pollutants (NESHAP) for the Source Category Identified as Gasoline Dispensing Facilities (GDF), 40 CFR 63.11110, Subpart CCCCCC (6C) (326 IAC 20), are not included in the permit, because this existing stationary hot-mix asphalt production operation has no gasoline dispensing facilities..

(d) 40 CFR 63, Subpart JJJJJJ - NESHAPs for Industrial, Commercial, and Institutional Boilers Area Sources

(1) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63, Subpart JJJJJJ (6J), are not included in the permit for the dryer/mixer burner, since although this existing source is an area source of hazardous air pollutants (HAP), as defined in §63.2, the dryer/mixer burner is a direct-fired process unit and not a boiler, as defined in 40 CFR 63.11237.

(2) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers Area Sources, 40 CFR 63, Subpart JJJJJJ (6J), are not included in the permit for the two (2) 1.4 MMBtu/hr hot oil heaters, and the one (1) 2.0 MMBtu/hr hot oil heater, since although this existing source is an area source of hazardous air pollutants (HAP), as defined in §63.2, each of the hot oil heaters is a direct-fired process unit and not a boiler, as defined in 40 CFR 63.11237.

(e) 40 CFR 63, Subpart AAAAAAA - NESHAP for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing
The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart AAAAAAA (7A) (326 IAC 20), are not included in the permit, because although the stationary hot-mix asphalt production operation is an area source of hazardous air pollutant (HAP) emissions, as defined in §63.2, it does not meet the definition of an asphalt processing operation or an asphalt roofing manufacturing operation, as defined in §63.11566, since it does not engage in the preparation of asphalt flux or asphalt roofing materials.

(g) 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)

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

State Rule Applicability - Entire Source

(a) 326 IAC 1-6-3 (Preventive Maintenance Plan)
Any person responsible for operating any facility required to obtain a permit under the Federally Enforceable State Operating Permit (FESOP) Program, 326 IAC 2-8, shall prepare and maintain a preventive maintenance plan in accordance with 326 IAC 1-6-3(a), whenever a control device is required for compliance with any applicable emission limitations and/or air pollution control regulations. The drum drying/mixing process, and the batch dryer and batch tower, each still requires the use of a control device to limit the particulate emissions of PM, PM10 and PM2.5 to less than PSD and TV thresholds. Therefore a PMP is still required for these units and their associated control devices.

(b) 326 IAC 1-7 (Stack Height)
The requirements of 326 IAC 1-7 (Stack Height) are not included in the permit because although the unlimited and uncontrolled PM10 and SO2 emissions from this existing source, are each greater than one hundred (100) tons per year, asphalt concrete plants are still specifically exempted under 326 IAC 1-7-5(c).

(c) 326 IAC 2-1.1-5 (Nonattainment New Source Review)
Allen County is classified as attainment or unclassifiable in Indiana for all regulated NSR pollutants. Therefore, pursuant to 326 IAC 2-1.1-5, the Nonattainment New Source Review requirements do not apply, and are not included in the permit.

(d) 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.

(e) 326 IAC 2-3 (Emission Offset)
Allen County is classified as attainment or unclassifiable in Indiana for all regulated NSR pollutants. Therefore, the requirements of 326 IAC 2-3 (Emission Offset) still do not apply, and are not included in the permit.

(f) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))
The potential to emit HAPs, from the existing hot-mix and cold-mix asphalt production operations, is still greater than ten (10) tons per year for any single HAP and greater than twenty-five (25) tons per year of a combination of HAPs. However, the source has agreed to continue to limit potential HAPs emissions from these facilities to less than ten (10) tons per year for any single

HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, the requirements of 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) still do not apply, see the "Potential to Emit after Issuance" section above, and are not included in the in the permit.

(g) 326 IAC 2-6 (Emission Reporting)
This source is still not subject to 326 IAC 2-6 (Emission Reporting) because it is not required to have an operating permit pursuant to 326 IAC 2-7 (Part 70); it is not located in Lake, Porter, or LaPorte County, and its potential to emit lead is less than five (5) tons per year. Therefore, pursuant to 326 IAC 2-6-1(b), the source is still only subject to additional information requests as provided for in 326 IAC 2-6-5.

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

(i) 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.

(j) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)
The source is still subject to the requirements of 326 IAC 6-4, because the asphalt load-out, silo filling, and on-site yard, material storage piles, material processing and handling, material screening, and conveying, and paved and unpaved roads, each, continue to have the potential to emit fugitive particulate emissions. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the existing source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

(k) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)
The source is still subject to the requirements of 326 IAC 6-5, because the asphalt load-out, silo filling, and on-site yard, material storage piles, material processing and handling, material crushing, screening, and conveying, and paved and unpaved roads were constructed after December 13, 1985, and continue to have potential fugitive particulate emissions greater than twenty-five (25) tons per year. Therefore, pursuant to 326 IAC 6-5, fugitive particulate matter emissions shall continue to be controlled according to the Fugitive Particulate Emissions Control Plan, which is included as Attachment A to the permit.

(l) 326 IAC 6.5 PM Limitations Except Lake County
This source is not subject to 326 IAC 6.5 because it is not located in any one of the following counties: Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo or Wayne.

(m) 326 IAC 12 (New Source Performance Standards)
See Federal Rule Applicability Section of this TSD.

(n) 326 IAC 20 (Hazardous Air Pollutants)
See Federal Rule Applicability Section of this TSD.

State Rule Applicability – Individual Facilities

Drum-Mix and Batch-Mix Hot-Mix Asphalt Plants

(a) 326 IAC 6-2 (Particulate Emissions from Indirect Heating Units)
The two (2) existing dryer burners are each still not a source of indirect heating, as defined in 326 IAC 1-2-19 "Combustion for Indirect Heating". Therefore, the requirements of 326 IAC 6-2 still do not apply, and are not included in the permit.

(b) 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)
The existing drum-mix dryer/mixer and existing batch-mix dryer/mixer are each still subject to 40 CFR 60, Subpart I (Standards of Performance for Hot-mix Asphalt Facilities), incorporated by reference through 326 IAC 12. Therefore, pursuant to 326 IAC 6-3-1(c)(5), each existing dryer/mixer is still not subject to the requirements of 326 IAC 6-3 because they are subject to the more stringent particulate limit established in 326 IAC 12.

(c) 326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)
The existing 96.8 MMBtu/hr drum dryer burner and the existing 84.0 MMBtu/hr batch dryer burner are each still subject to 326 IAC 7-1.1 because the potential to emit SO2 from each dryer is equal to or greater than twenty-five (25) tons/year, or ten (10) pounds/hour (unlimited potential emissions are 475.47 and 186.59 tons per year, respectively). Therefore, pursuant to this rule, sulfur dioxide emissions from each dryer burner shall continue to be limited to:

(A) Five-tenths (0.5) pounds per million Btu heat input for distillate oil combustion.

(B) One and six tenths (1.6) pounds per million Btu heat input for residual oils.

Note: No. 2 fuel oil is considered distillate oil, and refinery blend / residual (No. 4, No. 5, and No. 6) fuel oil, and waste oil are considered residual oils.

(d) 326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements)
Pursuant to 326 IAC 7-2-1(c), the source shall continue to submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate (pounds SO2 per MMBtu), to the OAQ upon request.

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

(1) The unlimited potential VOC emissions from the existing drum-mix dryer/mixer and existing silo filling process, are each still greater than twenty-five (25) tons per year (unlimited potential emissions are 56.06 and 33.09 tons per year, respectively). However, the source has opted to continue to limit the potential VOC emissions from each to less than twenty-five (25) tons per year, therefore, rendering the requirements of 326 IAC 8-1-6 Best Available Control Technology (BACT) not applicable.

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

(A) The amount of hot-mix asphalt processed in the drum-mix asphalt plant shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is an existing requirement for this source.*

(B) The amount of hot-mix asphalt processed in the batch-mix asphalt plant shall not exceed 143,975 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. *This is an existing requirement for this source.*

(C) The VOC emissions from the drum-mix dryer/mixer shall not exceed 0.032 pounds per ton of asphalt processed. *This is an existing requirement for this source.*

(D) The VOC emissions from the silo filling process shall not exceed 0.0122 pounds per ton of asphalt processed in the drum-mix asphalt plant and the batch-mix asphalt plant, combined. *This is an existing requirement for this source.*

Compliance with these limits shall limit the potential VOC emissions from each existing dryer/mixer to less than twenty-five (25) tons per twelve (12) consecutive month period and shall render 326 IAC 8-1-6 BACT not applicable.

See Appendix A for the detailed calculations.

(2) The unlimited potential VOC emissions from the existing batch-mix dryer/mixer are still less than twenty-five (25) tons per year. Therefore, the requirements of 326 IAC 8-1-6 still do not apply, and are not included in the permit.

(f) <u>326 IAC 8-6-1 (Organic Solvent Emission Limitations)</u>
The existing stationary hot-mix asphalt production operation previously opted to become a FESOP source and limited VOC emissions from the entire source to less than 100 tons per year. Additionally, the drum-mix dryer/mixer is otherwise subject to 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities), and the cold-mix asphalt production and storage operation is otherwise subject to 326 IAC 8-5-2 (Asphalt paving rules). Therefore, the requirements of 326 IAC 8-6-1 (Organic Solvent Emission Limitations) still do not apply to this existing source, and are not included in the permit.

(g) There are no other 326 IAC 8 Rules that are applicable to the stationary drum hot-mix asphalt plant.

(h) <u>326 IAC 9-1 (Carbon Monoxide Emission Limits)</u>
This existing stationary, hot-mix asphalt production operation and cold-mix asphalt production and storage operation is still not one of the source types listed in 326 IAC 9-1-2. Therefore, the requirements of 326 IAC 9-1 do not apply and are not included in the permit.

(i) <u>326 IAC 10-3 (Nitrogen Oxide Reduction Program for Specific Source Category)</u>

(1) The existing 96.8 MMBtu/hr drum dryer burner still does not meet the definition of an affected facility, as defined in 326 IAC 10-3-1(a), because it still has a maximum a heat input of less than two hundred fifty million (250,000,000) British thermal units per hour (MMBtu/hr); therefore, it is still not subject to this rule and the requirements are not included in the permit.

(1) The existing 84.0 MMBtu/hr batch dryer burner still does not meet the definition of an affected facility, as defined in 326 IAC 10-3-1(a), because it still has a maximum a heat input of less than two hundred fifty million (250,000,000) British thermal units per hour (MMBtu/hr); therefore, it is still not subject to this rule and the requirements are not included in the permit.

Hot Oil Heating Systems

(a) <u>326 IAC 6-2 (Particulate Emissions from Indirect Heating Units)</u>
The two (2) 1.4 MMBtu/hr hot oil heaters, and the one (1) 2.0 MMBtu/hr hot oil heater, are each a direct-fired process unit, and not an indirect heating unit, as defined in 326 IAC 1-2-19. Therefore, the requirements of 326 IAC 6-2 still do not apply to this existing source, and are not included in the permit.

(b) 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)
The two (2) 1.4 MMBtu/hr direct-fired hot oil heaters and the one (1) 2.0 MMBtu/hr direct-fired hot oil heater, each do not meet the definition of a "manufacturing process", as defined in 326 IAC 6-3-1.5(2), therefore, each existing direct-fired hot oil heater is exempt from the requirements of 326 IAC 6-3, and the requirements are not included in the permit.

(c) 326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)
The unlimited potential to emit SO2 from the two (2) 1.4 MMBtu/hr hot oil heaters, and the one (1) 2.0 MMBtu/hr hot oil heater, is still less than twenty-five (25) tons/year, or ten (10) pounds/hour, each. Therefore, the requirements of 326 IAC 7-1.1 still do not apply and are not included in the permit for this facility.

See Appendix A for the detailed calculations.

(d) 326 IAC 9-1 (Carbon Monoxide Emission Limits)
The two (2) 1.4 MMBtu/hr hot oil heaters, and the one (1) 2.0 MMBtu/hr hot oil heater, are each still not one of the source types listed in 326 IAC 9-1-2. Therefore, the requirements of 326 IAC 9-1 (Carbon Monoxide Emission Limits) still do not apply and are not included in the permit.

(e) 326 IAC 10-3 (Nitrogen Oxide Reduction Program for Specific Source Category)
The two (2) 1.4 MMBtu/hr hot oil heaters, and the one (1) 2.0 MMBtu/hr hot oil heater, each, still do not meet the definition of an affected facility, as defined in 326 IAC 10-3-1(a), because the each heater still has a maximum a heat input of less than two hundred fifty million (250,000,000) British thermal units per hour (MMBtu). Therefore, the requirements of 326 IAC 10-3 (Nitrogen Oxide Reduction Program for Specific Source Category) still do not apply and are not included in the permit.

Cold-Mix Asphalt Production Operation

(a) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)
The existing cold-mix asphalt production operation, a continued source of potential VOC emissions greater than twenty-five (25) tons per year, is still subject to the requirements of 326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving); therefore, the requirements of 326 IAC 8-1-6 BACT still do not apply to the cold-mix asphalt production and are not included in the permit.

See Appendix A for the detailed calculations.

(b) 326 IAC 8-5-2 (Asphalt paving rules)
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; and

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

(c) 326 IAC 8-6-1 (Organic Solvent Emission Limitations)
The existing cold-mix asphalt production and storage operation, a continued source of potential VOC emissions greater than one hundred (100) tons per year, is still subject to the requirements of 326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving). Additionally, this source elected to limit their VOC emissions to less than one hundred (100) tons per year. Therefore, the

requirements of 326 IAC 8-6-1 (Organic Solvent Emission Limitations) still do not apply and are not included in the permit.

See Appendix A for the detailed calculations.

(d) There are no other 326 IAC 8 Rules that are applicable to the cold-mix asphalt production operation.

Storage Tanks

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

(1) The potential to emit VOCs from the existing liquid asphalt storage tanks, identified as 20A, 20B, 20E, 20F, 20G, and 20H, the existing fuel oil storage tanks, identified as #20J and #20K, and the new fuel oil storage tank, identified as #20L, is still less than twenty-five (25) tons per year, each. Therefore, the requirements of 326 IAC 8-1-6 still do not apply and are not included in the in the permit.

(2) The potential to emit VOCs from the new fuel oil storage tank, identified as #20L, is less than twenty-five (25) tons per year. Therefore, the requirements of 326 IAC 8-1-6 do not apply to the tank and are not included in the in the permit.

See Appendix A for the detailed calculations.

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

(1) Although the existing 340,000 gallon liquid asphalt storage tank identified as 20A, has a storage capacity greater than one hundred fifty thousand (150,000) liters (39,000 gallons), and stores petroleum liquids containing VOC, the vapor pressure of liquid asphalt is less than the rule applicability threshold of 10.5 kPa. Therefore, the requirements of 326 IAC 8-4-3 still do not apply to the tank and are not included in the permit.

(2) The existing liquid asphalt storage tanks, identified as 20B, 20C, 20D, 20E, 20F, 20G, 20H, 20J, and 20K, and the existing fuel oil storage tanks, identified as #20J and #20K, continue to have a maximum storage capacity of less than thirty-nine thousand (39,000) gallons, each. Therefore, the requirements of 326 IAC 8-4-3 still do not apply to any of these tanks and are not included in the permit.

(3) The new fuel oil storage tank, identified as #20L, has a maximum storage capacity of less than thirty-nine thousand (39,000) gallons. Therefore, the requirements of 326 IAC 8-4-3 do not apply to the tank and are not included in the permit.

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

(1) The existing liquid asphalt storage tanks, identified as 20A, 20B, 20C, 20D, 20E, 20F, 20G, 20H, 20I, 20J, and 20K, the and existing fuel oil storage tanks, identified as #20J and #20K, are each not subject to the requirements of this rule because the source is not located in Clark, Floyd, Lake, or Porter Counties.

(2) The new fuel oil storage tank, identified as #20L, is not subject to the requirements of this rule because the source is not located in Clark, Floyd, Lake, or Porter Counties.

(d) There are no other 326 IAC 8 Rules that are applicable to the existing storage tanks.

Compliance Determination and Monitoring Requirements

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain

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

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

The compliance determination, testing, and monitoring requirements applicable to this source are as follows:

Compliance Determination & Testing Requirements

(a) The existing drum-mix dryer/mixer and batch-mix dryer/mixer, each, continues to have applicable compliance determination requirements as specified below:

(1) In order to comply with the PM, PM10, and PM2.5 limitations in the permit, the baghouses for each dryer/mixer, shall continue to be in operation and control emissions from the respective dryer/mixer at all times when the respective dryer/mixer is in operation.

(2) The annual hot-mix asphalt production rate will be used to verify compliance with the PSD PM emission limitation, the FESOP PM10, PM2.5, SO2, NOx, VOC, and CO emission limitations, and the BACT avoidance VOC emission limitation.

(3) The slag and fuel characteristics (i.e., sulfur content) and usage rates will be used to verify compliance with the SO2 emission limitation.

(4) The waste oil characteristics (i.e., ash, chlorine, and lead content) and usage rates will be used to verify compliance with the FESOP PM, PM10, PM2.5, and HAP limitations.

(b) The liquid binder characteristics (i.e., evaporation temperature) and usage rate, in the production of cold-mix cutback asphalt, will be used to verify compliance with the FESOP VOC emission limitation.

Testing Requirements

The testing requirements applicable to this source are as follows:

Emission Unit	Control Device	Pollutant	Timeframe for Testing	Frequency of Testing
Drum-mix dryer/mixer	Baghouse	PM/PM10/PM2.5	Within 5 yrs of last valid test(1)	Once every five (5) years
Batch-mix dryer/mixer	Baghouse	PM/PM10/PM2.5	Within 5 yrs of last valid test(2)	Once every five (5) years

(1) Required for compliance with 40 CFR 60, Subpart I, 326 IAC 2-8 (FESOP). The last valid drum-mix dryer/mixer stack test for PM and PM10 occurred on May 04, 2010. The source was in compliance at that time.

(2) Required for compliance with 40 CFR 60, Subpart I, 326 IAC 2-8 (FESOP). The last valid batch-mix dryer/mixer stack test for PM and PM10 occurred on May 04, 2010. The source was in compliance at that time.

Compliance Monitoring Requirements

The existing drum-mix dryer/mixer baghouse stack exhaust, existing batch-mix dryer/mixer baghouse stack exhaust, and the material processing and handling, screening, conveying, and material transfer points continue to have applicable compliance monitoring conditions as specified below:

Emission Unit & Control Device	Parameter	Frequency	Range	Excursions and Exceedances
Drum-mix dryer/mixer baghouse stack exhaust (SV1-D), and Batch-mix dryer/mixer baghouse stack exhaust (SV1-B),	Visible Emissions	Once per day	normal/abnormal	Response Steps
	Pressure Drop	Once per day	2.0 to 6.0 inches	Response Steps
	Bags in baghouse	As needed	normal/abnormal	Response Steps
Conveyors, screens, and material transfer points	Visible Emissions	Once per day	normal/abnormal	Response Steps

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

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant. An application for the purposes of this review was received on July 26, 2011.

The operation of this source shall be subject to the conditions of the attached proposed FESOP Renewal F003-30740-00351. The staff recommends to the Commissioner that this FESOP Renewal be approved.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Ms. Hannah Desrosiers at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5374 or toll free at 1-800-451-6027 extension 4-5374.

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

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

Appendix A.1: Unlimited Emissions Calculations
Entire Source Summary - Drum-Mix & Batch-Mix Asphalt Plants (combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

Drum-Mix Asphalt Plant Maximum Capacity

Maximum Hourly Asphalt Production =	400	ton/hr		
Maximum Annual Asphalt Production =	3,504,000	ton/yr		
Maximum Annual Blast Furnace Slag Usage =	0	ton/yr	0	% sulfur
Maximum Annual Steel Slag Usage =	1,471,680	ton/yr	0.66	% sulfur
Maximum Dryer Fuel Input Rate =	96.8	MMBtu/hr		
Natural Gas Usage =	848	MMCF/yr		
Landfill Gas Usage =	1,681	MMCF/yr		
No. 2 Distillate Fuel Oil Usage =	6,056,914	gal/yr, and	0.50	% sulfur
No. 4 Distillate Fuel Oil Usage =	0	gal/yr, and	0	% sulfur
Refinery Blend/Residual (No.4, No. 5 or No. 6) Fuel Oil Usage =	6,056,914	gal/yr, and	1.00	% sulfur
Propane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur
Butane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur
Used/Waste Oil Usage =	6,056,914	gal/yr, and	1.00	% sulfur
			1.00	% ash
			0.40	% chlorine,
			0.010	% lead

Unlimited PM Dryer/Mixer Emission Factor =	28.0	lb/ton of asphalt production
Unlimited PM10 Dryer/Mixer Emission Factor =	6.5	lb/ton of asphalt production
Unlimited PM2.5 Dryer/Mixer Emission Factor =	1.5	lb/ton of asphalt production
Unlimited NOx Dryer/Mixer Emission Factor =	0.055	lb/ton of asphalt production
Unlimited VOC Dryer/Mixer Emission Factor =	0.032	lb/ton of asphalt production
Unlimited CO Dryer/Mixer Emission Factor =	0.13	lb/ton of asphalt production
Unlimited Blast Furnace Slag SO2 Dryer/Mixer Emission Factor =	0	lb/ton of slag processed
Unlimited Steel Slag SO2 Dryer/Mixer Emission Factor =	0.0014	lb/ton of slag processed

Batch-Mix Asphalt Plant Maximum Capacity

Maximum Hourly Asphalt Production =	220	ton/hr		
Maximum Annual Asphalt Production =	1,927,200	ton/yr		
Maximum Annual Blast Furnace Slag Usage =	0	ton/yr	0	% sulfur
Maximum Annual Steel Slag Usage =	809,424	ton/yr	0.66	% sulfur
Maximum Dryer Fuel Input Rate =	84.0	MMBtu/hr		
Natural Gas Usage =	736	MMCF/yr		
No. 2 Distillate Fuel Oil Usage =	5,256,000	gal/yr, and	0.50	% sulfur
No. 4 Distillate Fuel Oil Usage =	0	gal/yr, and	0	% sulfur
Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	0	gal/yr, and	0	% sulfur
Propane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur
Butane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur
Used/Waste Oil Usage =	0	gal/yr, and	0	% sulfur
			0	% ash
			0	% chlorine,
			0	% lead

Unlimited PM Dryer/Mixer Emission Factor =	32.0	lb/ton of asphalt production
Unlimited PM10 Dryer/Mixer Emission Factor =	4.5	lb/ton of asphalt production
Unlimited PM2.5 Dryer/Mixer Emission Factor =	0.27	lb/ton of asphalt production
Unlimited NOx Dryer/Mixer Emission Factor =	0.12	lb/ton of asphalt production
Unlimited VOC Dryer/Mixer Emission Factor =	0.0082	lb/ton of asphalt production
Unlimited CO Dryer/Mixer Emission Factor =	0.40	lb/ton of asphalt production
Unlimited Blast Furnace Slag SO2 Dryer/Mixer Emission Factor =	0	lb/ton of slag processed
Unlimited Steel Slag SO2 Dryer/Mixer Emission Factor =	0.0014	lb/ton of slag processed

Unlimited/Uncontrolled Emissions

Process Description	Unlimited/Uncontrolled Potential to Emit (tons/year)										
	Criteria Pollutants							Greenhouse Gas Pollutants	Hazardous Air Pollutants		
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	CO_2e	Total HAPs	Worst Case HAP	
Ducted Emissions											
Drum-mix Plant											
Dryer Fuel Combustion (worst case)	193.82	154.45	154.45	475.47	166.57	3.03	35.61	75,773.04	83.66	79.95	(hydrogen chloride)
Dryer/Mixer (Process)	49,056.00	11,388.00	2,628.00	101.62	96.36	56.06	227.76	58,257.50	18.68	5.43	(formaldehyde)
Batch-mix Plant											
Dryer Fuel Combustion (worst case)	5.26	8.67	8.67	186.59	52.56	2.02	30.91	59,395.90	0.85	0.66	(hexane)
Dryer/Mixer (Process)	30,835.20	4,336.20	260.17	84.80	115.63	7.90	385.44	35,802.94	7.36	2.60	(xylene)
Dryer/Mixer Slag Processing (worst case)	0	0	0	3.80	0	0	0	0	0	0	
Hot Oil Heater Fuel Combustion (worst case)	0.30	0.50	0.50	10.66	3.00	0.12	1.77	3,394.05	0.049	0.038	(hexane)
Worst Case Emissions*	**79,891.50**	**15,724.70**	**2,888.67**	**676.52**	**285.20**	**64.08**	**614.97**	**138,562.99**	**91.06**	**79.95**	(hydrogen chloride)
Fugitive Emissions (Drum & Batch combined)											
Asphalt Load-Out, Silo Filling, On-Site Yard	3.01	3.01	3.01	0	0	46.52	7.82	0	0.78	0.24	(formaldehyde)
Material Storage Piles	1.59	0.55	0.55	0	0	0	0	0	0	0	
Material Processing and Handling	17.55	8.30	1.26	0	0	0	0	0	0	0	
Material Screening, and Conveying	72.23	25.28	25.28	0	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	45.71	11.65	1.16	0	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	42,109.32	0	0	10,983.67	3,789.84	(xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0	0	0	0	0	
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	0	negl	0	
Total Fugitive Emissions	**140.08**	**48.79**	**31.27**	**0**	**0**	**42,155.84**	**7.82**	**0**	**10,984.45**	**3,789.84**	(xylenes)
Totals Unlimited/Uncontrolled PTE	**80,031.58**	**15,773.49**	**2,919.93**	**676.52**	**285.20**	**42,219.92**	**622.79**	**138,562.99**	**11,075.50**	**3,792.44**	(xylenes)

negl = negligible
Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.
*Worst Case Emissions (tons/yr) = Worst Case Emissions from Dryer Fuel Combustion and Dryer/Mixer + Worst Case Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion
Fuel component percentages provided by the source.

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

The following calculations determine the unlimited/uncontrolled emissions created from the combustion of natural gas, fuel oil, propane, butane, or used/waste oil in the dryer/mixer at the source.

Maximum Capacity

Maximum Hourly Asphalt Production =	400	ton/hr							
Maximum Annual Asphalt Production =	3,504,000	ton/yr							
Maximum Fuel Input Rate =	97	MMBtu/hr							
Natural Gas Usage =	848	MMCF/yr							
Landfill Gas Usage =	1,681	MMCF/yr							
No. 2 Distillate Fuel Oil Usage =	6,056,914	gal/yr, and	0.50	% sulfur					
No. 4 Distillate Fuel Oil Usage =	0	gal/yr, and	0	% sulfur					
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	6,056,914	gal/yr, and	1.00	% sulfur					
Propane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur					
Butane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur					
Used/Waste Oil Usage =	6,056,914	gal/yr, and	1.00	% sulfur	1.00	% ash	0.400	% chlorine,	0.010 % lead

Unlimited/Uncontrolled Emissions

	Emission Factor (units)								Unlimited/Uncontrolled Potential to Emit (tons/yr)								
Criteria Pollutant	Natural Gas (lb/MMCF)	Landfill Gas* (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil** (lb/kgal)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Natural Gas (tons/yr)	Landfill Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	/Residual (No. 4, No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	46.2	2.0	7.0	12.41	0.5	0.6	64.0	0.81	38.83	6.06	0	37.58	0	0	193.82	**193.82**
PM10/PM2.5	7.6	46.2	3.3	8.3	13.91	0.5	0.6	51	3.22	38.83	9.99	0	42.13	0	0	154.45	**154.45**
SO2	0.6	6.2	71.0	0	157.0	0	0	147.0	0.25	5.21	215.02	0	475.47	0	0	445.18	**475.47**
NOx	100	70.6	20.0	20.0	55.0	13.0	15.0	19.0	42.40	59.33	60.57	0	166.57	0	0	57.54	**166.57**
VOC	5.5	0.8	0.20	0.20	0.28	1.00	1.10	1.0	2.33	0.67	0.61	0	0.85	0	0	3.03	**3.03**
CO	84	17.7	5.0	5.0	5.0	7.5	8.4	5.0	35.61	14.88	15.14	0	15.14	0	0	15.14	**35.61**
Hazardous Air Pollutant																	
HCl		10.1						26.4		8.49						79.95	**79.95**
Antimony		+++		5.25E-03	5.25E-03			negl		+++		0	1.59E-02			negl	**0.02**
Arsenic	2.0E-04	+++	5.6E-04	1.32E-03	1.32E-03			1.1E-01	8.5E-05	+++	1.70E-03	0	4.00E-03			3.33E-01	**0.333**
Beryllium	1.2E-05	+++	4.2E-04	2.78E-05	2.78E-05			negl	5.1E-06	+++	1.27E-03	0	8.42E-05			negl	**1.3E-03**
Cadmium	1.1E-03	+++	4.2E-04	3.98E-04	3.98E-04			9.3E-03	4.7E-04	+++	1.27E-03	0	1.21E-03			2.82E-02	**0.03**
Chromium	1.4E-03	+++	4.2E-04	8.45E-04	8.45E-04			2.0E-02	5.9E-04	+++	1.27E-03	0	2.56E-03			6.06E-02	**0.06**
Cobalt	8.4E-05	+++		6.02E-03	6.02E-03			2.1E-04	3.6E-05	+++		0	1.82E-02			6.36E-04	**0.02**
Lead	5.0E-04	+++	1.3E-03	1.51E-03	1.51E-03			0.55	2.1E-04	+++	3.82E-03	0	4.57E-03			1.7E+00	**1.67**
Manganese	3.8E-04	+++	8.4E-04	3.00E-03	3.00E-03			6.8E-02	1.6E-04	+++	2.54E-03	0	9.09E-03			2.06E-01	**0.21**
Mercury	2.6E-04	+++	4.2E-04	1.13E-04	1.13E-04				1.1E-04	+++	1.27E-03	0	3.42E-04				**1.3E-03**
Nickel	2.1E-03	+++	4.2E-04	8.45E-02	8.45E-02			1.1E-02	8.9E-04	+++	1.27E-03	0	2.56E-01			3.33E-02	**0.26**
Selenium	2.4E-05	+++	2.1E-03	6.83E-04	6.83E-04			negl	1.0E-05	+++	6.36E-03	0	2.07E-03			negl	**6.4E-03**
1.1.1-Trichloroethane		+++		2.36E-04	2.36E-04					+++		0	7.15E-04				**7.1E-04**
1,3-Butadiene		+++								+++							**0**
Acetaldehyde		+++								+++							**0**
Acrolein		+++								+++							**0**
Benzene	2.1E-03	+++		2.14E-04	2.14E-04				8.9E-04	+++		0	6.48E-04				**8.9E-04**
Bis(2-ethylhexyl)phthalate		+++						2.2E-03		+++						6.66E-03	**6.7E-03**
Dichlorobenzene	1.2E-03	+++						8.0E-07	5.1E-04	+++						2.42E-06	**5.1E-04**
Ethylbenzene		+++		6.36E-05	6.36E-05					+++		0	1.93E-04				**1.9E-04**
Formaldehyde	7.5E-02	+++	6.10E-02	3.30E-02	3.30E-02				3.2E-02	+++	1.85E-01	0	9.99E-02				**0.18**
Hexane	1.8E+00	+++							0.76	+++							**0.76**
Phenol		+++						2.4E-03		+++						7.27E-03	**7.3E-03**
Toluene	3.4E-03	+++		6.20E-03	6.20E-03				1.4E-03	+++		0	1.88E-02				**0.02**
Total PAH Haps	negl	+++		1.13E-03	1.13E-03			3.9E-02	negl	+++		0	3.42E-03			1.18E-01	**0.12**
Polycyclic Organic Matter		+++	3.30E-03							+++	9.99E-03						**0.01**
Xylene		+++		1.09E-04	1.09E-04					+++		0	3.30E-04				**3.3E-04**
Total HAPs*		14.1							**0.80**	**11.85**	**0.22**	**0**	**0.44**	**0**	**0**	**82.41**	**83.66**

Methodology

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

Natural Gas :	AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2, No.4, No. 5, and No.6 Fuel Oil:	AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
Propane and Butane:	AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)
Waste Oil:	AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5

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

* Emission Factors for Landfill Gas supplied by EMCON (Andover, MA). To form a conservative estimate, the emissions in this spreadsheet reflects total landfill gas combustion; however, this fuel, when used, must be co-fired with natural gas, and the maximum landfill gas to natural gas ratio is 90% landfill gas/10% natural gas.

+++ HAP Emission factors originally taken from Permit No. F003-14035-03112, issued February 8, 2002.

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

The following calculations determine the unlimited/uncontrolled emissions created from the combustion of natural gas, fuel oil, propane, butane, or used/waste oil in the dryer/mixer at the source.

Maximum Capacity

Maximum Hourly Asphalt Production =	400	ton/hr								
Maximum Annual Asphalt Production =	3,504,000	ton/yr								
Maximum Fuel Input Rate =	97	MMBtu/hr								
Natural Gas Usage =	848	MMCF/yr								
Landfill Gas Usage =	1,681	MMCF/yr								
No. 2 Distillate Fuel Oil Usage =	6,056,914	gal/yr, and	0.50	% sulfur						
No. 4 Distillate Fuel Oil Usage =	0	gal/yr, and	0	% sulfur						
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	6,056,914	gal/yr, and	1.00	% sulfur						
Propane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Butane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	6,056,914	gal/yr, and	1.00	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead

Unlimited/Uncontrolled Emissions

	Emission Factor (units)							
CO2e Fraction	Natural Gas (lb/MMCF)	Landfill Gas (Biogas) (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (lb/kgal)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/Waste Oil (lb/kgal)
CO2	120,161.84	96,542.23	22,501.41	24,153.46	24,835.04	12,500.00	14,506.73	22,024.15
CH4	2.49	5.93	0.91	0.97	1.00	0.60	0.67	0.89
N2O	2.2	1.17	0.26	0.19	0.53	0.9	0.9	0.18

Greenhouse Warming Potentials (GWP)		
Name	Chemical Formula	Global warming potential
Carbon dioxide	CO_2	1
Methane	CH_4	21
Nitrous oxide	N_2O	310

	Unlimited/Uncontrolled Potential to Emit (tons/yr)							
CO2e Fraction	Natural Gas (tons/yr)	Landfill Gas (Biogas) (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)
CO2	50,946.70	81,134.51	68,144.56	0.00	75,211.87	0	0	66,699.21
CH4	1.06	4.99	2.76	0.00	3.03	0	0	2.70
N2O	0.93	0.98	0.79	0.00	1.61	0	0	0.55
Total	50,948.69	81,140.48	68,148.11	0.00	75,216.50	0	0	66,702.46
CO2e Equivalent Emissions (tons/yr)	51,258.06	409.02	68,446.71	0.00	75,773.04	0	0	66,924.98

CO2e for Worst Case Fuel* (tons/yr)
75,773.04

Methodology
Fuel Usage from TSD Appendix A.1, page 1 of 14.
Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Fuel Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Propane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.0915 MMBtu]
Butane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.102 MMBtu]
Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

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

No. 2 Distillate Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

No.4 Distillate Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

Refinery Blend/Residual (No.4, No. 5, or No. 6) Fuel Oil: Emission Factor for CO2 from 40 CFR Part 98 Subpart C, Table C-1, has been converted from kg/mmBtu to lb/kgal. Emission Factors for CH4 and N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

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

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

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

Emission Factor (EF) Conversions

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

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

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

Landfill Gas: Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CH4 of "worst case" fuel (ton/yr) x CH4 GWP (21) + Unlimited Potential to Emit N2O of "worst case" fuel (ton/yr) x N2O GWP (310).
This source has the potential to emit 81,134.51 tons of biogenic CO2 per year. On July 20, 2011 U.S. EPA issued a deferral of Biogenic CO2 emissions from PSD and Title V. Therefore, these CO2 emissions were not included in the listed GHG emissions.

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

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

Appendix A.1: Unlimited Emissions Calculations
Drum-Mix Plant (Dryer/Mixer) Process Emissions

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Maximum Hourly Asphalt Production =	400	ton/hr
Maximum Annual Asphalt Production =	3,504,000	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	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	**Worse Case PTE**
PM*	28	28	28	49,056.00	49,056.00	49,056.00	**49,056.00**
PM10*	6.5	6.5	6.5	11,388.00	11,388.00	11,388.00	**11,388.00**
PM2.5*	1.5	1.5	1.5	2,628.00	2,628.00	2,628.00	**2,628.00**
SO2**	0.0034	0.011	0.058	5.96	19.27	101.62	**101.62**
NOx**	0.026	0.055	0.055	45.55	96.36	96.36	**96.36**
VOC**	0.032	0.032	0.032	56.06	56.06	56.06	**56.06**
CO***	0.13	0.13	0.13	227.76	227.76	227.76	**227.76**
Hazardous Air Pollutant							
HCl			2.10E-04			3.68E-01	**0.37**
Antimony	1.80E-07	1.80E-07	1.80E-07	3.15E-04	3.15E-04	3.15E-04	**3.15E-04**
Arsenic	5.60E-07	5.60E-07	5.60E-07	9.81E-04	9.81E-04	9.81E-04	**9.81E-04**
Beryllium	negl	negl	negl	negl	negl	negl	**0**
Cadmium	4.10E-07	4.10E-07	4.10E-07	7.18E-04	7.18E-04	7.18E-04	**7.18E-04**
Chromium	5.50E-06	5.50E-06	5.50E-06	9.64E-03	9.64E-03	9.64E-03	**9.64E-03**
Cobalt	2.60E-08	2.60E-08	2.60E-08	4.56E-05	4.56E-05	4.56E-05	**4.56E-05**
Lead	6.20E-07	1.50E-05	1.50E-05	1.09E-03	2.63E-02	2.63E-02	**0.03**
Manganese	7.70E-06	7.70E-06	7.70E-06	1.35E-02	1.35E-02	1.35E-02	**0.01**
Mercury	2.40E-07	2.60E-06	2.60E-06	4.20E-04	4.56E-03	4.56E-03	**4.56E-03**
Nickel	6.30E-05	6.30E-05	6.30E-05	0.11	0.11	0.11	**0.11**
Selenium	3.50E-07	3.50E-07	3.50E-07	6.13E-04	6.13E-04	6.13E-04	**6.13E-04**
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	0.07	0.07	0.07	**0.07**
Acetaldehyde			1.30E-03			2.28	**2.28**
Acrolein			2.60E-05			4.56E-02	**0.05**
Benzene	3.90E-04	3.90E-04	3.90E-04	0.68	0.68	0.68	**0.68**
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.42	0.42	0.42	**0.42**
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	5.43	5.43	5.43	**5.43**
Hexane	9.20E-04	9.20E-04	9.20E-04	1.61	1.61	1.61	**1.61**
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.08	0.08	0.08	**0.08**
MEK			2.00E-05			0.04	**0.04**
Propionaldehyde			1.30E-04			0.23	**0.23**
Quinone			1.60E-04			0.28	**0.28**
Toluene	1.50E-04	2.90E-03	2.90E-03	0.26	5.08	5.08	**5.08**
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.33	1.54	1.54	**1.54**
Xylene	2.00E-04	2.00E-04	2.00E-04	0.35	0.35	0.35	**0.35**
						Total HAPs	**18.68**
						Worst Single HAP	**5.43** **(formaldehyde)**

Methodology
Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-3, 11.1-4, 11.1-7, 11.1-8, 11.1-10, and 11.1-12
Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

* PM, PM10, and PM2.5 AP-42 emission factors based on drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. According to AP-42 fuel type does not significantly effect PM, PM10, and PM2.5 emissions.

** SO2, NOx, and VOC AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.

*** CO AP-42 emission factor determined by combining data from drum mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Maximum Hourly Asphalt Production = 400 ton/hr
Maximum Annual Asphalt Production = 3,504,000 ton/yr

Criteria Pollutant	Emission Factor (lb/ton) Drum-Mix Plant (dryer/mixer)			Greenhouse Gas Global Warming Potentials (GWP)	Unlimited/Uncontrolled Potential to Emit (tons/yr) Drum-Mix Plant (dryer/mixer)			**CO2e for Worst Case Fuel (tons/yr)**
	Natural Gas	No. 2 Fuel Oil	Waste Oil		Natural Gas	No. 2 Fuel Oil	Waste Oil	
CO2	33	33	33	1	57,816.00	57,816.00	57,816.00	**58,257.50**
CH4	0.0120	0.0120	0.0120	21	21.02	21.02	21.02	
N2O				310	0	0	0	
				Total	57,837.02	57,837.02	57,837.02	
				CO2e Equivalent Emissions (tons/yr)	58,257.50	58,257.50	58,257.50	

Methodology
Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-7 and 11.1-8
There are no emission factors for N20 available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N2O emission anticipated from this process.

Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CO2 of "worst case" fuel (ton/yr) x CO2 GWP (1) + Unlimited Potential to Emit CH4 of "worst case" fuel (ton/yr) x CH4 GWP (21) + Unlimited Potential to Emit N2O of "worst case" fuel (ton/yr) x N2O GWP (310).

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

The following calculations determine the unlimited/uncontrolled emissions created from the combustion of natural gas, fuel oil, propane, butane, or used/waste oil in the dryer/mixer at the source.

Maximum Capacity

Maximum Hourly Asphalt Production =	220	ton/hr							
Maximum Annual Asphalt Production =	1,927,200	ton/yr							
Maximum Fuel Input Rate =	84	MMBtu/hr							
Natural Gas Usage =	736	MMCF/yr							
No. 2 Distillate Fuel Oil Usage =	5,256,000	gal/yr, and	0.50	% sulfur					
No. 4 Distillate Fuel Oil Usage =	0	gal/yr, and	0	% sulfur					
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	0	gal/yr, and	0	% sulfur					
Propane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur					
Butane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur					
Used/Waste Oil Usage =	0	gal/yr, and	0	% sulfur	0	% ash	0	% chlorine,	0 % 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)	No. 4 Fuel Oil* (lb/kgal)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	7.0	3.22	0.5	0.6	0	0.70	5.26	0	0	0	0	0	**5.26**
PM10/PM2.5	7.6	3.3	8.3	4.72	0.5	0.6	0	2.80	8.67	0	0	0	0	0	**8.67**
SO2	0.6	71.0	0	0	0	0	0	0.22	186.59	0	0	0	0	0	**186.59**
NOx	100	20.0	20.0	55.0	13.0	15.0	19.0	36.79	52.56	0	0	0	0	0	**52.56**
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	2.02	0.53	0	0	0	0	0	**2.02**
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	30.90528	13.14	0	0	0	0	0	**30.91**
Hazardous Air Pollutant															
HCl							0.0							0	**0**
Antimony			5.25E-03	5.25E-03			negl			0	0			0	**0**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	7.4E-05	1.47E-03	0	0			0	**1.5E-03**
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	4.4E-06	1.10E-03	0	0			0	**1.1E-03**
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	4.0E-04	1.10E-03	0	0			0	**1.1E-03**
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	5.2E-04	1.10E-03	0	0			0	**1.1E-03**
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04	3.1E-05		0	0			0	**3.1E-05**
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0	1.8E-04	3.31E-03	0	0			0	**3.3E-03**
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	1.4E-04	2.21E-03	0	0			0	**2.2E-03**
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				9.6E-05	1.10E-03	0	0				**1.1E-03**
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	7.7E-04	1.10E-03	0	0			0	**1.1E-03**
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl	8.8E-06	5.52E-03	0	0			0	**5.5E-03**
1.1.1-Trichloroethane			2.36E-04	2.36E-04						0	0				**0**
1,3-Butadiene															**0**
Acetaldehyde															**0**
Acrolein															**0**
Benzene	2.1E-03		2.14E-04	2.14E-04				7.7E-04		0	0				**7.7E-04**
Bis(2-ethylhexyl)phthalate							2.2E-03							0	**0**
Dichlorobenzene	1.2E-03						8.0E-07	4.4E-04						0	**4.4E-04**
Ethylbenzene			6.36E-05	6.36E-05						0	0				**0**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				2.8E-02	1.60E-01	0	0				**0.160**
Hexane	1.8E+00							0.66							**0.662**
Phenol							2.4E-03							0	**0**
Toluene	3.4E-03		6.20E-03	6.20E-03				1.3E-03		0	0				**1.3E-03**
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		0	0			0	**0**
Polycyclic Organic Matter		3.30E-03							8.67E-03						**0.009**
Xylene			1.09E-04	1.09E-04						0	0				**0**
							Total HAPs	**0.69**	**0.19**	**0**	**0**	**0**	**0**	**0**	**0.85**

Methodology

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

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2, No.4, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
Propane and Butane: AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)
Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5

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

Abbreviations

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

The following calculations determine the unlimited/uncontrolled emissions created from the combustion of natural gas, fuel oil, propane, butane, or used/waste oil in the dryer/mixer at the source.

Maximum Capacity

Maximum Hourly Asphalt Production =	220	ton/hr								
Maximum Annual Asphalt Production =	1,927,200	ton/yr								
Maximum Fuel Input Rate =	84	MMBtu/hr								
Natural Gas Usage =	736	MMCF/yr								
No. 2 Distillate Fuel Oil Usage =	5,256,000	gal/yr, and	0.50	% sulfur						
No. 4 Distillate Fuel Oil Usage =	0	gal/yr, and	0	% sulfur						
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	0	gal/yr, and	0	% sulfur						
Propane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Butane Usage =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	0	gal/yr, and	0	% sulfur	0	% ash	0	% chlorine,	0	% lead

Unlimited/Uncontrolled Emissions

	Emission Factor (units)						
CO2e Fraction	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (lb/kgal)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/Waste Oil (lb/kgal)
CO2	120,161.84	22,501.41	24,153.46	24,835.04	12,500.00	14,506.73	22,024.15
CH4	2.49	0.91	0.97	1.00	0.60	0.67	0.89
N2O	2.2	0.26	0.19	0.53	0.9	0.9	0.18

Greenhouse Warming Potentials (GWP)		
Name	Chemical Formula	Global warming potential
Carbon dioxide	CO_2	1
Methane	CH_4	21
Nitrous oxide	N_2O	310

	Unlimited/Uncontrolled Potential to Emit (tons/yr)						
CO2e Fraction	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	/Residual (No. 4, No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)
CO2	44,209.95	59,133.71	0	0	0	0	0
CH4	0.92	2.40	0	0	0	0	0
N2O	0.81	0.68	0	0	0	0	0
Total	44,211.67	59,136.79	0	0	0	0	0
CO2e Equivalent Emissions (tons/yr)	44,480.13	59,395.90	0	0	0	0	0

CO2e for Worst Case Fuel* (tons/yr)
59,395.90

No. 2 Fuel Oil

Methodology
Fuel Usage from TSD Appendix A.1, page 1 of 14.
Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Fuel Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Propane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.0915 MMBtu]
Butane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.102 MMBtu]
Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

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

No. 2 Distillate Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

No.4 Distillate Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

efinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil: Emission Factor for CO2 from 40 CFR Part 98 Subpart C, Table C-1, has been converted from kg/mmBtu to lb/kgal. Emission Factors for CH4 and N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

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

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

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

Emission Factor (EF) Conversions

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

Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]
Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CO2 of "worst case" fuel (ton/yr) x CO2 GWP (1) + Unlimited Potential to Emit CH4 of "worst case" fuel (ton/yr) x CH4 GWP (21) + Unlimited Potential to Emit N2O of "worst case" fuel (ton/yr) x N2O GWP (310).

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

Appendix A.1: Unlimited Emissions Calculations
Batch Dryer/Mixer and Batch Tower

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

The following calculations determine the unlimited/uncontrolled emissions from the aggregate drying/mixing and the batch tower.

Maximum Hourly Asphalt Production =	220	ton/hr
Maximum Annual Asphalt Production =	1,927,200	ton/yr

	Uncontrolled Emission Factors (lb/ton)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			
	Batch-Mix Plant (dryer, hot screens, and mixer)			Batch-Mix Plant (dryer, hot screens, and mixer)			
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	**Worse Case PTE**
PM*	32	32	32	30,835.20	30,835.20	0	**30,835.20**
PM10*	4.5	4.5	4.5	4,336.20	4,336.20	0	**4,336.20**
PM2.5*	0.27	0.27	0.27	260.17	260.17	0	**260.17**
SO2**	0.0046	0.088	0.088	4.43	84.80	0	**84.80**
NOx**	0.025	0.12	0.12	24.09	115.63	0	**115.63**
VOC**	0.0082	0.0082	0.036	7.90	7.90	0	**7.90**
CO***	0.4	0.4	0.4	385.44	385.44	0	**385.44**
Hazardous Air Pollutant							
Arsenic	4.60E-07	4.60E-07	4.60E-07	4.43E-04	4.43E-04	0	**4.43E-04**
Beryllium	1.50E-07	1.50E-07	1.50E-07	1.45E-04	1.45E-04	0	**1.45E-04**
Cadmium	6.10E-07	6.10E-07	6.10E-07	5.88E-04	5.88E-04	0	**5.88E-04**
Chromium	5.70E-07	5.70E-07	5.70E-07	5.49E-04	5.49E-04	0	**5.49E-04**
Lead	8.90E-07	8.90E-07	1.00E-05	8.58E-04	8.58E-04	0	**8.58E-04**
Manganese	6.90E-06	6.90E-06	6.90E-06	6.65E-03	6.65E-03	0	**6.65E-03**
Mercury	4.10E-07	4.10E-07	4.10E-07	3.95E-04	3.95E-04	0	**3.95E-04**
Nickel	3.00E-06	3.00E-06	3.00E-06	2.89E-03	2.89E-03	0	**2.89E-03**
Selenium	4.90E-07	4.90E-07	4.90E-07	4.72E-04	4.72E-04	0	**4.72E-04**
Acetaldehyde	3.20E-04	3.20E-04	3.20E-04	0.31		0	**0.31**
Benzene	2.80E-04	2.80E-04	2.80E-04	0.27	0.27	0	**0.27**
Ethylbenzene	2.20E-03	2.20E-03	2.20E-03	2.12	2.12	0	**2.12**
Formaldehyde	7.40E-04	7.40E-04	7.40E-04	0.71	0.71	0	**0.71**
Quinone	2.70E-04	2.70E-04	2.70E-04	0.26		0	**0.26**
Toluene	1.00E-03	1.00E-03	1.00E-03	0.96	0.96	0	**0.96**
Total PAH Haps	1.10E-04	1.10E-04	2.30E-04	0.11	0.11	0	**0.11**
Xylene	2.70E-03	2.70E-03	2.70E-03	2.60	2.60	0	**2.60**
						Total HAPs	**7.36**
						Worst Single HAP	**2.60** **(xylene)**

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 11.1-1, 11.1-2, 11.1-5, 11.1-6, 11.1-19, and 11.1-11
Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

* PM, PM10, and PM2.5 AP-42 emission factors based on drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. According to AP-42 fuel type does not significantly effect PM, PM10, and PM2.5 emissions.

** SO2, NOx, and VOC AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.

*** CO AP-42 emission factor determined by combining data from drum mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Maximum Hourly Asphalt Production =	220	ton/hr
Maximum Annual Asphalt Production =	1,927,200	ton/yr

Criteria Pollutant	Emission Factor (lb/ton) Batch-Mix Plant (dryer/mixer)			Greenhouse Gas Global Warming Potentials (GWP)	Unlimited/Uncontrolled Potential to Emit (tons/yr) Batch-Mix Plant (dryer/mixer)			**CO2e for Worst Case Fuel (tons/yr)**
	Natural Gas	No. 2 Fuel Oil	Waste Oil		Natural Gas	No. 2 Fuel Oil	Waste Oil	
CO2	37	37	37	1	35,653.20	35,653.20	0	**35,802.94**
CH4	0.0074	0.0074	0.0074	21	7.13	7.13	0	
N2O				310	0	0	0	
				Total	35,660.33	35,660.33	0	
				CO2e Equivalent Emissions (tons/yr)	35,802.94	35,802.94	0	

Methodology
Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-7 and 11.1-8
There are no emission factors for N20 available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N2O emission anticipated from this process.

Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CO2 of "worst case" fuel (ton/yr) x CO2 GWP (1) + Unlimited Potential to Emit CH4 of "worst case" fuel (ton/yr) x CH4 GWP (21) + Unlimited Potential to Emit N2O of "worst case" fuel (ton/yr) x N2O GWP (310).

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

Appendix A.1: Unlimited Emissions Calculations
Combined Drum-Mix and Batch-mix (Dryer/Mixer) Slag Processing

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Maximum Annual Blast Furnace Slag Usage* =	0	ton/yr	0	% sulfur
Maximum Annual Steel Slag Usage* =	5,431,200	ton/yr	0.66	% sulfur

Type of Slag	SO2 Emission Factor (lb/ton)**	Unlimited Potential to Emit SO2 (tons/yr)
Blast Furnace Slag	0	0
Steel Slag	0.0014	3.80

Methodology
* The maximum annual slag usage was provided by the source.

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

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

Appendix A.1: Unlimited Emissions Calculations
Fuel Combustion with Maximum Capacity < 100 MMBtu/hr
from Three (3) Direct-fired Hot Oil Heaters

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

Maximum Hot Oil Heater Fuel Input Rate =	4.80	MMBtu/hr	*(2 @ 1.4 MMBtu/hr and 1 @ 2.0 MMBtu/hr)*	
Natural Gas Usage =	42	MMCF/yr		
No. 2 Fuel Oil Usage =	300,343	gal/yr, and	0.50	% sulfur

Unlimited/Uncontrolled Emissions

	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		
	Hot Oil Heater		Hot Oil Heater		
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	0.04	0.30	**0.30**
PM10/PM2.5	7.6	3.3	0.16	0.50	**0.50**
SO2	0.6	71.0	0.01	10.66	**10.66**
NOx	100	20.0	2.10	3.00	**3.00**
VOC	5.5	0.20	0.12	0.03	**0.12**
CO	84	5.0	1.77	0.75	**1.77**
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	4.2E-06	8.41E-05	**8.4E-05**
Beryllium	1.2E-05	4.2E-04	2.5E-07	6.31E-05	**6.3E-05**
Cadmium	1.1E-03	4.2E-04	2.3E-05	6.31E-05	**6.3E-05**
Chromium	1.4E-03	4.2E-04	2.9E-05	6.31E-05	**6.3E-05**
Cobalt	8.4E-05		1.8E-06		**1.8E-06**
Lead	5.0E-04	1.3E-03	1.1E-05	1.89E-04	**1.9E-04**
Manganese	3.8E-04	8.4E-04	8.0E-06	1.26E-04	**1.3E-04**
Mercury	2.6E-04	4.2E-04	5.5E-06	6.31E-05	**6.3E-05**
Nickel	2.1E-03	4.2E-04	4.4E-05	6.31E-05	**6.3E-05**
Selenium	2.4E-05	2.1E-03	5.0E-07	3.15E-04	**3.2E-04**
Benzene	2.1E-03		4.4E-05		**4.4E-05**
Dichlorobenzene	1.2E-03		2.5E-05		**2.5E-05**
Ethylbenzene					**0**
Formaldehyde	7.5E-02	6.10E-02	1.6E-03	9.16E-03	**9.2E-03**
Hexane	1.8E+00		0.04		**0.038**
Phenol					**0**
Toluene	3.4E-03		7.1E-05		**7.1E-05**
Total PAH Haps	negl		negl		**0**
Polycyclic Organic Matter		3.30E-03		4.96E-04	**5.0E-04**
		Total HAPs =	**4.0E-02**	**1.1E-02**	**0.049**

Methodology
Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]
Sources of AP-42 Emission Factors for fuel combustion:
Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 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

Abbreviations

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

Appendix A.1: Unlimited Emissions Calculations
Greenhouse Gas (CO2e) Emissions from
Hot Oil Heater Fuel Combustion with Maximum Capacity < 100 MMBtu/hr

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

Maximum Hot Oil Heater Fuel Input Rate =	4.80	MMBtu/hr	*(2 @ 1.4 MMBtu/hr and 1 @ 2.0 MMBtu/hr)*	
Natural Gas Usage =	42	MMCF/yr		
No. 2 Fuel Oil Usage =	300,343	gal/yr,	0.50	% sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units) Natural Gas (lb/MMCF)	Emission Factor (units) No. 2 Fuel Oil (lb/kgal)	Greenhouse Global Warming Potentials (GWP)	Unlimited/Uncontrolled Potential to Emit (tons/yr) Natural Gas (tons/yr)	Unlimited/Uncontrolled Potential to Emit (tons/yr) No. 2 Fuel Oil (tons/yr)
CO2	120,161.84	22,501.41	1	2,526.28	3,379.07
CH4	2.49	0.91	21	0.05	0.14
N2O	2.2	0.26	310	0.05	0.04
				2,526.38	3,379.25
CO2e Equivalent Emissions (tons/yr)				2,541.72	3,394.05

Worse Case CO2e Emissions (tons/yr)
3,394.05

No. 2 Fuel oil

Methodology

Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

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

No. 2 Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

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

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

Emission Factor (EF) Conversions

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

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

Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] *
Unlimited Potential to Emit CO2e (tons/yr) = Unlimited Potential to Emit CO2 of "worst case" fuel (ton/yr) x CO2 GWP (1) + Unlimited Potential to Emit CH4 of "worst case" fuel (ton/yr) x CH4 GWP (21) + Unlimited Potential to Emit N2O of "worst case" fuel (ton/yr) x N2O

Abbreviations

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

Appendix A.1: Unlimited Emissions Calculations
Asphalt Load-Out, Silo Filling, and Yard Emissions
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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 Entire Source Asphalt Production =	5,431,200	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	1.42	1.59	NA	**3.01**
Organic PM	3.4E-04	2.5E-04	NA	0.93	0.689	NA	**1.62**
TOC	0.004	0.012	0.001	11.29	33.09	2.987	**47.38**
CO	0.001	0.001	3.5E-04	3.66	3.204	0.956	**7.82**

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

PM/HAPs	**0.066**	**0.078**	**0**	**0.144**
VOC/HAPs	**0.167**	**0.421**	**0.044**	**0.632**
non-VOC/HAPs	**8.7E-04**	**8.9E-05**	**2.3E-04**	**1.2E-03**
non-VOC/non-HAPs	**0.82**	**0.47**	**0.22**	**1.50**

Total VOCs	**10.62**	**33.09**	**2.81**	**46.52**
Total HAPs	**0.23**	**0.50**	**0.044**	**0.78**
			Worst Single HAP	**0.241 (formaldehyde)**

Methodology
The asphalt temperature and volatility factor were provided by the source.
Maximum Annual Entire Source Asphalt Production (tons/yr) = [Maximum Annual Drum-mix Asphalt Production (tons/yr) = Maximum Annual Batch-mix Asphalt Production (tons/yr)]
Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16
Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::
Total PM/PM10/PM2.5 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)
Silo Filling Emission Factor Equations (AP-42 Table 11.1-14):
PM/PM10 Ef = 0.000332 + 0.00105(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00105(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0504(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00488(-V)e^((0.0251)(T+460)-20.43)
On Site Yard CO emissions estimated by multiplying the TOC emissions by 0.32
*No emission factors available for PM10 or PM2.5, therefore IDEM assumes PM10 and PM2.5 are equivalent to Total PM.

Abbreviations
TOC = Total Organic Compounds
CO = Carbon Monoxide
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound

Appendix A.1: Unlimited Emissions Calculations
Asphalt Load-Out, Silo Filling, and Yard Emissions (continued)
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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%	2.4E-03	3.2E-03	NA	5.6E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	2.6E-04	9.7E-05	NA	3.6E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	6.5E-04	9.0E-04	NA	1.5E-03
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	1.8E-04	3.9E-04	NA	5.6E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	7.0E-05	0	NA	7.0E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	2.0E-05	0	NA	2.0E-05
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	1.8E-05	0	NA	1.8E-05
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	2.1E-05	0	NA	2.1E-05
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	7.2E-05	6.5E-05	NA	1.4E-04
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	9.5E-04	1.4E-03	NA	2.4E-03
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	3.4E-06	0	NA	3.4E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	4.6E-04		NA	4.6E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	7.1E-03	7.0E-03	NA	1.4E-02
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	4.4E-06	0	NA	4.4E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	2.2E-02	3.6E-02	NA	0.058
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	1.2E-02	1.3E-02	NA	2.4E-02
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	2.0E-04	2.1E-04	NA	4.1E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	7.5E-03	1.2E-02	NA	2.0E-02
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	1.4E-03	3.0E-03	NA	4.4E-03
Total PAH HAPs							**0.055**	**0.078**	**NA**	**0.133**
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	1.1E-02	0	0	1.1E-02

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: Unlimited Emissions Calculations
Asphalt 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%	**10.62**	**33.09**	**2.81**	**46.52**
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	7.3E-01	8.6E-02	1.9E-01	1.014
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	5.2E-03	1.8E-02	1.4E-03	0.025
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	8.0E-02	3.6E-01	2.1E-02	0.465
Total non-VOC/non-HAPS					7.30%	1.40%	**0.824**	**0.463**	**0.218**	**1.51**
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	5.9E-03	1.1E-02	1.6E-03	1.8E-02
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	1.1E-03	1.6E-03	2.9E-04	3.0E-03
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	5.5E-03	1.3E-02	1.5E-03	2.0E-02
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	1.5E-03	5.3E-03	3.9E-04	7.2E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	2.4E-05	1.3E-03	6.3E-06	1.4E-03
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	1.7E-03	7.6E-03	4.5E-04	9.8E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	1.2E-02	0	3.3E-03	1.6E-02
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	3.2E-02	1.3E-02	8.4E-03	0.053
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	9.9E-03	2.3E-01	2.6E-03	0.241
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	1.7E-02	3.3E-02	4.5E-03	0.055
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	2.0E-04	1.0E-04	5.4E-05	3.6E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	8.9E-05	0	8.9E-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%	8.2E-04	1.8E-03	2.2E-04	2.8E-03
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	8.7E-04	0	2.3E-04	1.1E-03
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	2.4E-02	2.1E-02	6.3E-03	0.051
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	1.5E-04	0	3.9E-05	1.9E-04
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	4.6E-02	6.6E-02	1.2E-02	0.125
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	9.0E-03	1.9E-02	2.4E-03	3.0E-02
Total volatile organic HAPs					1.50%	1.30%	**0.169**	**0.430**	**0.045**	**0.644**

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: Unlimited Emissions Calculations
Fugitive Emissions from the Material Storage Piles
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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/PM2.5 (tons/yr)
Sand	2.6	3.01	1.03	0.567	0.199
Limestone	1.6	1.85	1.26	0.427	0.149
RAP	0.5	0.58	1.53	0.162	0.057
Gravel	1.6	1.85	0	0	0
Steel Slag #11	3.8	4.40	0.14	0.116	0.040
Steel Slag Sand	3.8	4.40	0.33	0.262	0.092
Shingles	3.8	4.40	0.06	0.051	0.018
			Totals	**1.59**	**0.55**

Methodology
PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) * (Maximum Pile Size (acres)) * (ton/2000 lbs) * (8760 hours/yr)
PTE of PM10/PM2.5 (tons/yr) = (Potential PM Emissions (tons/yr)) * 35%
*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)
**Maximum anticipated pile size (acres) provided by the source.
RAP - recycled asphalt pavement
Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PM2.5 = PM10
PTE = Potential to Emit

Appendix A.1: Unlimited Emissions Calculations
Material Processing, Handling, Crushing, Screening, and Conveying
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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 Entire Source Asphalt Production =	5,431,200	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	5,159,640	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	5.85	2.77	0.42
Front-end loader dumping of materials into feeder bins	5.85	2.77	0.42
Conveyor dropping material into dryer/mixer or batch tower	5.85	2.77	0.42
Total (tons/yr)	**17.55**	**8.30**	**1.26**

Methodology
Maximum Annual Entire Source Asphalt Production (tons/yr) = [Maximum Annual Drum-mix Asphalt Production (tons/yr) = Maximum Annual Batch-mix Asphalt Production (tons/yr)]
The percent asphalt cement/binder provided by the source.
Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Unlimited Potential to Emit (tons/yr) = (Maximum Material Handling Throughput (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Raw materials may include limestone, sand, recycled asphalt pavement (RAP), gravel, slag, and other additivies
*Worst case annual mean wind speed (Indianapolis, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2006

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

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10/PM2.5 (tons/yr)**
Crushing	0.0054	0.0024	0	0
Screening	0.025	0.0087	64.50	22.44
Conveying	0.003	0.0011	7.74	2.84
Unlimited Potential to Emit (tons/yr) =			**72.23**	**25.28**

Methodology
Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Unlimited Potential to Emit (tons/yr) = [Maximum Material Handling Throughput (tons/yr)] * [Emission Factor (lb/ton)] * [ton/2000 lbs]
Raw materials may include stone/gravel, slag, and recycled asphalt pavement (RAP)
Emission Factors from AP-42 Chapter 11.19.2 (dated 8/04), Table 11.19.2-2
*Uncontrolled emissions factors for PM/PM10 represent tertiary crushing of stone with moisture content ranging from 0.21 to 1.3 percent by weight (Table 11.19.2-2). The bulk moisture content of aggregate in the storage piles at a hot mix asphalt production plant typically stabilizes between 3 to 5 percent by weight (Source: AP-42 Section 11.1.1.1).
**Assumes PM10 = PM2.5

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

Appendix A.1: Unlimited Emissions Calculations
Fugitive Emissions from Unpaved Roads
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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 =	5,431,200	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	5,159,640	tons/yr
Maximum Asphalt Cement/Binder Throughput =	271,560	tons/yr
Maximum No. 2 Fuel Oil Usage =	11,312,914	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	2.3E+05	9.1E+06	300	0.057	13,087.6
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	2.3E+05	3.9E+06	300	0.057	13,087.6
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	7.5E+03	3.6E+05	150	0.028	214.3
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	7.5E+03	9.1E+04	150	0.028	214.3
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	1.2E+03	5.3E+04	150	0.028	33.9
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.2E+03	1.4E+04	150	0.028	33.9
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	1.2E+06	2.4E+07	20	0.004	4,653.4
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	1.2E+06	1.8E+07	20	0.004	4,653.4
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	2.3E+05	9.3E+06	125	0.024	5,357.5
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	2.3E+05	3.8E+06	100	0.019	4,286.0
	Total				**3.4E+06**	**6.9E+07**			**4.6E+04**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.013	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 Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, 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 =	6.09	1.55	0.16	lb/mile
Mitigated Emission Factor, Eext =	4.01	1.02	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	39.88	10.16	1.02	26.22	6.68	0.67	13.11	3.34	0.33
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	39.88	10.16	1.02	26.22	6.68	0.67	13.11	3.34	0.33
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.653	0.166	0.02	0.429	0.109	0.01	0.215	0.055	0.01
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.653	0.166	0.02	0.429	0.109	0.01	0.215	0.055	0.01
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.103	0.026	0.00	0.068	0.017	0.00	0.034	0.009	0.00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.103	0.026	0.00	0.068	0.017	0.00	0.034	0.009	0.00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	14.18	3.61	0.36	9.32	2.38	0.24	4.66	1.19	0.12
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	14.18	3.61	0.36	9.32	2.38	0.24	4.66	1.19	0.12
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	16.33	4.16	0.42	10.74	2.74	0.27	5.37	1.37	0.14
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	13.06	3.33	0.33	8.59	2.19	0.22	4.29	1.09	0.11
	Totals	**139.03**	**35.43**	**3.54**	**91.42**	**23.30**	**2.33**	**45.71**	**11.65**	**1.16**

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)
PM2.5 = PM10

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

Appendix A.1: Unlimited Emissions Calculations
Fugitive Emissions from Paved Roads
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Maximum Annual Asphalt Production =	5,431,200	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	5,159,640	tons/yr
Maximum Asphalt Cement/Binder Throughput =	271,560	tons/yr
Maximum No. 2 Fuel Oil Usage =	11,312,914	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.40	2.3E+05	9.1E+06	0	0	0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	2.3E+05	3.9E+06	0	0	0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	7.5E+03	3.6E+05	0	0	0
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	7.5E+03	9.1E+04	0	0	0
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	1.2E+03	5.3E+04	0	0	0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.2E+03	1.4E+04	0	0	0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	1.2E+06	2.4E+07	0	0	0
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	1.2E+06	1.8E+07	0	0	0
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	2.3E+05	9.3E+06	0	0	0
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	2.3E+05	3.8E+06	0	0	0
	Total				**3.4E+06**	**6.9E+07**			**0**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0	miles/trip

Unmitigated Emission Factor, Ef = [k * (sL)^0.91 * (W)^1.02] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
sL =	0.6	0.6	0.6	g/m^2 = Ubitiguous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)]
Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]

where p =	125	days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N =	365	days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.15	0.03	0.01	lb/mile
Mitigated Emission Factor, Eext =	0.14	0.03	0.01	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	0	0	0	0	0	0	0	0	0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0	0	0	0	0	0	0	0	0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0	0	0	0	0	0	0	0	0
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0	0	0	0	0	0	0	0	0
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0	0	0	0	0	0	0	0	0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0	0	0	0	0	0	0	0	0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	0	0	0	0	0	0	0	0	0
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	0	0	0	0	0	0	0	0	0
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0	0	0	0	0	0	0	0	0
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0	0	0	0	0	0	0	0	0
	Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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)
PM2.5 = PM10
PTE = Potential to Emit

Appendix A.1: Unlimited Emissions Calculations
Cold Mix Asphalt Production and Stockpiles
From the Drum-mix Plant

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

The following calculations determine the amount of VOC and HAP emissions created from volatilization of solvent used as diluent in the liquid binder for cold mix asphalt production

Maximum Annual Asphalt Production =	3,504,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Asphalt Cement/Binder Throughput =	175,200	tons/yr

Volatile Organic Compounds

	Maximum weight % of VOC solvent in binder*	Weight % VOC solvent in binder that evaporates	Maximum VOC Solvent Usage (tons/yr)	PTE of VOC (tons/yr)
Cut back asphalt rapid cure (assuming gasoline or naphtha solvent)	25.3%	95.0%	44,325.6	42,109.3
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	50,107.2	35,075.0
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	35,040.0	8,760.0
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	26,280.0	12,193.9
Other asphalt with solvent binder	25.9%	2.5%	45,376.8	1,134.4
			Worst Case PTE of VOC =	**42,109.3**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
PTE of Total HAPs (tons/yr) =	**10,983.67**	
PTE of Single HAP (tons/yr) =	**3,789.84**	**Xylenes**

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

		Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Solvents				
Volatile Organic HAP	CAS#	Gasoline	Kerosene	Diesel (#2) Fuel Oil	No. 2 Fuel Oil	No. 6 Fuel Oil
1,3-Butadiene	106-99-0	3.70E-5%				
2,2,4-Trimethylpentane	540-84-1	2.40%				
Acenaphthene	83-32-9		4.70E-5%		1.80E-4%	
Acenaphthylene	208-96-8		4.50E-5%		6.00E-5%	
Anthracene	120-12-7		1.20E-6%	5.80E-5%	2.80E-5%	5.00E-5%
Benzene	71-43-2	1.90%		2.90E-4%		
Benzo(a)anthracene	56-55-3			9.60E-7%	4.50E-7%	5.50E-4%
Benzo(a)pyrene	50-32-8			2.20E-6%	2.10E-7%	4.40E-5%
Benzo(g,h,i)perylene	191-24-2			1.20E-7%	5.70E-8%	
Biphenyl	92-52-4			6.30E-4%	7.20E-5%	
Chrysene	218-01-9			4.50E-7%	1.40E-6%	6.90E-4%
Ethylbenzene	100-41-4	1.70%		0.07%	3.40E-4%	
Fluoranthene	206-44-0		7.10E-6%	5.90E-5%	1.40E-5%	2.40E-4%
Fluorene	86-73-7		4.20E-5%	8.60E-4%	1.90E-4%	
Indeno(1,2,3-cd)pyrene	193-39-5			1.60E-7%		1.00E-4%
Methyl-tert-butylether	1634-04-4	0.33%				
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%	4.20E-5%
n-Hexane	110-54-3	2.40%				
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%	2.10E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-5%	2.30E-5%
Toluene	108-88-3	8.10%		0.18%	6.20E-4%	
Total Xylenes	1330-20-7	9.00%		0.50%	0.23%	
Total Organic HAPs		**26.08%**	**0.33%**	**1.29%**	**0.68%**	**0.19%**
Worst Single HAP		**9.00% Xylenes**	**0.31% Naphthalene**	**0.50% Xylenes**	**0.23% Xylenes**	**0.07% Chrysene**

Methodology
Maximum Asphalt Cement/Binder Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [Percent Asphalt Cement/Binder (weight %)]
Maximum VOC Solvent Usage (tons/yr) = [Maximum Asphalt Cement/Binder Throughput (tons/yr)] * [Maximum Weight % of VOC Solvent in Binder]
PTE of VOC (tons/yr) = [Weight % VOC solvent in binder that evaporates] * [Maximum VOC Solvent Usage (tons/yr)]
PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. 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: Unlimited Emissions Calculations
Gasoline Fuel Transfer and Dispensing Operation
from the Entire Source

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling emission factors from AP-42 Table 5.2-7 were used. The total potential emission of VOC is as follows:

Gasoline Throughput =	0	gallons/day
=	0	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
Tank breathing and emptying	1.0	0
Vehicle refueling (displaced losses - controlled)	1.1	0
Spillage	0.7	0
Total		**0**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**0**	
Limited PTE of Single HAP (tons/yr) =	**0**	**Xylenes**

Methodology
The gasoline throughput was provided by the source.
Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]
PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]
PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. 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.2: Limited Emissions Calculations
Entire Source Summary - Drum-Mix & Batch-Mix Asphalt Plants (combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

Drum-Mix Asphalt Plant Limitations

Maximum Hourly Asphalt Production =	450	ton/hr		
Annual Asphalt Production Limitation =	1,000,000	ton/yr		
Blast Furnace Slag Usage Limitation =	0	ton/yr	0	% sulfur
Steel Slag Usage Limitation =	1,000,000		0.66	% sulfur
Natural Gas Limitation =	848	MMCF/yr		
Landfill Gas Limitation =	1,681	MMCF/yr		
No. 2 Distillate Fuel Oil Limitation =	1,232,875	gal/yr, and	0.50	% sulfur
No. 4 Distillate Fuel Oil Limitation =	0	gal/yr, and	0	% sulfur
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Limitation =	557,542	gal/yr, and	1.00	% sulfur
Propane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur
Butane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur
Used/Waste Oil Limitation =	595,470	gal/yr, and	1.00	% sulfur
			1.00	% ash
			0.40	% chlorine,
			0.010	% lead

PM Dryer/Mixer Limitation =	0.272	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.128	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.142	lb/ton of asphalt production
SO2 Dryer/Mixer Limitation =	0.058	lb/ton of asphalt production
NOx Dryer/Mixer Limitation =	0.055	lb/ton of asphalt production
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production
Blast Furnace Slag SO2 Dryer/Mixer Limitation =	0	lb/ton of slag processed
Steel Slag SO2 Dryer/Mixer Limitation =	0.0014	lb/ton of slag processed
Cold Mix Asphalt VOC Usage Limitation =	46.49	tons/yr
HCl Limitation =	26.40	lb/kgal

Batch-Mix Asphalt Plant Limitations

Maximum Hourly Asphalt Production =	220	ton/hr		
Annual Asphalt Production Limitation =	143,975	ton/yr		
Blast Furnace Slag Usage Limitation =	0	ton/yr	0	% sulfur
Steel Slag Usage Limitation =	143,975		0.66	% sulfur
Natural Gas Limitation =	736	MMCF/yr		
No. 2 Distillate Fuel Oil Limitation =	1,232,875	gal/yr, and	0.50	% sulfur
No. 4 Distillate Fuel Oil Limitation =	0	gal/yr, and	0	% sulfur
Residual (No. 4, No. 5 or No. 6) Fuel Oil Limitation =	0	gal/yr, and	0	% sulfur
Propane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur
Butane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur
Used/Waste Oil Limitation =	0	gal/yr, and	0	% sulfur
			0	% ash
			0	% chlorine,
			0	% lead

PM Dryer/Mixer Limitation =	0.893	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.268	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.278	lb/ton of asphalt production
NOx Dryer/Mixer Limitation =	0.120	lb/ton of asphalt production
VOC Dryer/Mixer Limitation =	0.0082	lb/ton of asphalt production
CO Dryer/Mixer Limitation =	0.40	lb/ton of asphalt production
Blast Furnace Slag SO2 Dryer/Mixer Limitation =	0	lb/ton of slag processed
Steel Slag SO2 Dryer/Mixer Limitation =	0.0014	lb/ton of slag processed

Limited/Controlled Emissions

	Limited/Controlled Potential Emissions (tons/year)										
	Criteria Pollutants							Greenhouse Gas Pollutants	Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**CO_2e**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions											
Drum-mix Plant											
Dryer Fuel Combustion (worst case)	38.83	38.83	38.83	43.77	59.34	2.33	35.61	51,258.06	11.85	8.49	(hydrogen chloride)
Dryer/Mixer (Process)	136.00	64.00	71.00	29.00	27.50	16.00	65.00	16,626.00	5.33	1.55	(formaldehyde)
Batch-mix Plant											
Dryer Fuel Combustion (worst case)	1.23	2.80	2.80	43.77	36.79	2.02	30.91	44,480.13	0.71	0.66	(hexane)
Dryer/Mixer (Process)	64.28	19.29	20.03	6.33	8.64	0.59	28.80	2,674.72	0.56	0.19	(xylenes)
Dryer/Mixer Slag Processing	0	0	0	0.80	0	0	0	0	0	0	
Hot Oil Heater Fuel Combustion (worst case)	0.30	0.50	0.50	10.66	3.00	0.12	1.77	3,394.05	0.05	0.038	(hexane)
Worst Case Emissions*	**200.58**	**83.78**	**91.52**	**99.00**	**99.13**	**18.14**	**97.67**	**99,132.24**	**12.61**	**8.49**	(hydrogen chloride)
Fugitive Emissions (Drum & Batch combined)											
Asphalt Load-Out, Silo Filling, On-Site Yard	0.63	0.63	0.63	0	0	9.80	1.65	0	0.16	0.05	(formaldehyde)
Material Storage Piles	1.59	0.55	0.55	0	0	0	0	0	0	0	
Material Processing and Handling	3.70	1.75	0.26	0	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	15.21	5.33	5.33	0	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	27.29	6.96	0.70	0	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	46.49	0	0	12.13	4.18	(xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0	0	0	0	0	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	0	negl	negl	
Total Fugitive Emissions	**48.42**	**15.22**	**7.47**	**0**	**0**	**56.29**	**1.65**	**0**	**12.29**	**4.18**	(xylenes)
Totals Limited/Controlled Emissions	**249.00**	**99.00**	**99.00**	**99.00**	**99.13**	**74.43**	**99.32**	**99,132.24**	**24.90**	**8.49**	(xylenes)

negl = negligible
Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.
*Worst Case Emissions (tons/yr) = Worst Case Emissions from Drum Dryer Fuel Combustion and Drum Dryer/Mixer (process) + Worst Case Emissions from Batch Dryer Fuel Combustion and Batch Dryer/Mixer and Batch Tower (Process) + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion
Fuel component percentages provided by the source.

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Production and Fuel Limitations

Maximum Hourly Asphalt Production =	450	ton/hr							
Annual Asphalt Production Limitation =	1,000,000	ton/yr							
Natural Gas Limitation =	848	MMCF/yr							
Landfill Gas Limitation =	1,681	MMCF/yr							
No. 2 Fuel Oil Limitation =	1,232,875	gal/yr, and	0.50	% sulfur					
No. 4 Fuel Oil Limitation =	0	gal/yr, and	0	% sulfur					
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	557,542	gal/yr, and	1.00	% sulfur					
Propane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur					
Butane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur					
Used/Waste Oil Limitation =	595,470	gal/yr, and	1.00	% sulfur	1.00	% ash	0.40	% chlorine,	0.010 % lead

Limited Emissions

	Emission Factor (units)								Limited Potential to Emit (tons/yr)								
Criteria Pollutant	Natural Gas (lb/MMCF)	Landfill Gas* (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil** (lb/kgal)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Natural Gas (tons/yr)	Landfill Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	46.2	2.0	7.0	12.41	0.5	0.6	64.0	0.81	38.83	1.23	0	3.46	0	0	19.06	**38.83**
PM10	7.6	46.2	3.3	8.3	13.91	0.5	0.6	51	3.22	38.83	2.03	0	3.88	0	0	15.18	**38.83**
SO2	0.6	6.2	71.0	0	157.0	0	0	147.0	0.25	5.21	43.77	0	43.77	0	0	43.77	**43.77**
NOx	100	70.6	20.0	20.0	55.0	13.0	15.0	19.0	42.40	59.34	12.33	0	15.33	0	0	5.66	**59.34**
VOC	5.5	0.8	0.20	0.20	0.28	1.0	1.10	1.0	2.33	0.67	0.12	0	0.08	0	0	0.30	**2.33**
CO	84	17.7	5.0	5.0	5.0	7.5	8.4	5.0	35.61	14.88	3.08	0	1.39	0	0	1.49	**35.61**
Hazardous Air Pollutant																	
HCl		10.1						26.4		8.49						7.86	**8.49**
Antimony		+++		5.25E-03	5.25E-03			negl		+++		0	1.46E-03			negl	**1.5E-03**
Arsenic	2.0E-04	+++	5.6E-04	1.32E-03	1.32E-03			1.1E-01	8.5E-05	+++	3.45E-04	0	3.68E-04			3.28E-02	**0.03**
Beryllium	1.2E-05	+++	4.2E-04	2.78E-05	2.78E-05			negl	5.1E-06	+++	2.59E-04	0	7.75E-06			negl	**2.6E-04**
Cadmium	1.1E-03	+++	4.2E-04	3.98E-04	3.98E-04			9.3E-03	4.7E-04	+++	2.59E-04	0	1.11E-04			2.77E-03	**2.8E-03**
Chromium	1.4E-03	+++	4.2E-04	8.45E-04	8.45E-04			2.0E-02	5.9E-04	+++	2.59E-04	0	2.36E-04			5.95E-03	**6.0E-03**
Cobalt	8.4E-05	+++		6.02E-03	6.02E-03			2.1E-04	3.6E-05	+++		0	1.68E-03			6.25E-05	**1.7E-03**
Lead	5.0E-04	+++	1.3E-03	1.51E-03	1.51E-03			0.55	2.1E-04	+++	7.77E-04	0	4.21E-04			1.6E-01	**0.16**
Manganese	3.8E-04	+++	8.4E-04	3.00E-03	3.00E-03			6.8E-02	1.6E-04	+++	5.18E-04	0	8.36E-04			2.02E-02	**0.02**
Mercury	2.6E-04	+++	4.2E-04	1.13E-04	1.13E-04				1.1E-04	+++	2.59E-04	0	3.15E-05				**2.6E-04**
Nickel	2.1E-03	+++	4.2E-04	8.45E-02	8.45E-02			1.1E-02	8.9E-04	+++	2.59E-04	0	2.36E-02			3.28E-03	**0.02**
Selenium	2.4E-05	+++	2.1E-03	6.83E-04	6.83E-04			negl	1.0E-05	+++	1.29E-03	0	1.90E-04			negl	**1.3E-03**
1.1.1-Trichloroethane		+++		2.36E-04	2.36E-04					+++		0	6.58E-05				**6.6E-05**
1,3-Butadiene		+++								+++							**0**
Acetaldehyde		+++								+++							**0**
Acrolein		+++								+++							**0**
Benzene	2.1E-03	+++		2.14E-04	2.14E-04				8.9E-04	+++		0	5.97E-05				**8.9E-04**
Bis(2-ethylhexyl)phthalate		+++						2.2E-03		+++						6.55E-04	**6.6E-04**
Dichlorobenzene	1.2E-03	+++						8.0E-07	5.1E-04	+++						2.38E-07	**5.1E-04**
Ethylbenzene		+++		6.36E-05	6.36E-05					+++		0	1.77E-05				**1.8E-05**
Formaldehyde	7.5E-02	+++	6.10E-02	3.30E-02	3.30E-02				3.2E-02	+++	3.76E-02	0	9.20E-03				**0.04**
Hexane	1.8E+00	+++							0.76	+++							**0.76**
Phenol		+++						2.4E-03		+++						7.15E-04	**7.1E-04**
Toluene	3.4E-03	+++		6.20E-03	6.20E-03				1.4E-03	+++		0	1.73E-03				**1.7E-03**
Total PAH Haps	negl	+++		1.13E-03	1.13E-03			3.9E-02	negl	+++		0	3.15E-04			1.16E-02	**0.01**
Polycyclic Organic Matter		+++	3.30E-03							+++	2.03E-03						**2.0E-03**
Xylene		+++		1.09E-04	1.09E-04					+++		0	3.04E-05				**3.0E-05**
Total HAPs*		14.1						**Total HAPs**	**0.80**	**11.85**	**0.04**	**0**	**0.04**	**0**	**0**	**8.10**	**11.85**

Methodology

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

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2, No.4, No.5, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
Propane and Butane: AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)
Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5

Abbreviations

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

* Emission Factors for Landfill Gas supplied by EMCON (Andover, MA). To form a conservative estimate, the emissions in this spreadsheet reflects total landfill gas combustion; however, this fuel, when used, must be co-fired with natural gas, and the maximum landfill gas to natural gas ratio is 90% landfill gas/10% natural gas.

+++ HAP Emission factors originally taken from F003-14035-03112, issued February 8, 2002.

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Production and Fuel Limitations

Maximum Hourly Asphalt Production =	450	ton/hr								
Annual Asphalt Production Limitation =	1,000,000	ton/yr								
Natural Gas Limitation =	848	MMCF/yr								
Landfill Gas Limitation =	1,681	MMCF/yr								
No. 2 Fuel Oil Limitation =	1,232,875	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	0	gal/yr, and	0	% sulfur						
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	557,542	gal/yr, and	1.00	% sulfur						
Propane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Butane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	595,470	gal/yr, and	1.00	% sulfur	1.00	% ash	0.40	% chlorine,	0.010	% lead

Limited Emissions

	Emission Factor (units)								Greenhouse Warming Potentials (GWP)		
CO2e Fraction	Natural Gas (lb/MMCF)	Landfill Gas (Biogas) (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (lb/kgal)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/Waste Oil (lb/kgal)	Name	Chemical Formula	Global warming potential
CO2	120,161.84	96,542.23	22,501.41	24,153.46	24,835.04	12,500.00	14,506.73	22,024.15	Carbon dioxide	CO_2	1
CH4	2.49	5.93	0.91	0.97	1.00	0.60	0.67	0.89	Methane	CH_4	21
N2O	2.20	1.17	0.26	0.19	0.53	0.90	0.90	0.18	Nitrous oxide	N_2O	310

	Limited Potential to Emit (tons/yr)							
CO2e Fraction	Natural Gas (tons/yr)	Landfill Gas (Biogas) (lb/MMCF)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/Waste Oil (tons/yr)
CO2	50,946.70	81,143.74	13,870.71	0.00	6,923.29	0	0	6,557.36
CH4	1.06	4.99	0.56	0.00	0.28	0	0	0.27
N2O	0.93	0.98	0.16	0.00	0.15	0	0	0.05
Total	50,948.69	81,149.71	13,871.43	0.00	6,923.72	0	0	6,557.68
CO2e Equivalent Emissions (tons/yr)	51,258.06	409.07	13,932.21	0.00	6,974.95	0	0	6,579.56

CO2e for Worst Case Fuel* (tons/yr)
51,258.06

Methodology
Fuel Limitations from TSD Appendix A.2, page 1 of 15.
Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

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

Landfill Gas (Biogas): Emission Factors for GHGs are from 40 CFR 98, Subpart C, Tables C-1 and C-2 for biogas. All have been converted from kg/mmBtu to lb/MMCF.

No. 2 DistillateFuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

No.4 Distillate Fuel Oil: Emission Factors for CO2, CH4, and N2O from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal.

Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

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

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

Emission Factor (EF) Conversions

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

Natural Gas & Landfill Gas: Limited Potential to Emit (tons/yr) = (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)
Landfill Gas: Limited CO2e Emissions (tons/yr) = CH4 Potential Emission of "worst case" fuel (ton/yr) x CH4 GWP (21) + N2O Potential Emission of "worst case" fuel (ton/yr) x N2O GWP (310).
This source has a limited potential to emit 81,134.51 tons of biogenic CO2 per year. On July 20, 2011 U.S. EPA issued a deferral of Biogenic CO2 emissions from PSD and Title V. Therefore, these CO2 emissions were not included in the listed GHG emissions.
All other Fuels: Limited CO2e Emissions (tons/yr) = CO2 Potential Emission of "worst case" fuel (ton/yr) x CO2 GWP (1) + CH4 Potential Emission of "worst case" fuel (ton/yr) x CH4 GWP (21) + N2O Potential Emission of "worst case" fuel (ton/yr) x N2O GWP (310).

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

Appendix A.2: Limited Emissions Calculations
Drum-Mix Plant (Dryer/Mixer) Process Emissions

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Maximum Hourly Asphalt Production =	450	ton/hr
Annual Asphalt Production Limitation =	1,000,000	ton/yr
PM Dryer/Mixer Limitation =	0.272	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.128	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) Drum-Mix Plant (dryer/mixer, controlled by fabric filter)			Limited/Controlled Potential to Emit (tons/yr) Drum-Mix Plant (dryer/mixer, controlled by fabric filter)			
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	**Worse Case PTE**
PM*	0.272	0.272	0.272	136.00	136.00	136.00	**136.00**
PM10*	0.128	0.128	0.128	64.00	64.00	64.00	**64.00**
PM2.5*	0.142	0.142	0.142	71.00	71.00	71.00	**71.00**
SO2**	0.003	0.011	0.058	1.70	5.50	29.00	**29.00**
NOx**	0.026	0.055	0.055	13.00	27.50	27.50	**27.50**
VOC**	0.032	0.032	0.032	16.00	16.00	16.00	**16.00**
CO***	0.130	0.130	0.130	65.00	65.00	65.00	**65.00**
Hazardous Air Pollutant							
HCl			2.10E-04			0.11	**0.11**
Antimony	1.80E-07	1.80E-07	1.80E-07	9.00E-05	9.00E-05	9.00E-05	**9.00E-05**
Arsenic	5.60E-07	5.60E-07	5.60E-07	2.80E-04	2.80E-04	2.80E-04	**2.80E-04**
Beryllium	negl	negl	negl	negl	negl	negl	**0**
Cadmium	4.10E-07	4.10E-07	4.10E-07	2.05E-04	2.05E-04	2.05E-04	**2.05E-04**
Chromium	5.50E-06	5.50E-06	5.50E-06	2.75E-03	2.75E-03	2.75E-03	**2.75E-03**
Cobalt	2.60E-08	2.60E-08	2.60E-08	1.30E-05	1.30E-05	1.30E-05	**1.30E-05**
Lead	6.20E-07	1.50E-05	1.50E-05	3.10E-04	7.50E-03	7.50E-03	**7.50E-03**
Manganese	7.70E-06	7.70E-06	7.70E-06	3.85E-03	3.85E-03	3.85E-03	**3.85E-03**
Mercury	2.40E-07	2.60E-06	2.60E-06	1.20E-04	1.30E-03	1.30E-03	**1.30E-03**
Nickel	6.30E-05	6.30E-05	6.30E-05	3.15E-02	3.15E-02	3.15E-02	**0.03**
Selenium	3.50E-07	3.50E-07	3.50E-07	1.75E-04	1.75E-04	1.75E-04	**1.75E-04**
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	2.00E-02	2.00E-02	2.00E-02	**0.02**
Acetaldehyde			1.30E-03			0.65	**0.65**
Acrolein			2.60E-05			1.30E-02	**0.01**
Benzene	3.90E-04	3.90E-04	3.90E-04	0.20	0.20	0.20	**0.20**
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.12	0.12	0.12	**0.12**
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	1.55	1.55	1.55	**1.55**
Hexane	9.20E-04	9.20E-04	9.20E-04	0.46	0.46	0.46	**0.46**
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.02	0.02	0.02	**0.02**
MEK			2.00E-05			0.01	**0.01**
Propionaldehyde			1.30E-04			0.07	**0.07**
Quinone			1.60E-04			0.08	**0.08**
Toluene	1.50E-04	2.90E-03	2.90E-03	0.08	1.45	1.45	**1.45**
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.10	0.44	0.44	**0.44**
Xylene	2.00E-04	2.00E-04	2.00E-04	0.10	0.10	0.10	**0.10**
						Total HAPs	**5.33**
						Worst Single HAP	**1.55 (formaldehyde)**

Methodology

Limited/Controlled Potential to Emit (tons/yr) = (Annual Asphalt Production Limitation (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-3, 11-1.4, 11.1-7, 11.1-8, 11.1-10, and 11.1-12
Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

* PM, PM10, and PM2.5 AP-42 emission factors based on drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. According to AP-42 fuel type does not significantly effect PM, PM10, and PM2.5 emissions.

** SO2, NOx, and VOC AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.
*** CO AP-42 emission factor determined by combining data from drum mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

Abbreviations

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Maximum Hourly Asphalt Production =	450	ton/hr
Annual Asphalt Production Limitation =	1,000,000	ton/yr

Criteria Pollutant	Emission Factor (lb/ton) Drum-Mix Plant (dryer/mixer)			Greenhouse Gas Global Warming Potentials (GWP)	Limited Potential to Emit (tons/yr) Drum-Mix Plant (dryer/mixer)			**CO2e for Worst Case Fuel (tons/yr)**
	Natural Gas	No. 2 Fuel Oil	Waste Oil		Natural Gas	No. 2 Fuel Oil	Waste Oil	
CO2	33	33	33	1	16,500.00	16,500.00	16,500.00	**16,626.00**
CH4	0.0120	0.0120	0.0120	21	6.00	6.00	6.00	
N2O				310	0	0	0	
				Total	16,506.00	16,506.00	16,506.00	
				CO2e Equivalent Emissions (tons/yr)	16,626.00	16,626.00	16,626.00	

Methodology

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

There are no emission factors for N20 available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N2O emission anticipated from this process.

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

Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

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

Abbreviations

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Production and Fuel Limitations

Maximum Hourly Asphalt Production =	220	ton/hr								
Annual Asphalt Production Limitation =	143,975	ton/yr								
Natural Gas Limitation =	736	MMCF/yr								
No. 2 Fuel Oil Limitation =	1,232,875	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	0	gal/yr, and	0	% sulfur						
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	0	gal/yr, and	0	% sulfur						
Propane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Butane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	0	gal/yr, and	0	% sulfur	0	% ash	0	% chlorine,	0	% lead

Limited Emissions

	Emission Factor (units)							Limited Potential to Emit (tons/yr)							
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil* (lb/kgal)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	**Worst Case Fuel (tons/yr)**
PM	1.9	2.0	7.0	3.22	0.5	0.6	0	0.70	1.23	0	0	0	0	0	**1.23**
PM10	7.6	3.3	8.3	4.72	0.5	0.6	0	2.80	2.03	0	0	0	0	0	**2.80**
SO2	0.6	71.0	0	0	0	0	0	0.22	43.77	0	0	0	0	0	**43.77**
NOx	100	20.0	20.0	55.0	13.0	15.0	19.0	36.79	12.33	0	0	0	0	0	**36.79**
VOC	5.5	0.20	0.20	0.28	1.0	1.10	1.0	2.02	0.12	0	0	0	0	0	**2.02**
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	30.91	3.08	0	0	0	0	0	**30.91**
Hazardous Air Pollutant															
HCl							0.0							0	**0**
Antimony			5.25E-03	5.25E-03			negl			0	0			negl	**0**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	7.4E-05	3.45E-04	0	0			0	**3.5E-04**
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	4.4E-06	2.59E-04	0	0			negl	**2.6E-04**
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	4.0E-04	2.59E-04	0	0			0	**4.0E-04**
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	5.2E-04	2.59E-04	0	0			0	**5.2E-04**
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04	3.1E-05		0	0			0	**3.1E-05**
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0	1.8E-04	7.77E-04	0	0			0	**7.77E-04**
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	1.4E-04	5.18E-04	0	0			0	**5.18E-04**
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				9.6E-05	2.59E-04	0	0				**2.6E-04**
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	7.7E-04	2.59E-04	0	0			0	**7.73E-04**
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl	8.8E-06	1.29E-03	0	0			negl	**1.3E-03**
1.1.1-Trichloroethane			2.36E-04	2.36E-04						0	0				**0**
1,3-Butadiene															**0**
Acetaldehyde															**0**
Acrolein															**0**
Benzene	2.1E-03		2.14E-04	2.14E-04				7.7E-04		0	0				**7.7E-04**
Bis(2-ethylhexyl)phthalate							2.2E-03							0	**0**
Dichlorobenzene	1.2E-03						8.0E-07	4.4E-04						0	**4.4E-04**
Ethylbenzene			6.36E-05	6.36E-05						0	0				**0**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				2.8E-02	3.76E-02	0	0				**0.038**
Hexane	1.8E+00							0.66							**0.662**
Phenol							2.4E-03							0	**0**
Toluene	3.4E-03		6.20E-03	6.20E-03				1.3E-03		0	0				**1.3E-03**
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		0	0			0	**0**
Polycyclic Organic Matter		3.30E-03							2.03E-03						**2.0E-03**
Xylene			1.09E-04	1.09E-04						0	0				**0**
							Total HAPs	**0.69**	**0.04**	**0**	**0**	**0**	**0**	**0**	**0.71**

Methodology

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

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2, No.4, No.5, and No.6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
Propane and Butane: AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)
Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5

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

Abbreviations

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Production and Fuel Limitations

Maximum Hourly Asphalt Production =	220	ton/hr								
Annual Asphalt Production Limitation =	143,975	ton/yr								
Natural Gas Limitation =	736	MMCF/yr								
No. 2 Fuel Oil Limitation =	1,232,875	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	0	gal/yr, and	0	% sulfur						
Refinery Blend/Residual (No. 4, No. 5, or No. 6) Fuel Oil Usage =	0	gal/yr, and	0	% sulfur						
Propane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Butane Limitation =	0	gal/yr, and	0	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	0	gal/yr, and	0	% sulfur	0	% ash	0	% chlorine,	0	% lead

Limited Emissions

	Emission Factor (units)							Greenhouse Warming Potentials (GWP)		
CO2e Fraction	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil (lb/kgal)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/Waste Oil (lb/kgal)	Name	Chemical Formula	Global warming potential
CO2	120,161.84	22,501.41	24,153.46	24,835.04	12,500.00	14,506.73	22,024.15	Carbon dioxide	CO_2	1
CH4	2.49	0.91	0.97	1.00	0.60	0.67	0.89	Methane	CH_4	21
N2O	2.20	0.26	0.19	0.53	0.90	0.90	0.18	Nitrous oxide	N_2O	310

	Limited Potential to Emit (tons/yr)						
CO2e Fraction	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Refinery Blend /Residual (No. 4, No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/Waste Oil (tons/yr)
CO2	44,209.95	13,870.71	0.00	0.00	0.00	0.00	0.00
CH4	0.92	0.56	0.00	0.00	0.00	0.00	0.00
N2O	0.81	0.16	0.00	0.00	0.00	0.00	0.00
Total	44,211.67	13,871.43	0.00	0.00	0.00	0.00	0.00
CO2e Equivalent Emissions (tons/yr)	44,480.13	13,932.21	0.00	0.00	0.00	0.00	0.00

CO2e for Worst Case Fuel* (tons/yr)
44,480.13

Methodology
Fuel Limitations from TSD Appendix A.2, page 1 of 15.
Greenhouse Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

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

No. 2 DistillateFuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

No.4 Distillate Fuel Oil: Emission Factors for CO2, CH4, and N2O from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal.

Refinery Blend/Residual (No. 4, No. 5 or No. 6) Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

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

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

Emission Factor (EF) Conversions

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

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

Natural Gas: Limited Potential to Emit (tons/yr) = (Natural Gas Limitation (MMCF/yr)) * (Emission Factor (lb/MMCF)) * (ton/2000 lbs)
All Other Fuels: Limited Potential to Emit (tons/yr) = (Fuel Limitation (gals/yr)) * (Emission Factor (lb/kgal)) * (kgal/1000 gal) * (ton/2000 lbs)
Limited CO2e Emissions (tons/yr) = CO2 Potential Emission of "worst case" fuel (ton/yr) x CO2 GWP (1) + CH4 Potential Emission of "worst case" fuel (ton/yr) x CH4 GWP (21) + N2O Potential Emission of "worst case" fuel (ton/yr) x N2O GWP (310).

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

Appendix A.2: Limited Emissions Summary
Batch Dryer/Mixer and Batch Tower

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

The following calculations determine the limited emissions from the aggregate drying/mixing and the batch tower.

Maximum Hourly Asphalt Production =	220	ton/hr
Annual Asphalt Production Limitation =	143,975	ton/yr
PM Dryer/Mixer Limitation =	0.893	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.268	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.278	lb/ton of asphalt production
NOx Dryer/Mixer Limitation =	0.120	lb/ton of asphalt production
VOC Dryer/Mixer Limitation =	0.0082	lb/ton of asphalt production
CO Dryer/Mixer Limitation =	0.40	lb/ton of asphalt production

	Emission Factor or Limitation (lb/ton) Batch-Mix Plant (dryer, hot screens, and mixer)			Limited/Controlled Potential to Emit (tons/yr) Batch-Mix Plant (dryer, hot screens, and mixer)			
Criteria Pollutant	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	**Worst Case PTE**
PM	0.893	0.893	0.893	64.28	64.28	64.28	**64.28**
PM10	0.268	0.268	0.268	19.29	19.29	19.29	**19.29**
PM2.5	0.278	0.278	0.278	20.03	20.03	20.03	**20.03**
SO2*	0.0046	0.088	0.088	0.33	6.33	6.33	**6.33**
NOx*	0.025	0.12	0.12	1.80	8.64	8.64	**8.64**
VOC	0.0082	0.0082	0.0082	0.59	0.59	0.59	**0.59**
CO**	0.40	0.40	0.40	28.80	28.80	28.80	**28.80**
Hazardous Air Pollutant							
Arsenic	4.60E-07	4.60E-07	4.60E-07	3.31E-05	3.31E-05	3.31E-05	**3.31E-05**
Beryllium	1.50E-07	1.50E-07	1.50E-07	1.08E-05	1.08E-05	1.08E-05	**1.08E-05**
Cadmium	6.10E-07	6.10E-07	6.10E-07	4.39E-05	4.39E-05	4.39E-05	**4.39E-05**
Chromium	5.70E-07	5.70E-07	5.70E-07	4.10E-05	4.10E-05	4.10E-05	**4.10E-05**
Lead	8.90E-07	8.90E-07	1.00E-05	6.41E-05	6.41E-05	7.20E-04	**7.20E-04**
Manganese	6.90E-06	6.90E-06	6.90E-06	4.97E-04	4.97E-04	4.97E-04	**4.97E-04**
Mercury	4.10E-07	4.10E-07	4.10E-07	2.95E-05	2.95E-05	2.95E-05	**2.95E-05**
Nickel	3.00E-06	3.00E-06	3.00E-06	2.16E-04	2.16E-04	2.16E-04	**2.16E-04**
Selenium	4.90E-07	4.90E-07	4.90E-07	3.53E-05	3.53E-05	3.53E-05	**3.53E-05**
Acetaldehyde	3.20E-04	3.20E-04	3.20E-04	0.02	0.02	0.02	**0.02**
Benzene	2.80E-04	2.80E-04	2.80E-04	0.02	0.02	0.02	**0.02**
Ethylbenzene	2.20E-03	2.20E-03	2.20E-03	0.16	0.16	0.16	**0.16**
Formaldehyde	7.40E-04	7.40E-04	7.40E-04	0.05	0.05	0.05	**0.05**
Quinone	2.70E-04	2.70E-04	2.70E-04	0.02	0.02	0.02	**0.02**
Toluene	1.00E-03	1.00E-03	1.00E-03	0.07	0.07	0.07	**0.07**
Total PAH Haps	1.10E-04	1.10E-04	2.30E-04	0.01	0.01	0.02	**0.02**
Xylene	2.70E-03	2.70E-03	2.70E-03	0.19	0.19	0.19	**0.19**
						Total HAPs	**0.56**
						Worst Single HAP	**0.19** **(xylene)**

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 11.1-1, 11.1-2, 11.1-5, 11.1-6, 11.1-19, and 11.1-11

Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

* SO2 and NOx AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.

** CO AP-42 emission factor determined by combining data from batch mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

Abbreviations

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Maximum Hourly Asphalt Production =	220	ton/hr
Annual Asphalt Production Limitation =	143,975	ton/yr

Criteria Pollutant	Emission Factor (lb/ton) Batch-Mix Plant (dryer/mixer)			Greenhouse Gas Global Warming Potentials (GWP)	Limited Potential to Emit (tons/yr) Batch-Mix Plant (dryer/mixer)			**CO2e for Worst Case Fuel (tons/yr)**
	Natural Gas	No. 2 Fuel Oil	Waste Oil		Natural Gas	No. 2 Fuel Oil	Waste Oil	
CO2	37	37	37	1	2,663.54	2,663.54	2,663.54	**2,674.72**
CH4	0.0074	0.0074	0.0074	21	0.53	0.53	0.53	
N2O				310	0	0	0	
CO2e Equivalent Emissions (tons/yr)					2,664.07	2,664.07	2,664.07	

Methodology

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

There are no emission factors for N20 available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N2O emission anticipated from this process.

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

Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.
Limited CO2e Emissions (tons/yr) = CO2 Potential Emission of "worst case" fuel (ton/yr) x CO2 GWP (1) + CH4 Potential Emission of "worst case" fuel (ton/yr) x CH4 GWP (21) + N2O Potential Emission of "worst case" fuel (ton/yr) x N2O GWP (310).

Abbreviations

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Limited Blast Furnace Slag Usage =	0	ton/yr	0	% sulfur
Limited Annual Steel Slag Usage =	1,143,975	ton/yr	0.66	% sulfur

Type of Slag	SO2 Emission Factor (lb/ton)*	Limited Potential to Emit SO2 (tons/yr)
Blast Furnace Slag	0	0
Steel Slag	0.0014	0.80

Methodology

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

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

Abbreviations
SO2 = Sulfur Dioxide

Appendix A.2: Limited Emissions Calculations
Fuel Combustion with Maximum Capacity < 100 MMBtu/hr
from Three (3) Direct-fired Hot Oil Heaters

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

Maximum Hot Oil Heater Fuel Input Rate =	4.80	MMBtu/hr	*(2 @ 1.4 MMBtu/hr and 1 @ 2.0 MMBtu/hr)*	
Natural Gas Usage =	42	MMCF/yr		
No. 2 Fuel Oil Usage =	300,343	gal/yr, and	0.50	% sulfur

Unlimited/Uncontrolled Emissions

	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		
	Hot Oil Heater		Hot Oil Heater		
Criteria Pollutant	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	0.04	0.30	**0.30**
PM10/PM2.5	7.6	3.3	0.16	0.50	**0.50**
SO2	0.6	71.0	0.01	10.66	**10.66**
NOx	100	20.0	2.10	3.00	**3.00**
VOC	5.5	0.20	0.12	0.03	**0.12**
CO	84	5.0	1.77	0.75	**1.77**
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	4.2E-06	8.41E-05	**8.4E-05**
Beryllium	1.2E-05	4.2E-04	2.5E-07	6.31E-05	**6.3E-05**
Cadmium	1.1E-03	4.2E-04	2.3E-05	6.31E-05	**6.3E-05**
Chromium	1.4E-03	4.2E-04	2.9E-05	6.31E-05	**6.3E-05**
Cobalt	8.4E-05		1.8E-06		**1.8E-06**
Lead	5.0E-04	1.3E-03	1.1E-05	1.89E-04	**1.9E-04**
Manganese	3.8E-04	8.4E-04	8.0E-06	1.26E-04	**1.3E-04**
Mercury	2.6E-04	4.2E-04	5.5E-06	6.31E-05	**6.3E-05**
Nickel	2.1E-03	4.2E-04	4.4E-05	6.31E-05	**6.3E-05**
Selenium	2.4E-05	2.1E-03	5.0E-07	3.15E-04	**3.2E-04**
Benzene	2.1E-03		4.4E-05		**4.4E-05**
Dichlorobenzene	1.2E-03		2.5E-05		**2.5E-05**
Ethylbenzene					**0**
Formaldehyde	7.5E-02	6.10E-02	1.6E-03	9.16E-03	**0.009**
Hexane	1.8E+00		0.04		**0.038**
Phenol					**0**
Toluene	3.4E-03		7.1E-05		**7.1E-05**
Total PAH Haps	negl		negl		**0**
Polycyclic Organic Matter		3.30E-03		4.96E-04	**5.0E-04**
		Total HAPs =	**4.0E-02**	**1.1E-02**	**0.049**

Methodology
Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]
Sources of AP-42 Emission Factors for fuel combustion:
Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 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

Abbreviations

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

Appendix A.2: Limited Emissions Summary
Greenhouse Gas (CO2e) Emissions from
Hot Oil Heater Fuel Combustion with Maximum Capacity < 100 MMBtu/hr

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

Maximum Hot Oil Heater Fuel Input Rate =	4.80	MMBtu/hr		
Natural Gas Usage =	42	MMCF/yr		
No. 2 Fuel Oil Usage =	300,343	gal/yr,	0.50	% sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units) Natural Gas (lb/MMCF)	Emission Factor (units) No. 2 Fuel Oil (lb/kgal)	Greenhouse Gas Global Warming Potentials (GWP)	Unlimited/Uncontrolled Potential to Emit (tons/yr) Natural Gas (tons/yr)	Unlimited/Uncontrolled Potential to Emit (tons/yr) No. 2 Fuel Oil (tons/yr)
CO2	120,161.84	22,501.41	1	2,526.28	3,379.07
CH4	2.49	0.91	21	0.052	1.37E-01
N2O	2.20	0.26	310	0.046	3.90E-02
			Total	2,526.38	3,379.25
			CO2e Equivalent Emissions (tons/yr)	2,541.72	3,394.05

Worse Case CO2e Emissions (tons/yr)
3,394.05

Methodology

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

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

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

No. 2 Fuel Oil: Emission Factors for CO2 and CH4 from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N2O from AP-42 Chapter 1.3 (dated 9/98), Table 1.3-8

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

Emission Factor (EF) Conversions

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

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

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

Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]

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

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

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

Abbreviations

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

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

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Annual Asphalt Production Limitation =	1,143,975	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	0.30	0.34	NA	**0.63**
Organic PM	3.4E-04	2.5E-04	NA	0.20	0.145	NA	**0.34**
TOC	0.004	0.012	0.001	2.38	6.97	0.629	**9.98**
CO	0.001	0.001	3.5E-04	0.77	0.675	0.201	**1.65**

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

PM/HAPs	**0.014**	**0.017**	**0**	**0.030**
VOC/HAPs	**0.035**	**0.089**	**0.009**	**0.133**
non-VOC/HAPs	**1.8E-04**	**1.9E-05**	**4.8E-05**	**2.5E-04**
non-VOC/non-HAPs	**0.17**	**0.10**	**0.05**	**0.32**

Total VOCs	**2.24**	**6.97**	**0.59**	**9.80**
Total HAPs	**0.05**	**0.11**	**0.009**	**0.16**
			Worst Single HAP	**0.051 (formaldehyde)**

Methodology
The asphalt temperature and volatility factor were provided by the source.
Limited Potential to Emit (tons/yr) = (Annual Asphalt Production Limitation (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16
Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::
Total PM/PM10 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)
Silo Filling Emission Factor Equations (AP-42 Table 11.1-14):
PM/PM10 Ef = 0.000332 + 0.00105(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00105(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0504(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00488(-V)e^((0.0251)(T+460)-20.43)
On Site Yard CO emissions estimated by multiplying the TOC emissions by 0.32
*No emission factors available for PM10 or PM2.5, therefore IDEM assumes PM10 and PM2.5 are equivalent to Total PM.

Abbreviations
TOC = Total Organic Compounds
CO = Carbon Monoxide
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
HAP = Hazardous Air Pollutant
VOC = Volatile Organic Compound

Appendix A.2: Limited Emissions Calculations
Asphalt Load-Out, Silo Filling, and Yard Emissions (continued)
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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%	5.1E-04	6.8E-04	NA	1.2E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	5.5E-05	2.0E-05	NA	7.5E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	1.4E-04	1.9E-04	NA	3.3E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	3.7E-05	8.1E-05	NA	1.2E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	1.5E-05	0	NA	1.5E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	4.3E-06	0	NA	4.3E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	3.7E-06	0	NA	3.7E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	4.5E-06	0	NA	4.5E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	1.5E-05	1.4E-05	NA	2.9E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	2.0E-04	3.0E-04	NA	5.1E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	7.2E-07	0	NA	7.2E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	9.8E-05	2.2E-04	NA	3.2E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	1.5E-03	1.5E-03	NA	3.0E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	9.2E-07	0	NA	9.2E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	4.6E-03	7.7E-03	NA	0.012
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	2.4E-03	2.6E-03	NA	5.1E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	4.3E-05	4.4E-05	NA	8.6E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	1.6E-03	2.6E-03	NA	4.2E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	2.9E-04	6.4E-04	NA	9.3E-04
Total PAH HAPs							**0.012**	**0.017**	**NA**	**0.028**
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	2.3E-03	0	0	2.3E-03

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

Methodology

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

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

Abbreviations

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

Appendix A.2: Limited Emissions Calculations
Asphalt 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%	**2.24**	**6.97**	**0.59**	**9.80**
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	1.5E-01	1.8E-02	4.1E-02	0.214
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	1.1E-03	3.8E-03	2.9E-04	0.005
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	1.7E-02	7.7E-02	4.5E-03	0.098
Total non-VOC/non-HAPS					7.30%	1.40%	**0.174**	**0.098**	**0.046**	**0.32**
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	1.2E-03	2.2E-03	3.3E-04	3.8E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	2.3E-04	3.4E-04	6.0E-05	6.3E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	1.2E-03	2.7E-03	3.1E-04	4.2E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	3.1E-04	1.1E-03	8.2E-05	1.5E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	5.0E-06	2.8E-04	1.3E-06	2.9E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	3.6E-04	1.6E-03	9.4E-05	2.1E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	2.6E-03	0	6.9E-04	3.3E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	6.7E-03	2.6E-03	1.8E-03	0.011
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	2.1E-03	4.8E-02	5.5E-04	0.051
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	3.6E-03	7.0E-03	9.4E-04	0.011
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	4.3E-05	2.2E-05	1.1E-05	7.6E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	1.9E-05	0	1.9E-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%	1.7E-04	3.8E-04	4.6E-05	6.0E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	1.8E-04	0	4.8E-05	2.3E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	5.0E-03	4.3E-03	1.3E-03	0.011
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	3.1E-05	0	8.2E-06	3.9E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	9.8E-03	1.4E-02	2.6E-03	0.026
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	1.9E-03	4.0E-03	5.0E-04	6.4E-03
Total volatile organic HAPs					1.50%	1.30%	**0.036**	**0.091**	**0.009**	**0.136**

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

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

Appendix A.2: Limited Emissions Calculations
Fugitive Emissions from the Material Storage Piles
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

Note: Since the emissions from the storage piles are minimal, the limited emissions are equal to the unlimited emissions.

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

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/PM2.5 (tons/yr)
Sand	2.6	3.01	1.03	0.567	0.199
Limestone	1.6	1.85	1.26	0.427	0.149
RAP	0.5	0.58	1.53	0.162	0.057
Gravel	1.6	1.85	0	0	0
Steel Slag #11	3.8	4.40	0.14	0.116	0.040
Steel Slag Sand	3.8	4.40	0.33	0.262	0.092
Shingles	3.8	4.40	0.06	0.051	0.018
			Totals	**1.59**	**0.55**

Methodology
PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) * (Maximum Pile Size (acres)) * (ton/2000 lbs) * (8760 hours/yr)
PTE of PM10/PM2.5 (tons/yr) = (Potential PM Emissions (tons/yr)) * 35%
*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)
**Maximum anticipated pile size (acres) provided by the source.
PM2.5 = PM10

Abbreviations
PM = Particulate Matter
PM10 = Particulate Matter (<10 um)
PM2.5 = Particulate Matter (<2.5 um)
PTE = Potential to Emit
RAP = recycled asphalt pavement

Appendix A.2: Limited Emissions Calculations
Material Processing, Handling, Crushing, Screening, and Conveying
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Annual Asphalt Production Limitation =	1,143,975	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,086,776	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	1.23	0.58	0.09
Front-end loader dumping of materials into feeder bins	1.23	0.58	0.09
Conveyor dropping material into dryer/mixer or batch tower	1.23	0.58	0.09
Total (tons/yr)	**3.70**	**1.75**	**0.26**

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

Material Screening and Conveying (AP-42 Section 19.2.2)
To estimate potential fugitive dust emissions from raw material crushing, screening, and conveying, AP-42 emission factors for Crushed Stone Processing Operations, Section 19.2.2 (dated 8/04) are utilized.

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Limited PTE of PM (tons/yr)	Limited PTE of PM10/PM2.5 (tons/yr)**
Crushing	0.0054	0.0024	0	0
Screening	0.025	0.0087	13.58	4.73
Conveying	0.003	0.0011	1.63	0.60
Limited Potential to Emit (tons/yr) =			**15.21**	**5.33**

Methodology
Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Limited Potential to Emit (tons/yr) = [Maximum Material Handling Throughput (tons/yr)] * [Emission Factor (lb/ton)] * [ton/2000 lbs]
Raw materials may include stone/gravel, slag, and recycled asphalt pavement (RAP)
Emission Factors from AP-42 Chapter 11.19.2 (dated 8/04), Table 11.19.2-2
*Uncontrolled emissions factors for PM/PM10 represent tertiary crushing of stone with moisture content ranging from 0.21 to 1.3 percent by weight (Table 11.19.2-2). The bulk moisture content of aggregate in the storage piles at a hot mix asphalt production plant typically stabilizes between 3 to 5 percent by weight (Source: AP-42 Section 11.1.1.1).
**Assumes PM10 = PM2.5

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

Appendix A.2: Limited Emissions Calculations
Fugitive Emissions from Unpaved Roads
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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 =	1,143,975	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,086,776	tons/yr
Maximum Asphalt Cement/Binder Throughput =	57,199	tons/yr
No. 2 Fuel Oil Limitation =	1,232,875	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	4.9E+04	1.9E+06	300	0.057	2,756.6
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	4.9E+04	8.2E+05	300	0.057	2,756.6
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	1.6E+03	7.6E+04	150	0.028	45.1
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.6E+03	1.9E+04	150	0.028	45.1
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	2.6E+05	5.0E+06	200	0.038	9,801.4
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	2.6E+05	3.9E+06	200	0.038	9,801.4
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	4.8E+04	2.0E+06	125	0.024	1,128.4
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	4.8E+04	8.1E+05	100	0.019	902.8
	Total				**7.1E+05**	**1.4E+07**			**2.7E+04**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.038	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 Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, 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 =	6.09	1.55	0.16	lb/mile
Mitigated Emission Factor, Eext =	4.01	1.02	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	8.40	2.14	0.21	5.52	1.41	0.14	2.76	0.70	0.07
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	8.40	2.14	0.21	5.52	1.41	0.14	2.76	0.70	0.07
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.138	0.035	0.00	0.090	0.023	2.3E-03	0.045	0.012	1.2E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.138	0.035	0.00	0.090	0.023	2.3E-03	0.045	0.012	1.2E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.011	0.003	2.9E-04	0.007	0.002	1.9E-04	0.004	0.001	9.4E-05
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.011	0.003	2.9E-04	0.007	0.002	1.9E-04	0.004	0.001	9.4E-05
Aggregate/RAP Loader Full	Front-end loader (3 CY)	29.87	7.61	0.76	19.64	5.01	0.50	9.82	2.50	0.25
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	29.87	7.61	0.76	19.64	5.01	0.50	9.82	2.50	0.25
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	3.44	0.88	0.09	2.26	0.58	0.06	1.13	0.29	0.03
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	2.75	0.70	0.07	1.81	0.46	0.05	0.90	0.23	0.02
	Totals	**83.02**	**21.16**	**2.12**	**54.59**	**13.91**	**1.39**	**27.29**	**6.96**	**0.70**

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)
PM2.5 = PM10

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

Appendix A.2: Limited Emissions Calculations
Fugitive Emissions from Paved Roads
for the Entire Source (Drum-mix and Batch-mix, combined)

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

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

Annual Asphalt Production Limitation =	1,143,975	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	1,086,776	tons/yr
Maximum Asphalt Cement/Binder Throughput =	57,199	tons/yr
No. 2 Fuel Oil Limitation =	1,232,875	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.40	4.9E+04	1.9E+06	0	0	0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	4.9E+04	8.2E+05	0	0	0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	1.6E+03	7.6E+04	0	0	0
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.6E+03	1.9E+04	0	0	0
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	1.3E+02	5.7E+03	0	0	0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.3E+02	1.6E+03	0	0	0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	2.6E+05	5.0E+06	0	0	0
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	2.6E+05	3.9E+06	0	0	0
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	4.8E+04	2.0E+06	0	0	0
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	4.8E+04	8.1E+05	0	0	0
	Total				**7.1E+05**	**1.4E+07**			**0**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.000	miles/trip

Unmitigated Emission Factor, Ef = [k * (sL)^0.91 * (W)^1.02] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
sL =	0.6	0.6	0.6	g/m^2 = Ubitiguous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [1 - (p/4N)]
Mitigated Emission Factor, Eext = Ef * [1 - (p/4N)]

where p =	125	days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)
N =	365	days per year

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.15	0.03	0.01	lb/mile
Mitigated Emission Factor, Eext =	0.14	0.03	0.01	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	0	0	0	0	0	0	0	0	0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0	0	0	0	0	0	0	0	0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0	0	0	0	0	0	0	0	0
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0	0	0	0	0	0	0	0	0
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0	0	0	0	0	0	0	0	0
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0	0	0	0	0	0	0	0	0
Aggregate/RAP Loader Full	Front-end loader (3 CY)	0	0	0	0	0	0	0	0	0
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	0	0	0	0	0	0	0	0	0
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0	0	0	0	0	0	0	0	0
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0	0	0	0	0	0	0	0	0
	Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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)
PM2.5 = PM10

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

Appendix A.2: Limited Emissions Calculations
Cold Mix Asphalt Production and Stockpiles
From the Drum-mix Plant

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

The following calculations determine the amount of VOC and HAP emissions created from volatilization of solvent used as diluent in the liquid binder for cold mix asphalt production

Cold Mix Asphalt VOC Usage Limitation = 46.49 tons/yr

Volatile Organic Compounds

	Maximum weight % of VOC solvent in binder	Weight % VOC solvent in binder that evaporates	VOC Solvent Usage Limitation (tons/yr)	Limited PTE of VOC (tons/yr)	Liquid Binder Adjustment Ratio
Cut back asphalt rapid cure (assuming gasoline or naphtha solvent)	25.3%	95.0%	48.94	46.49	1.053
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	66.42	46.49	1.429
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	185.97	46.49	4.000
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	100.20	46.49	2.155
Other asphalt with solvent binder	25.9%	2.5%	1,859.70	46.49	40.0
Worst Case Limited PTE of VOC =				**46.49**	

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) =	**12.13**	
Limited PTE of Single HAP (tons/yr) =	**4.18**	**Xylenes**

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

		Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Solvents				
Volatile Organic HAP	CAS#	Gasoline	Kerosene	Diesel (#2) Fuel Oil	No. 2 Fuel Oil	No. 6 Fuel Oil
1,3-Butadiene	106-99-0	3.70E-5%				
2,2,4-Trimethylpentane	540-84-1	2.40%				
Acenaphthene	83-32-9		4.70E-5%		1.80E-4%	
Acenaphthylene	208-96-8		4.50E-5%		6.00E-5%	
Anthracene	120-12-7		1.20E-6%	5.80E-5%	2.80E-5%	5.00E-5%
Benzene	71-43-2	1.90%		2.90E-4%		
Benzo(a)anthracene	56-55-3			9.60E-7%	4.50E-7%	5.50E-4%
Benzo(a)pyrene	50-32-8			2.20E-6%	2.10E-7%	4.40E-5%
Benzo(g,h,i)perylene	191-24-2			1.20E-7%	5.70E-8%	
Biphenyl	92-52-4			6.30E-4%	7.20E-5%	
Chrysene	218-01-9			4.50E-7%	1.40E-6%	6.90E-4%
Ethylbenzene	100-41-4	1.70%		0.07%	3.40E-4%	
Fluoranthene	206-44-0		7.10E-6%	5.90E-5%	1.40E-5%	2.40E-4%
Fluorene	86-73-7		4.20E-5%	8.60E-4%	1.90E-4%	
Indeno(1,2,3-cd)pyrene	193-39-5			1.60E-7%		1.00E-4%
Methyl-tert-butylether	1634-04-4	0.33%				
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%	4.20E-5%
n-Hexane	110-54-3	2.40%				
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%	2.10E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-5%	2.30E-5%
Toluene	108-88-3	8.10%		0.18%	6.20E-4%	
Total Xylenes	1330-20-7	9.00%		0.50%	0.23%	
Total Organic HAPs		**26.08%**	**0.33%**	**1.29%**	**0.68%**	**0.19%**
Worst Single HAP		**9.00% Xylenes**	**0.31% Naphthalene**	**0.50% Xylenes**	**0.23% Xylenes**	**0.07% Chrysene**

Methodology
Limited PTE of VOC (tons/yr) = [Weight % VOC solvent in binder that evaporates] * [VOC Solvent Usage Limitation (tons/yr)]
Limited PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
Limited PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. 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.2: Limited Emissions Calculations
Gasoline Fuel Transfer and Dispensing Operation
from the Entire Source

Company Name: Brooks Construction Company, Inc.
Source Address: 3930 Hardrock Road, Ft. Wayne, IN 46819
Permit Number: F003-30740-00351
Reviewer: Hannah L. Desrosiers

Note: Since the emissions from the gasoline fuel transfer and dispensing operation are minimal, the limited emissions are equal to the unlimited emissions.

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling emission factors from AP-42 Table 5.2-7 were used. The total potential emission of VOC is as follows:

Gasoline Throughput =	0	gallons/day
=	0	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
Tank breathing and emptying	1.0	0
Vehicle refueling (displaced losses - controlled)	1.1	0
Spillage	0.7	0
Total		**0**

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
Limited PTE of Total HAPs (tons/yr) =	**0**	
Limited PTE of Single HAP (tons/yr) =	**0**	**Xylenes**

Methodology
The gasoline throughput was provided by the source.
Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]
PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]
PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: http://www.aehs.com/publications/catalog/contents/tph.htm

Abbreviations
VOC = Volatile Organic Compounds
PTE = Potential to Emit

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

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

TO: John Brooks
Brooks Construction Company, Inc.
6525 Ardmore Avenue
Fort Wayne, IN 46809

DATE: February 14, 2012

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

SUBJECT: Final Decision
Federally Enforceable State Operating Agreement-Renewal
003-30740-03112

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:
«Resp_Off_If_applicable»
«Consultant_if_applicable»
«Other_persons»
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

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www.idem.IN.gov

February 14, 2012

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 Company, Inc.
Permit Number: 003-30740-03112

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

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IDEM Staff	PWAY 2/14/2012 Brooks Construction Company, Inc 003-30740-03112 (final)			AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
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3		Duane & Deborah Clark Clark Farms 6973 E. 500 S. Columbia City IN 46725 *(Affected Party)*									
4		Fort Wayne City Council and Mayors Office One Main Street Fort Wayne IN 46802 *(Local Official)*									
5		Mr. John E. Hampton Plumbers & Steamfitters, Local 166 2930 W Ludwig Rd Fort Wayne IN 46818-1328 *(Affected Party)*									
6		Allen Co. Board of Commissioners One Main St. Fort Wayne IN 46802 *(Local Official)*									
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