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: December 1, 2009

RE: Rieth – Riley Construction Company, Inc. / 127-27075-05241

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

Rieth-Riley Construction Co., Inc.

(Portable)

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

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

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

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.: F127-27075-05241	
Issued by: Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: December 1, 2009 Expiration Date: December 1, 2019

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SECTION A SOURCE SUMMARY

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

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

The Permittee owns and operates a portable drum mix hot asphalt manufacturing operation that uses slag in their aggregate mix.

Current Location:	2352 Industrial Drive, Valparaiso, Indiana 46383
Mailing Address:	P.O. Box 477, Goshen, Indiana 46527
General Source Phone Number:	574-875-5181
SIC Code:	2951
County Location:	Porter
Source Location Status:	Nonattainment for 8-hour ozone standard Nonattainment for PM2.5 standard Attainment for all other 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 portable source consists of the following emission units and pollution control devices:

(a) One (1) portable aggregate drum dryer/mixer, identified as EU-3, approved for construction in 2004, with a maximum capacity of 400 tons of asphalt per hour, processing slag in the aggregate mix, equipped with one (1) dryer/mixer burner, having a maximum heat input capacity of 100 MMBtu per hour, firing waste oil as primary fuel, using No. 2 distillate oil, No. 4 distillate oil, natural gas, propane gas, and butane gas as backup fuels, equipped with a baghouse for particulate control, and exhausting through Stack SV-1.

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

(b) Two (2) reciprocating internal combustion engines/generators, identified as EU-16 and EU-17, installed in 2004, rated at 550 and 55 kilowatts (6.65 and 0.665 MMBtu hour heat input capacity), respectively, firing No. 2 Diesel fuel oil, exhausting through stacks SV9 and SV10**.**

(c) Cold-mix cutback asphalt production and storage piles, constructed in 2004.

(d) Five (5) Liquid Asphalt Storage Tanks, identified as Tank 13A, Tank 13B, Tank 13C, Tank 13D, and Tank 18, installed in 2004, with a maximum capacity of: 35,000, 20,000, 15,000, 30,000 and 1,000 gallons, respectively, and exhausting through stacks SV3, SV4, and SV5, SV14, and SV13, respectively. Tank 18 is used only when calibrating the liquid asphalt metering system.

(e) Two (2) waste oil storage tanks for Hot Mix Drum/Mixer Burner, identified as Tank 11A and Tank 11B, installed in 2004, with a maximum storage capacity of 10,000 gallons each, exhausting through stacks SV7 and SV8.

(f) One (1) No. 2 Distillate fuel oil storage tank for Hot Oil Heater, identified as Tank 12A, installed in 2004, with a maximum capacity of 350 gallons, exhausting through stack SV6.

(g) Two (2) No. 2 diesel fuel oil storage tanks for reciprocating internal combustion engines/generators, identified as Tank 12B and Tank 12C, installed in 2004, with a maximum storage capacity of 1,200 gallons each, exhausting through stacks SV11 and SV12 respectively.

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

This portable source also includes the following insignificant activities:

(a) One (1) hot oil heater, identified as EU-14, approved for construction in 2004, with a maximum heat input capacity of 1.0 MMBtu per hour, firing No. 2 distillate oil as primary fuel with natural gas and propane gas as backup fuels, exhausting through stack SV2.

(b) One (1) hot oil heater , identified as EU-14B, approved for construction in 2004, with a maximum heat input capacity of 2.0 MMBtu per hour, firing No. 2 distillate oil as primary fuel with natural gas and propane gas as backup fuels, exhausting through stack SV14.

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

(d) The following VOC and HAP storage containers: vessels storing lubricating oil, hydraulic oils, machining oils, and machining fluids.

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

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

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

SECTION B GENERAL CONDITIONS

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

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, F127-27075-05241, 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. The submittal by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.

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

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

(a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by an "authorized individual" of truth, accuracy, and completeness. This

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

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

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

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

(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 April 15 of each year to:

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

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

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

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

(2) The compliance status;

(3) Whether compliance was continuous or intermittent;

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

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

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

B.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)][326 IAC 2-8-5(a)(1)]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall maintain and implement Preventive Maintenance Plans (PMPs) including the following information on each facility:

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

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

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

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

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

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

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

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

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

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

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

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

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or
Telephone Number: 317-233-0178 (ask for Compliance and Enforcement Branch)
Facsimile Number: 317-233-6865
Northwest Regional Office phone: (219) 757-0265; fax: (219) 757-0267.

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

Indiana Department of Environmental Management

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

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

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

(A) A description of the emergency;

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

(C) Corrective actions taken.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(a) All terms and conditions of permits established prior to F127-27075-05241 and issued pursuant to permitting programs approved into the state implementation plan have been either:

(1) incorporated as originally stated,

(2) revised, or

(3) deleted.

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

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

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

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

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

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

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

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

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

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

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

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

(1) That this permit contains a material mistake.

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

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

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

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

B.17 Permit Renewal [326 IAC 2-8-3(h)]

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

Request for renewal shall be submitted to:

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

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

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

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

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

B.18 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]

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

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

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

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

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

B.19 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]

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

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

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

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

(4) The Permittee notifies the:

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

and

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

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

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

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

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

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

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

B.20 Source Modification Requirement [326 IAC 2-8-11.1]

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

B.21 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC 13-30-3-1]

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

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

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

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

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

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

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

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

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

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

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

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

B.23 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16][326 IAC 2-1.1-7]

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

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

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

B.24 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]

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

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

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

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

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

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

(a) Pursuant to 326 IAC 2-8:

(1) The potential to emit volatile organic compounds (VOCs) from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period;

(2) The potential to emit any regulated pollutant from the entire source, except particulate matter (PM) and volatile organic compounds (VOCs), shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period;

(3) 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

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

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

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

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

C.3 Opacity [326 IAC 5-1]

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

(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 an average of twenty percent (20%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4, when the source is located in Lake County.

(3) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4, when the source is located in the following areas listed in 326 IAC 5-1-1(c):

(a) Clark County (Jefferson Township - Cities of Jeffersonville, Clarksville, Oak Park);

(b) Dearborn County (Lawrenceburg Township - Cities of Lawrenceburg and Greendale);

(c) Dubois County (Bainbridge Township - the City of Jasper);

(d) Marion County (except the area of Washington Township east of Fall Creek and the area of Franklin Township south of Thompson Road and east of Five Points Road);

(e) St. Joseph County (the area north of Kern Road and east of Pine Road);

(f) Vanderburgh County (the area included in the City of Evansville and Pigeon Township); and

(g) Vigo County (Indiana State University campus, 0.5km radius around UTM Easting 464,519.00, Northing 4,369,208.00, Zone 16.

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

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

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

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

The Permittee shall not operate an incinerator or incinerate any waste or refuse except as provided in 326 IAC 4-2 and 326 IAC 9-1-2.

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

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

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

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

C.8 Lake County: Fugitive Particulate Matter [326 IAC 6.8-10-3]

Pursuant to 326 IAC 6.8-10-3 (formerly 326 IAC 6-1-11.1) (Lake County Fugitive Particulate Matter Control Requirements), the particulate matter emissions from source wide activities shall meet the following requirements, when located in Lake County:

(a) The average instantaneous opacity of fugitive particulate emissions from a paved road shall not exceed ten percent (10%).

(b) The average instantaneous opacity of fugitive particulate emissions from an unpaved road shall not exceed ten percent (10%).

(c) The average instantaneous opacity of fugitive particulate emissions from batch transfer shall not exceed ten percent (10%).

(d) The opacity of fugitive particulate emissions from continuous transfer of material onto and out of storage piles shall not exceed ten percent (10%) on a three (3) minute average.

(e) The opacity of fugitive particulate emissions from storage piles shall not exceed ten percent (10%) on a six (6) minute average.

(f) There shall be a zero (0) percent frequency of visible emission observations of a material during the inplant transportation of material by truck or rail at any time.

(g) The opacity of fugitive particulate emissions from the inplant transportation of material by front end loaders and skip hoists shall not exceed ten percent (10%).

(h) There shall be a zero (0) percent frequency of visible emission observations from a building enclosing all or part of the material processing equipment, except from a vent in the building.

(i) The PM_{10} emissions from building vents shall not exceed twenty-two thousandths (0.022) grains per dry standard cubic foot and ten percent (10%) opacity.

(j) The opacity of particulate emissions from dust handling equipment shall not exceed ten percent (10%).

(k) The PM_{10} emissions from each material processing stack shall not exceed twenty-two thousandths (0.022) grains per dry standard cubic foot and ten percent (10%) opacity.

(l) Fugitive particulate matter from the material processing facilities shall not exceed ten percent (10%) opacity.

(m) Slag and kish handling activities at integrated iron and steel plants shall comply with the following particulate emissions limits:

(A) The opacity of fugitive particulate emissions from transfer from pots and trucks into pits shall not exceed twenty percent (20%) on a six (6) minute average.

(B) The opacity of fugitive particulate emissions from transfer from pits into front end loaders and from transfer from front end loaders into trucks shall comply with the fugitive particulate emission limits in 326 IAC 6.8-10-3(9).

Material processing facilities include crushers, screens, grinders, mixers, dryers, belt conveyors, bucket elevators, bagging operations, storage bins, and truck or railroad car loading stations.

(n) Any facility or operation not specified in 326 IAC 6.8-10-3 shall meet a twenty percent (20%), three (3) minute average opacity standard.

The Permittee shall achieve these limits by controlling fugitive particulate matter emissions

according to the attached Fugitive Dust Control Plan.

C.9 Stack Height [326 IAC 1-7]

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

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

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

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

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

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

(A) Asbestos removal or demolition start date;

(B) Removal or demolition contractor; or

(C) Waste disposal site.

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

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

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Compliance and Enforcement Branch, Office of Air Quality
100 North Senate Avenue
MC 61-53 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 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.

C.11 Continuous Compliance Plan [326 IAC 6.8-8-1] [326 IAC 6.8-8-8)]

(a) Pursuant to 326 IAC 326 IAC 6.8-8-1, the Permittee shall submit to IDEM and maintain at source a copy of the Continuous Compliance Plan (CCP) when locating to Lake County. The Permittee shall perform the inspections, monitoring and record keeping in accordance with the information in 326 IAC 6.8-8-5 through 326 IAC 6.8-8-7 or applicable procedures in the CCP.

(b) Pursuant to 326 IAC 6.8-8-8, the Permittee shall update the CCP, as needed, retain a copy of any changes and updates to the CCP at the source and make the updated CCP available for inspection by the department when located in Lake County. The Permittee shall submit the updated CCP, if required to IDEM, OAQ within thirty (30) days of the update.

(c) Pursuant to 326 IAC 6.8-8, failure to submit a CCP, maintain all information required by the CCP at the source, or submit update to a CCP is a violation of 326 IAC 6.8-8.

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

C.12 Performance Testing [326 IAC 3-6]

(a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

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

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

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

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

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

Compliance Requirements [326 IAC 2-1.1-11]

C.13 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.14 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]

Unless otherwise specified in this permit, all monitoring and record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance or ninety (90) days of initial start-up, whichever is later. If required by Section D, the Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment. If due to circumstances beyond its control, that equipment cannot be installed and operated within ninety (90) days, the Permittee may extend the compliance schedule related to the equipment for an additional ninety (90) days provided the Permittee notifies:

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

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

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

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

C.15 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

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

C.16 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.17 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.18 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

(a) Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.

(b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:

(1) initial inspection and evaluation;

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

(3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.

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

(1) monitoring results;

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

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

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

(e) The Permittee shall maintain the following records:

(1) monitoring data;

(2) monitor performance data, if applicable; and

(3) corrective actions taken.

C.19 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.

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

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

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

C.20 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]

(a) Records of all required monitoring data, reports and support information required by this permit shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be physically present or electronically accessible at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance or ninety (90) days of initial start-up, whichever is later.

C.21 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

(a) The Permittee shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted within thirty (30) days of the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

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

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

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

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

Portable Source Requirement

C.22 Relocation of Portable Sources [326 IAC 2-14-4]

(a) This permit is approved for operation in all areas in Indiana. This determination is based on the requirements of Prevention of Significant Deterioration in 326 IAC 2-2, 326 IAC 2-

1.1-5 Nonattainment New Source Review, and Emission Offset requirements in 326 IAC 2-3. Prior to locating in any other severe nonattainment area, the Permittee must submit a request and obtain a permit revision.

(b) A request to relocate shall be submitted to IDEM, OAQ at least thirty (30) days prior to the intended date of relocation. This submittal shall include the following:

(1) A list of governmental officials entitled to receive notice of application to relocate. IC 13-15-3-1

(2) A list of adjacent landowners that the Permittee will send written notice to not more than ten (10) days after submission of the request to relocate. IC 13-15-8

(3) The new location address of the portable source.

(4) Whether or not this portable source will be relocated to another source.

(5) If relocating to another source:

(A) Name, location address, and permit number of the source this portable source is relocating to.

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

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

The notification by the Permittee does require the certification by the “authorized individual” as defined by 326 IAC 2-1.1-1(1).

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

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

Stratospheric Ozone Protection

C.23 Compliance with 40 CFR 82 and 326 IAC 22-1

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

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

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

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

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(a) One (1) portable aggregate drum dryer/mixer, identified as EU-3, approved for construction in 2004, with a maximum capacity of 400 tons of asphalt per hour, processing slag in the aggregate mix, equipped with one (1) dryer/mixer burner, having a maximum heat input capacity of 100 MMBtu per hour, firing waste oil as primary fuel, using No. 2 distillate oil, No. 4 distillate oil, natural gas, propane gas, and butane gas as backup fuels, equipped with a baghouse for particulate control, and exhausting through Stack SV-1.

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

(b) Two (2) reciprocating internal combustion engines/generators, identified as EU-16 and EU-17, installed in 2004, rated at 550 and 55 kilowatts (6.65 and 0.665 MMBtu hour heat input capacity), respectively, firing No. 2 Diesel fuel oil, exhausting through stacks SV9 and SV10**.**

(c) Cold-mix cutback asphalt production and storage piles, constructed in 2004.

The following is a list of Insignificant Activities:

(a) One (1) hot oil heater, identified as EU-14, approved for construction in 2004, with a maximum heat input capacity of 1.0 MMBtu per hour, firing No. 2 distillate oil as primary fuel with natural gas and propane gas as backup fuels, exhausting through stack SV2.

(b) One (1) hot oil heater , identified as EU-14B, approved for construction in 2004, with a maximum heat input capacity of 2.0 MMBtu per hour, firing No. 2 distillate oil as primary fuel with natural gas and propane gas as backup fuels, exhausting through stack SV14.

(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 FESOP Limits [326 IAC 2-8-4] [326 IAC 2-2]

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

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

(b) PM10 emissions from the dryer/mixer shall not exceed 0.107 pounds of PM10 per ton of asphalt produced.

(c) PM2.5 emissions from the dryer/mixer shall not exceed 0.177 pounds of PM2.5 per ton of asphalt produced.

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

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

Compliance with these limits, combined with the limited potential to emit PM10, PM2.5, and CO from all other emission units at this source, shall limit the source-wide total potential to emit of PM10, PM2.5, and CO to less than 100 tons per 12 consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permit Program), 326 IAC 2-1.1-5 (Nonattainment New Source Review), and 326 IAC 2-2 (PSD) not applicable.

Compliance with these limits shall limit the potential to emit VOC from the dryer/mix to less than twenty-five (25) tons per twelve (12) consecutive month period and shall render 326 IAC 2-7 (Part 70), 326 IAC 2-1.1-5 and 326 IAC 2-3 and 326 IAC 2-2 (PSD) not applicable.

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

In order to render 326 IAC 2-2 not applicable, the Permittee shall comply with the following:

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

(b) PM emissions from the dryer/mixer shall not exceed 0.132 pounds of PM per ton of asphalt processed.

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

D.1.3 Particulate Matter (PM) [326 IAC 6.5-1-2][326 IAC 6.8-1-1]

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

(b) Pursuant to 326 IAC 6.8-1-1 (Particulate Matter Limitations for Lake County), particulate matter (PM) emissions from the mixer/dryer shall not exceed 0.03 grain per dry standard cubic foot (gr/dscf) of exhaust air when the source is located in Lake County.

D.1.4 SO_2, NOx and HCl Limits [326 IAC 2-8-4] [326 IAC 2-2]

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

(a) Sulfur Content and Waste Oil Specifications

(1) The 30 day calendar month average sulfur content of the slag shall not exceed 1.5 percent by weight, with compliance determined at the end of each month.

(2) SO_2 emissions from the slag used in the dryer/mixer shall not exceed 0.74 pounds of SO_2 per ton of slag processed.

(3) The sulfur content of the No. 2 fuel oil shall not exceed 0.5 percent by weight.

(4) The sulfur content of the No. 4 fuel oil shall not exceed 0.5 percent by weight.

(5) The sulfur content of the diesel fuel shall not exceed 0.5 percent by weight.

(6) The sulfur content of the waste oil shall not exceed 1.0 percent by weight.

(7) The chlorine content of the waste oil shall not exceed 0.4 percent by weight.

(8) HCl emissions from the dryer/mixer shall not exceed 0.0264 pounds of HCl per gallon of waste oil burned.

(b) SO_2 emissions from the dryer/mixer burner, internal combustion engines, hot oil heater, and slag processing shall not exceed 99.0 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) NOx emissions from the dryer/mixer burner, internal combustion engines, and hot oil heater shall not exceed 99.0 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(d) HCl emissions from the dryer/mixer burner, internal combustion engines, and hot oil heater shall not exceed 9.9 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

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

D.1.5 Sulfur Dioxide (SO_2) Emission Limitations [326 IAC 7-1.1-1] [326 IAC 7-2-1]

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

(a) The sulfur dioxide (SO_2) emissions from the dryer/mixer burner shall not exceed one and six-tenths (1.6) pounds per million Btu heat input when using residual oil.

(b) The sulfur dioxide (SO_2) emissions from the dryer/mixer burner shall not exceed five-tenths (0.5) pounds per million Btu heat input for distillate oil combustion.

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

D.1.6 Volatile Organic Compounds (VOC) [326 IAC 2-8-4] [326 IAC 2-2] [326 IAC 2-3]

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

(a) VOC emissions from the sum of the binders shall not exceed 2.72 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(b) Liquid binder 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% 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% by weight of VOC solvent evaporating.

(3) Cut back asphalt slow cure, containing a maximum of 20% of the liquid binder by weight of VOC solvent and 25% by weight of VOC solvent evaporating.

(4) Emulsified asphalt with solvent, containing a maximum of 15% 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 7% or less of the total emulsion by volume.

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

(c) The liquid binder used in the production of cold mix asphalt shall be limited as follows:

(1) The amount of VOC solvent used in rapid cure cut back asphalt shall not exceed 2.86 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 cut back asphalt shall not exceed 3.89 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 cut back asphalt shall not exceed 10.9 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 5.86 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 108 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(6) 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.

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

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

Compliance with these limits, combined with the limited potential to emit VOC from all other units at this source, will limit source-wide VOC emissions to less than twenty-five (25) tons per year and render 326 IAC 2-7 (Part 70 Permit Program), 326 IAC 2-2 (PSD), 326 IAC 2-3 (Emission Offset) not applicable.

D.1.7 Volatile Organic Compounds (VOCs) [326 IAC 8-5-2]]

Pursuant to 326 IAC 8-5-2 Volatile Organic Compound Rules for Asphalt Pavers, the cutback asphalt or asphalt emulsions produced by the source shall not contain more than seven percent (7%) oil distillate by volume of emulsion as determined by ASTM D244-80a "Emulsific Asphalts" ASTM part 15, 1981 ASTM 1916 Race St., Philadelphia, PA 19103, Library of Congress Card Catalog #40-10712, for any paving application except as used for the following purposes:

(a) penetrating prime coating

(b) stockpile storage

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

D.1.8 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the dryer/burner and drum mixer units and their control device.

Compliance Determination Requirements

D.1.9 Testing Requirements [326 IAC 2-8-5(1), (4)] [326 IAC 2-1.1-11]

In order to demonstrate compliance with Conditions D.1.1(b) and D.1.1(c), the Permittee shall perform PM, PM 2.5, and PM10 testing for dryer/mixer (Baghouse SV-1) within 180 days of publication of the new or revised condensable PM test method(s) referenced in the U. S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5), signed on May 8th, 2008, or five years from the most recent valid compliance test, whichever is later. This testing shall be conducted utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 and PM2.5 includes filterable and condensable PM.

D.1.10 Particulate Control

(a) In order to comply with Conditions D.1.1, D.1.2 and D.1.3 the baghouse for particulate control shall be in operation and control emissions from the drum mixer/dryer at all times that the drum mixer/dryer is in operation.

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

D.1.11 Sulfur Dioxide Emissions and Sulfur Content

(a) Pursuant to 326 IAC 2-8-4, compliance with Condition D.1.4(a)(1) shall be determined utilizing one of the following options:

(1) Providing vendor analysis of slag delivered, if accompanied by a vendor certification; or

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

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.

(b) Pursuant to 326 IAC 3-7-4, compliance with Conditions D.1.5(a) and D.1.5(b) shall be demonstrated utilizing one of the following options:

(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.

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

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

(c) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the dryer/mixer, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

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

D.1.12 Fuel and Slag Limitations

In order to comply with Conditions D.1.4(a)(1), D.1.4(b), D.1.4(c), and D.1.4(d), the Permittee shall limit fuel usage in the dryer/mixer burner, generators, and hot oil heater and slag usage in the dryer/mixer burner according to the following formulas:

(a) Waste oil usage with respect to the actual sulfur content shall be determined using the following equation:

$$U = \sum_{e=1}^{d} (W_A * S_A)$$

Where:
U = waste oil usage in previous 12 consecutive months;
d = total number of waste oil deliveries;
e = each specific waste oil delivery;
W_A = actual gallons of waste oil used from each specific waste oil delivery; and
S_A = actual percent by weight sulfur content of waste oil for each specific waste oil delivery.

(b) When the 30 day calendar month average sulfur content is less than or equal to 1.11 percent by weight, the slag usage shall be determined using the following equation:

$$L = \sum_{i=1}^{m} (J)$$

Where:
L = slag usage in previous 12 consecutive months with an average sulfur content less than or equal to 1.11 percent by weight;
m = total number of months where the 30 day calendar month average sulfur content is

less than or equal to 1.11 percent by weight;
i = each specific month where the 30 day calendar month average sulfur content is less than or equal to 1.11 percent by weight; and
J = actual tons of slag used per month where the 30 day calendar month average sulfur content is less than or equal to 1.11 percent by weight.

(c) When the 30 day calendar month average sulfur content is greater than 1.11 percent by weight, the slag usage shall be determined using the following equation:

$$X = \sum_{b=1}^{a} (K)$$

Where:
X = slag usage in previous 12 consecutive months with an average sulfur content greater than 1.11 percent by weight;
a = total number of months where the 30 day calendar month average sulfur content is greater than 1.11 percent by weight;
b = each specific month where the 30 day calendar month average sulfur content is greater than 1.11 percent by weight; and
K = actual tons of slag used per month where the 30 day calendar month average sulfur content is greater than 1.11 percent by weight.

(d) Sulfur dioxide (SO_2) emissions shall be determined using the following equation:

$$S = \frac{[D(0.0792) + I(0.04) + H(0.071) + G(0.6) + O(0.0785) + F(0.075) + P(0.00002) + B(0.00002) + U(0.147) + L(0.5413) + X(0.74)]}{2000}$$

Where:
S = tons of sulfur dioxide emissions for previous 12 consecutive month period;
D = gallons of diesel fuel used in internal combustion engine/generator EU-16 in previous 12 months;
I = gallons of diesel fuel used in internal combustion engine/generator EU-17 in previous 12 months;
H = gallons of No. 2 fuel oil used in hot oil heater in previous 12 months;
G = million cubic feet of natural gas used in dryer/mixer in previous 12 months;
O = gallons of No. 2 fuel oil used in dryer/mixer in previous 12 months;
F = gallons of No. 4 fuel oil used in dryer/mixer in previous 12 months;
P = gallons of propane used in dryer/mixer in last previous 12 months;
B = gallons of butane used in dryer/mixer in last previous 12 months;
U = gallons of waste oil as defined by Condition D.1.12(a);
L = tons of slag as defined by Condition D.1.12(b); and
X = tons of slag as defined by Condition D.1.12(c).

Emission Factors:
Diesel Fuel (internal combustion engine/generator EU-16) = 0.0792 pounds per gallon of diesel fuel;
Diesel Fuel (internal combustion engine/generator EU-17) = 0.04 pounds per gallon of diesel fuel;
No. 2 Fuel Oil (hot oil heater) = 0.071 pounds per gallon of No. 2 fuel oil;
Natural Gas (dryer/mixer) = 0.6 pounds per million cubic feet of natural gas;
No. 2 Fuel Oil (dryer/mixer) = 0.0785 pounds per gallon of No. 2 fuel oil;
No. 4 Fuel Oil (dryer/mixer) = 0.075 pounds per gallon of No. 4 fuel oil;
Propane (dryer/mixer) = 0.00002 pounds per gallon of propane;
Butane (dryer/mixer) = 0.00002 pounds per gallon of butane;
Waste Oil (dryer/mixer) = 0.147 pounds per gallon of waste oil; and
Slag = 0.5413 pounds per ton of slag processed, with a 30 day calendar month average sulfur content less than or equal to 1.11 percent by weight or 0.74 pounds per ton

of slag processed, with a 30 day calendar month average sulfur content greater than 1.11 percent by weight.

(e) Nitrogen oxide (NOx) emissions shall be determined using the following equation:

$$N = \frac{\left[D(0.47) + I(0.61) + H(0.02) + G(190) + O(0.024) + F(0.047) + P(0.015) + B(0.013) + U(0.019)\right]}{2000}$$

Where:
N = tons of nitrogen oxide emissions for previous 12 consecutive month period;
D = gallons of diesel fuel used in internal combustion engine/generator EU-16 in previous 12 months;
I = gallons of diesel fuel used in internal combustion engine/generator EU-17 in previous 12 months;
H = gallons of No. 2 fuel oil used in hot oil heater in previous 12 months;
G = million cubic feet of natural gas used in dryer/mixer in previous 12 months;
O = gallons of No. 2 fuel oil used in dryer/mixer in previous 12 months;
F = gallons of No. 4 fuel oil used in dryer/mixer in previous 12 months;
P = gallons of propane used in dryer/mixer in previous 12 months;
B = gallons of butane used in dryer/mixer in previous 12 months; and
U = gallons of waste oil used in dryer/mixer in previous 12 months.

Emission Factors
Diesel Fuel (internal combustion engine/generator EU-16) = 0.47 pounds per gallon of diesel fuel;
Diesel Fuel (internal combustion engine/generator EU-17) = 0.61 pounds per gallon of diesel fuel;
No. 2 Fuel Oil (hot oil heater) = 0.02 pounds per gallon of No. 2 fuel oil;
Natural Gas (dryer/mixer) = 190 pounds per million cubic feet of natural gas;
No. 2 Fuel Oil (dryer/mixer) = 0.024 pounds per gallon of No. 2 fuel oil;
No. 4 Fuel Oil (dryer/mixer) = 0.047 pounds per gallon of No. 4 fuel oil;
Propane (dryer/mixer) = 0.015 pounds per gallon of propane;
Butane (dryer/mixer) = 0.013 pounds per gallon of butane; and
Waste Oil (dryer/mixer) = 0.019 pounds per gallon of waste oil.

(f) Waste oil usage with respect to the actual chlorine content shall be determined using the following equation:

$$U = \sum_{k=1}^{n} \left(W_A * Cl_A\right)$$

Where:
U = waste oil usage in previous 12 consecutive months;
n = total number of waste oil deliveries;
k = each specific waste oil delivery;
WA = actual gallons of waste oil used from each specific waste oil delivery; and
Cl_A = actual percent by weight chlorine content of waste oil for each specific waste oil delivery.

(g) Hydrogen Chloride (HCl) emissions shall be determined using the following equation:

$$HCl = \frac{U(0.066)}{2000}$$

Where:
HCl = tons of hydrogen chloride emissions for previous 12 consecutive month period; and
U = gallons of waste oil as defined in Condition D.1.12(f).

Emission Factor:
Waste Oil = 0.066 pounds per gallon of waste oil.

D.1.13 Hydrogen Chloride (HCl) Emissions and Chlorine Content

In order to comply with Condition D.1.4(a)(7), the Permittee shall demonstrate that the chlorine content of the waste oil combusted in the dryer/mixer does not exceed 0.4 percent by weight, by providing a vendor analysis of each fuel delivery accompanied by a vendor certification.

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

D.1.15 Visible Emissions Notations

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

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

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

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

(e) If abnormal emissions are observed, the Permittee shall take reasonable response steps in accordance with Section C - Response to Excursions or Exceedances. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances shall be considered a deviation from this permit.

D.1.16 Parametric Monitoring [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

(a) The Permittee shall record the pressure drop across the baghouse used in conjunction with the dryer/mixer at least once per day when the dryer/mixer is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of 1.0 and 9.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions and Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions and Exceedances, shall be considered a deviation from this permit.

(b) The instruments used for determining the pressure and temperature shall comply with Section C - Instrument Specifications, of this permit, shall be subject to approval by IDEM, OAQ, and shall be calibrated at least once every six (6) months.

D.1.17 Broken or Failed Bag Detection

(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 have been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the emission unit. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

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

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

D.1.17 Record Keeping Requirements

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

(b) To document compliance with Conditions D.1.4 and D.1.5, the Permittee shall maintain records in accordance with (1) through (8) below. Records maintained for (1) through (8) below shall be taken monthly and shall be complete and sufficient to establish compliance with the limits established in Conditions D.1.4 and D.1.5.

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

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

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

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

(i) Slag supplier certifications;

(ii) The name of the slag supplier; and

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

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

(6) Actual waste oil usage, chlorine content, and equivalent hydrogen chloride emission rate for waste oil used at the source since the last compliance determination period;

(7) 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

(8) 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 and No. 4 fuel oils, diesel fuel, and waste oil, and the chlorine content of waste oil.

(c) To document compliance with Condition D.1.6, 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.1.6.

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

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

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

(4) 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.

(d) To document compliance with Condition D.1.14, the Permittee shall maintain records of visible emission notations of the dryer/mixer stack (S-1) 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 compliance with Condition D.1.15, the Permittee shall maintain records once per day of the pressure drop 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).

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

D.1.18 Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.1(a), D.1.2(a), D.1.4, D.1.5, and D.1.6 shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

SECTION D.2 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

(d) Five (5) Liquid Asphalt Storage Tanks, identified as Tank 13A, Tank 13B, Tank 13C, Tank 13D, and Tank 18, installed in 2004, with a maximum capacity of: 35,000, 20,000, 15,000, 30,000 and 1,000 gallons, respectively, and exhausting through stacks SV3, SV4, and SV5, SV14, and SV13, respectively. Tank 18 is used only when calibrating the liquid asphalt metering system.

(e) Two (2) waste oil storage tanks for the Hot Mix Drum/Mixer Burner, identified as Tank 11A and Tank 11B, installed in 2004, with a maximum storage capacity of 10,000 gallons each, exhausting through stacks SV7 and SV8.

(f) One (1) No. 2 distillate fuel oil storage tank for the Hot Oil Heaters, identified as Tank 12A, installed in 2004, with a maximum capacity of 350 gallons, exhausting through stack SV6.

(g) Two (2) No. 2 diesel fuel oil storage tanks for the reciprocating internal combustion engines/generators, identified as Tank 12B and Tank 12C, installed in 2004, with a maximum storage capacity of 1,200 gallons each, exhausting through stacks SV11 and SV12 respectively.

Other Insignificant Activities:

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

(d) The following VOC and HAP storage containers: vessels storing lubricating oil, hydraulic oils, machining oils, and machining fluids.

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

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

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

D.2.1 Volatile Organic Liquid Storage Vessels [326 IAC 8-9]

Pursuant to 326 IAC 8-9-6 (Volatile Organic Liquid Storage Vessels), the Permittee shall record and submit to IDEM, OAQ a report containing the following information for Tank 13A and Tank 13D, when the source is located in Clark or Floyd Counties:

(a) The vessel identification number.

(b) The vessel dimensions.

(c) The vessel capacity.

The Permittee shall keep all records as described in (a) through (c) for the life of the vessel.

D.2.2 PM and PM10 Emissions [326 IAC 2-8-4]

Pursuant to 326 IAC 2-8, the Permittee shall control PM and PM10 emissions from paved and unpaved roads according to the fugitive dust plan submitted on October 15, 2003, which is included as Attachment A to the permit.

SECTION E.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Hot-Mix Asphalt Plant

(a) One (1) Hot Mix Drum/Mixer Burner, rated at 100 million British thermal units (MMBtu) per hour, firing waste oil as a primary fuel and No. 2 distillate oil, No. 4 distillate oil, natural gas, butane gas, and propane as backup fuels, equipped with a baghouse for particulate matter control, exhausting through stack SV1, identified as Emission Unit ID 3, capacity: 400 tons per hour of hot mix asphalt paving material.

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

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

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

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP) CERTIFICATION

Source Name: Rieth-Riley Construction Co., Inc.
Source Address: Portable
Mailing Address: P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.: F127-27075-05241

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: Rieth-Riley Construction Co., Inc.
Source Address: Portable
Mailing Address: P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.: F127-27075-05241

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

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

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

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

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

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

Form Completed by: _____
Title / Position: _____
Date: _____
Phone: _____

A certification is not required for this report.

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

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

Source Name: Rieth-Riley Construction Co., Inc.
Source Address: Portable
Mailing Address: P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.: F127-27075-05241

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

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked ANo deviations occurred this reporting period@.
☐ NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.
☐ THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD

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

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

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

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

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

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

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

FESOP Quarterly Report
Page 1 of 3

Source Name:	Rieth-Riley Construction Co., Inc.
Source Address:	Portable
Mailing Address:	P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.:	F127-27075-05241
Facility:	Dryer/mixer burner, generators, hot oil heater, and slag processing
Parameter:	SO_2 and NOx emissions
Limit:	SO_2 emissions from the dryer/mixer burner, internal combustion engine/generators, hot oil heater, and slag processing shall not exceed 99.0 tons per twelve (12) consecutive month period, with compliance determined at the end of each month; and NOx emissions from the dryer/mixer burner, internal combustion engine/generators, and hot oil heater shall not exceed 99.0 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Sulfur dioxide (SO_2) emissions shall be determined using the following equation:

$$S = \frac{[D(0.0792) + I(0.04) + H(0.071) + G(0.6) + O(0.0785) + F(0.075) + P(0.00002) + B(0.00002) + U(0.147) + L(0.5413) + X(0.74)]}{2000}$$

Where:	Emission Factors:
S = tons of sulfur dioxide emissions for previous 12 consecutive month period; D = gallons of diesel fuel used in internal combustion engine/generator EU-16 in previous 12 months; I = gallons of diesel fuel used in internal combustion engine/ generator EU-17 in previous 12 months; H = gallons of No. 2 fuel oil used in hot oil heater in previous 12 months; G = million cubic feet of natural gas used in dryer/mixer in previous 12 months; O = gallons of No. 2 fuel oil used in dryer/mixer in previous 12 months; F = gallons of No. 4 fuel oil used in dryer/mixer in previous 12 months; P = gallons of propane used in dryer/mixer in previous 12 months; B = gallons of butane used in dryer/mixer in previous 12 months; U = gallons of waste oil as defined by Condition D.1.12(a); L = tons of slag as defined by Condition D.1.12(b); and X = tons of slag as defined by Condition D.1.12(c).	Diesel Fuel (internal combustion engine/generator EU-16) = 0.0792 lbs/gal of diesel fuel; Diesel Fuel (internal combustion engine/generator EU-17) = 0.04 lbs/gal of diesel fuel; No. 2 Fuel Oil (hot oil heater) = 0.071 lbs/gal of No. 2 fuel oil; Natural Gas (dryer/mixer) = 0.6 lbs/MMcf of natural gas; No. 2 Fuel Oil (dryer/mixer) = 0.0785 lbs/gal of No. 2 fuel oil; No. 4 Fuel Oil (dryer/mixer) = 0.075 lbs/gal of No. 4 fuel oil; Propane (dryer/mixer) = 0.00002 lbs/gal of propane; Butane (dryer/mixer) = 0.00002 lbs/gal of butane; Waste Oil (dryer/mixer) = 0.147 lbs/gal of waste oil; and Slag = 0.5413 lbs/ton of slag processed, with a sulfur content ≤ 1.11 percent by weight or 0.74 lbs/ton of slag processed, with a sulfur content > 1.11 percent by weight.

Nitrogen oxide (NOx) emissions shall be determined using the following equation:

$$N = \frac{[D(0.47) + I(0.61) + H(0.02) + G(190) + O(0.024) + F(0.047) + P(0.015) + B(0.013) + U(0.019)]}{2000}$$

Where:	Emission Factors
N = tons of nitrogen oxide emissions for previous 12 consecutive month period; D = gallons of diesel fuel used in internal combustion engine/ generator EU-16 in previous 12 months; I = gallons of diesel fuel used in internal combustion engine/generator EU-17 in previous 12 months; H = gallons of No. 2 fuel oil used in hot oil heater in previous 12 months; G = million cubic feet of natural gas used in dryer/mixer in previous 12 months; O = gallons of No. 2 fuel oil used in dryer/mixer in previous 12 months; F = gallons of No. 4 fuel oil used in dryer/mixer in previous 12 months; P = gallons of propane used in dryer/mixer in previous 12 months; B = gallons of butane used in dryer/mixer in previous 12 months; and U = gallons of waste oil used in dryer/mixer in previous 12 months.	Diesel Fuel (internal combustion engine/generator EU-16) = 0.47 lbs/gal of diesel fuel; Diesel Fuel (internal combustion engine/generator EU-17) = 0.61 lbs/gal of diesel fuel; No. 2 Fuel Oil (hot oil heater) = 0.02 lbs/gal of No. 2 fuel oil; Natural Gas (dryer/mixer) = 190 lbs/MMcf of natural gas; No. 2 Fuel Oil (dryer/mixer) = 0.024 lbs/gal of No. 2 fuel oil; No. 4 Fuel Oil (dryer/mixer) = 0.047 lbs/gal of No. 4 fuel oil; Propane (dryer/mixer) = 0.015 lbs/gal of propane; Butane (dryer/mixer) = 0.013 lbs/gal of butane; and Waste Oil (dryer/mixer) = 0.019 lbs/gal of waste oil.

FESOP Fuel Usage, Slag Usage, and SO_2 and NOx Emissions Quarterly Reporting Form

Quarter: _____ **Year:** _____

Month	Fuel Types (units)	Column 1	Column 2	Column 1 + Column 2	Total SO_2 Emissions From All Fuels and Slag Used (tons per 12 month consecutive period)	Total NOx Emissions From All Fuels Used (tons per 12 month consecutive period)
		Usage This Month	Usage Previous 11 Months	Usage 12 Month Total		
Month 1	Diesel fuel EU-16 (gallons)					
	Diesel fuel EU-17 (gallons)					
	No. 2 fuel oil (Hot Oil Heater) (gallons)					
	Natural gas (mmcf)					
	No. 2 fuel oil (gallons)					
	No. 4 fuel oil (gallons)					
	Propane (gallons)					
	Butane (gallons)					
	Waste oil (gallons)					
	Slag (tons)					
	Average sulfur content of slag (%)					
Month 2	Diesel fuel EU-16 (gallons)					
	Diesel fuel EU-17 (gallons)					
	No. 2 fuel oil (Hot Oil Heater) (gallons)					
	Natural gas (mmcf)					
	No. 2 fuel oil (gallons)					
	No. 4 fuel oil (gallons)					
	Propane (gallons)					
	Butane (gallons)					
	Waste oil (gallons)					
	Slag (tons)					
	Average sulfur content of slag (%)					
Month 3	Diesel fuel EU-16 (gallons)					
	Diesel fuel EU-17 (gallons)					
	No. 2 fuel oil (Hot Oil Heater) (gallons)					
	Natural gas (mmcf)					
	No. 2 fuel oil (gallons)					
	No. 4 fuel oil (gallons)					
	Propane (gallons)					
	Butane (gallons)					
	Waste oil (gallons)					
	Slag (tons)					
	Average sulfur content of slag (%)					

FESOP Fuel Usage, Slag Usage, and SO_2 and NOx Emissions Quarterly Reporting Form

☐ No deviation occurred in this quarter.

☐ Deviation/s occurred in this quarter.

Deviation has been reported on:_____

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

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: Rieth-Riley Construction Co., Inc.
Source Address: Portable
Mailing Address: P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.: F127-27075-05241
Facility: Drum dryer/mixer
Parameter: HCl emissions
Limit: HCl emissions dryer/mixer burner, generators, and hot oil heater shall not exceed 9.9 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. Hydrogen Chloride (HCl) emissions shall be determined using the following equation:

$$HCl = \frac{U(0.066)}{2000}$$

Where:	Emission Factor:
HCl = tons of hydrogen chloride emissions for previous 12 consecutive month period; and U = gallons of waste oil as defined in Condition D.1.12(f).	Waste Oil = 0.066 pounds per gallon of waste oil.

Quarter: _____ **Year:** _____

Month	Column 1	Column 2	Column 1 + Column 2	Total HCl Emissions From Waste Oil Used (tons per 12 month consecutive period)
	Usage This Month	Usage Previous 11 Months	Usage 12 Month Total	
Month 1				
Month 2				
Month 3				

☐ No deviation occurred in this quarter.

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

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

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: Rieth-Riley Construction Co., Inc.
Source Address: Portable
Mailing Address: P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.: F127-27075-05241
Facility: Drum dryer/mixer
Parameter: Hot mix asphalt production
Limit: The asphalt production rate 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
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ No deviation occurred in this quarter.

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

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

Attach a signed certification to complete this report.

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

FESOP Quarterly Report
Page 1 of 2

Source Name: Rieth-Riley Construction Co., Inc.
Source Address: Portable
Mailing Address: P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.: F127-27075-05241
Facility: Cold-mix asphalt production
Parameter: VOC emissions
Limit: VOC emissions from the sum of the binders shall not exceed 2.72 tons per twelve (12) consecutive month period, with compliance determined at the end of each month, using the following equation:

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

Quarter: _____ **Year:** _____

Month	Type of Liquid Binder	Solvent Usage This Month (tons)	Adjustment Factor	VOC Emissions from Each Binder This Month (tons)	VOC Emissions This Month (tons)	VOC Emissions Previous 11 Months (tons)	VOC Emissions 12 Month Total (tons)
Month 1	Cut back asphalt rapid cure		1.053				
	Cut back asphalt medium cure		1.429				
	Cut back asphalt slow cure		4.0				
	Emulsified asphalt		2.155				
	Other asphalt		40.0				
Month 2	Cut back asphalt rapid cure		1.053				
	Cut back asphalt medium cure		1.429				
	Cut back asphalt slow cure		4.0				
	Emulsified asphalt		2.155				
	Other asphalt		40.0				
Month 3	Cut back asphalt rapid cure		1.053				
	Cut back asphalt medium cure		1.429				
	Cut back asphalt slow cure		4.0				
	Emulsified asphalt		2.155				
	Other asphalt		40.0				

☐ No deviation occurred in this quarter.

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

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

Attach a signed certification to complete this report.

Attachment A

Rieth-Riley Construction Co., Inc.
Portable

Permit No. F127-27075-05241

ATTACHMENT A

Asphalt Plant Site Fugitive Dust Control Plan

Fugitive particulate matter emissions shall be controlled according to the following plan.

(a) unpaved roads shall be controlled by one or more of the following:

(1) treating with water on an as-needed basis.
(2) paving with asphalt.
(3) treating with emulsified asphalt on an as-needed basis.
(4) double chip and seal the road surface on an as-needed basis.

(b) dust from storage piles shall be controlled by one or more of the following measures:

(1) treating the stockpile area with water on an as-needed basis.
(2) treating the stockpiles with water on an as-needed basis.
(3) maintain minimum size and number of aggregate storage piles.
(4) treating stockpiles with emulsified asphalt on an as needed basis.

(c) dust from outdoor conveying of aggregates shall be controlled by applying water at the feed and intermediate points on an as needed basis.

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

(1) minimize the vehicular distance between transfer points and enclose transfer points.
(2) apply water to transfer points on an as-needed basis.
(3) enclose the transfer points.

(e) dust from the transportation of aggregate by truck, front end loader, etc., shall be controlled by one or more of the following measures:

(1) tarping aggregate hauling vehicles.
(2) maintain 10 mile per hour speed limits.
(3) maintain vehicle bodies in a condition that prevents leakage.
(4) spray aggregates with water.

(f) dust from the loading and unloading of aggregates 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.
(3) spray water on aggregates on an as-needed basis.

Attachment B

Rieth-Riley Construction Co., Inc.
Portable

Permit No. F127-27075-05241

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 aggregate and mixing with asphalt cements.

[51 FR 12325, Apr. 10, 1986]

§ 60.92 Standard for particulate matter.

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

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

(2) Exhibit 20 percent opacity, or greater.

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

§ 60.93 Test methods and procedures.

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

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

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

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

[54 FR 6667, Feb. 14, 1989]

Indiana Department of Environmental Management
Office of Air Quality

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

Source Background and Description

Source Name:	**Rieth-Riley Construction Co., Inc.**
Current Location:	**2352 Industrial Drive, Valparaiso, Indiana 46383**
County:	**Porter**
SIC Code:	**2951**
Operation Permit No.:	**F127-27075-05241**
Permit Reviewer:	**Janet Mobley**

On August 17, 2009, the Office of Air Quality (OAQ) had a notice published in The Chesterton Tribune, Chesterton, Porter County, Indiana, stating that Rieth-Riley Construction Co., Inc., had applied for a FESOP Renewal to continue operating their portable drum hot mix asphalt manufacturing operation that uses slag in their aggregate mix. 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

On September 15, 2009, Mr. Larry McHugh, the Attorney representing Rieth-Riley Construction Co, Inc. submitted comments to IDEM, OAQ on the draft FESOP Renewal.

Previous comments that were submitted on July 31, 2009, during the applicant review period which IDEM did not change in the permit draft that was put on public notice were reiterated.

Comment 1:

The source felt that a limit on their slag would limit their production. Recent sampling by slag suppliers has indicated that an average sulfur content is in the range of 0.9%. Conditions D.1.3(b),(g) and (h) and D.1.4(b)(1) of the permit limit slag usage to 100,000 tons per year rolling 12 month period, limit $S0_2$ emissions from the slag to 0.74 pounds per ton of slag and limit slag sulfur content to 1.5%.

Comment 2:

Condition D.1.4(b)(2) limits the waste oil usage and the source believes it should be removed and that the SO_2 emissions should be tracked based on actual emissions calculated by recordkeeping. The source requested that the method of determining SO_2 from fuel usage that is in the permit issued to their South Bend plant on February 20, 2009, be used in this permit.

Comment 3:

The source has already tested $S0_2$ emissions and developed an emission factor and feel that no further testing should be required. Condition D.1.9(b) should be removed because SO_2 emissions can be calculated using sulfur analysis and recordkeeping and stack testing is not required to determine sulfur content.

Comment 4:

The source requested that the last sentence in Condition D.1.4(b)(6) should be deleted and removed because is it extraneous and confusing.

Comment 5:

The source commented on Condition D.1.10(a)(1).
"In calculating SO_2 from slag usage, the percent sulfur content should be the monthly average sulfur content as measured by the supplier, and the emission factor for the pounds of SO_2 from slag usage should be calculated by the formula $E_L = S_S$ x (0.5413/1.115) where E_L is the monthly emission factor and S_S is the monthly sulfur content of slag."

A meeting with Mr. McHugh and Rieth-Riley Construction Co. representatives was held on October 1, 2009, to discuss the comments received for this renewal and other applications that they have submitted recently for other locations.

Response to the above Comments:

IDEM and the company agreed to use a two tier approach. Compliance with the SO2 emissions limit will be demonstrated by the use of an equation. SO2 emissions from the use of slag will be determined using a two-tiered approach (i.e. different SO2 emission factors will be used depending on the 30 day calendar month average sulfur content of the slag). In addition, there will be an equation that allows the source to take into account the actual sulfur content of the waste oil used. IDEM agrees that the source has already stack tested and an emission factor for SO_2 emissions is being used. The permit condition is being revised to remove the additional testing requirement. The company is not required to do additional testing at this time. Because of the changes the source also received a week to review the documents after the changes were made. The address of the source was corrected: 23~~25~~**52** Industrial Drive, Valparaiso, Indiana 46383, in the permit, calculations and TSD Addendum.

As a result of the comments and meeting the following conditions in the D.1 Section were revised and the quarterly reporting forms were revised to reflect the changes made in the conditions.

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

The limited emission calculations from the TSD Appendix A.2 have been revised to reflect the changes made to the permit and are attached as Appendix A of this addendum.

Conditions D.1.5, D.1.8, D.1.12, D.14, D.1.15, D.1.16 and D.17 in the permit that was public noticed did not change but the following conditions in the permit have been revised:

~~D.1.3 FESOP Limits [326 IAC 2-8-4] [326 IAC 2-2]~~

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

~~(a) The amount of asphalt processed shall not exceed 1,000,000 tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each day.~~

~~(b) The amount of slag used shall not exceed one hundred thousand (100,000) tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each month.~~

~~(c) The PM_{10} emissions from the dryer/mixer shall not exceed 0.107 pounds per ton of asphalt processed.~~

~~(d) The PM2.5 emissions from the dryer/mixer shall not exceed 0.177 pounds per ton of asphalt processed.~~

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

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

~~(g) SO_2 emissions from the slag used in the dryer/mixer shall not exceed seventy-four hundredths (0.74) pounds of SO_2 per ton of slag processed.~~

~~(h) The slag shall have a sulfur content less than or equal to one and fifty hundredths percent (1.50%) by weight, with compliance demonstrated on a thirty (30) day calendar month average.~~

~~Compliance with these limitations, combined with emissions from all other emission units at this source, shall limit the source-wide total potential to emit PM10, PM2.5, SO2 and CO to less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period and shall limit source-wide VOC emissions to less than twenty-five (25) tons per three hundred sixty-five (365) consecutive day period. Therefore, compliance with these limits shall render 326 IAC 2-7 (Part 70), 326 IAC 2-1.1-5 and 326 IAC 2-3 and 326 IAC 2-2 (PSD) not applicable.~~

D.1.1 FESOP Limits [326 IAC 2-8-4] [326 IAC 2-2]

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

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

(b) PM10 emissions from the dryer/mixer shall not exceed 0.107 pounds of PM10 per ton of asphalt produced.

(c) PM2.5 emissions from the dryer/mixer shall not exceed 0.177 pounds of PM2.5 per ton of asphalt produced.

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

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

Compliance with these limits, combined with the limited potential to emit PM10, PM2.5, and CO from all other emission units at this source, shall limit the source-wide total potential to emit of PM10, PM2.5, and CO to less than 100 tons per 12 consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permit Program), 326 IAC 2-1.1-5 (Nonattainment New Source Review), and 326 IAC 2-2 (PSD) not applicable.

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

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

~~In order to render 326 IAC 2-2 not applicable, the Permittee shall comply with the following:~~

~~(a) The amount of asphalt processed shall not exceed 1,000,000 tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each day.~~

~~(b) PM emissions from the dryer/mixer shall not exceed 0.132 pounds PM per ton of asphalt processed.~~

~~Compliance with these limitations, combined with the limited potential to emit from other emission units at this source, shall limit the source-wide PM emissions to less than two hundred fifty (250) tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each day. Therefore, compliance with this limit will render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable~~.

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

In order to render 326 IAC 2-2 not applicable, the Permittee shall comply with the following:

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

(b) PM emissions from the dryer/mixer shall not exceed 0.132 pounds of PM per ton of asphalt produced.

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

D.1.~~1~~**3** Particulate Matter (PM) [326 IAC 6.5-1-2][326 IAC 6.8-1-1]

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

(b) Pursuant to 326 IAC 6.8-1-1 (Particulate Matter Limitations for Lake County), particulate matter (PM) emissions from the mixer/dryer shall not exceed 0.03 grain per dry standard cubic foot (gr/dscf) of exhaust air when the source is located in Lake County.

~~D.1.4 Fuel Limitations [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 limit the SO2, NOx and HCl emissions from all emission units at this source, the Permittee shall comply with the following:~~

~~(a) Sulfur Content and Waste Oil Specifications~~

~~(1) No.2 and No.4 fuel oils each have a sulfur content less than or equal to 0.50 percent by weight.~~

~~(2) The sulfur content of the waste or used fuel oil shall not exceed 1.00 percent by weight.~~

~~(3) The HCl emissions shall not exceed two hundred sixty-four hundred thousands (0.0264) pounds of HCl per gallon of waste oil burned.~~

~~(4) The waste oil combusted shall not contain more than 1.00% ash, 0.400% chlorine, and 0.010% Lead by weight.~~

~~(b) Single Fuel Usage Limitations:~~
~~When combusting only one type of fuel per three hundred sixty-five (365) consecutive day period in the dryer/mixer burner, the internal combustion engines and all other combustion equipment, the usage of fuel shall be limited as follows:~~

~~(1) Natural gas usage shall not exceed 1,010.77 million cubic feet per 365~~

~~consecutive day period, with compliance determined at the end of each day.~~

~~(2) No. 2 fuel usage shall not exceed 1,264,615 gallons per 365 consecutive day period, with compliance determined at the end of each day.~~

~~(3) No. 4 fuel usage shall not exceed 1,323,630 gallons per 365 consecutive day period, with compliance determined at the end of each day.~~

~~(4) Propane fuel usage shall not exceed 14,772,747 gallons per 365 consecutive day period, with compliance determined at the end of each day.~~

~~(5) Butane fuel usage shall not exceed 12,803,048 gallons per 365 consecutive day period, with compliance determined at the end of each day.~~

~~(6) Waste oil usage shall be determined using the following equations:~~

~~$U = W_A * S_A$~~

~~$U = W_A * Cl_A$~~

~~where:~~

~~U = Waste oil usage;~~

~~W_A = actual gallons of waste oil used in the last three hundred sixty-five (365) days, with less than or equal to one percent (1.00%) by weight sulfur content and less than or equal to forty hundredths percent (0.40%) chlorine content;~~

~~S_A = actual percent (%) sulfur content of waste oil; and~~

~~Cl_A = actual percent (%) chlorine content of waste oil.~~

~~The limit on waste oil usage will be dictated by the sulfur content and by the chlorine content. However, waste oil usage in the aggregate dryer burner and the two (2) internal combustion engines shall not exceed 675,322 gallons at the maximum allowable sulfur content one percent (1.00%)) and chlorine content forty hundredths percent (0.40%) per three hundred and sixty-five (365) consecutive day period, with compliance determined at the end of each day.~~

~~(c) Multiple Fuel Usage Limitation:~~

~~When combusting more than one fuel per three hundred sixty-five (365) consecutive day period in the dryer/mixer burner and all other combustion equipment, emissions from the dryer/mixer and all other combustion equipment shall be limited as follows:~~

~~(1) Sulfur dioxide (SO2) emissions from the dryer/mixer and all other combustion equipment shall be less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each day;~~

~~(2) Hydrogen Chloride (HCl) emissions from the dryer/mixer and all other combustion equipment shall be less than ten (10) tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each day; and~~

~~(3) Nitrogen oxides (NOx) emissions from the dryer/mixer and all other combustion equipment shall be less than one hundred (100) tons per three hundred sixty five (365) consecutive day period, with compliance determined at the end of each day.~~

~~Compliance with these limits, combined with the potential emissions from all other emission units at this source, shall limit the source-wide total potential to emit NOx and SO2 to less than 100 tons per three hundred sixty-five (365) consecutive day period, each, HCl to less than 10 tons per three hundred sixty-five (365) consecutive day period, and any combination of HAPs to less than 25 tons per three hundred sixty-five (365) consecutive day period, and shall render 326 IAC 2-7 (Part 70~~

~~Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.~~

D.1.4 SO2, NOx, and HCl Limits [326 IAC 2-8-4] [326 IAC 2-2] [326 IAC 2-4.1]

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

(a) Sulfur Content and Waste Oil Specifications

(1) The 30 day calendar month average sulfur content of the slag shall not exceed 1.5 percent by weight, with compliance determined at the end of each month.

(2) SO_2 emissions from the slag used in the dryer/mixer shall not exceed 0.74 pounds of SO_2 per ton of slag processed.

(3) The sulfur content of the No. 2 fuel oil shall not exceed 0.5 percent by weight.

(4) The sulfur content of the No. 4 fuel oil shall not exceed 0.5 percent by weight.

(5) The sulfur content of the diesel fuel shall not exceed 0.5 percent by weight.

(6) The sulfur content of the waste oil shall not exceed 1.0 percent by weight.

(7) The chlorine content of the waste oil shall not exceed 0.4 percent by weight.

(8) HCl emissions from the dryer/mixer shall not exceed 0.0264 pounds of HCl per gallon of waste oil burned.

(b) SO_2 emissions from the dryer/mixer burner, generators, hot oil heater, and slag processing shall not exceed 99.0 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(c) NOx emissions from the dryer/mixer burner, generators, and hot oil heater shall not exceed 99.0 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(d) HCl emissions from the dryer/mixer burner, generators, and hot oil heater shall not exceed 9.9 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limits, combined with the limited potential to emit SO2, NOx, 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, HCl to less than 10 tons per twelve (12) consecutive month period, and any combination of HAPs to less than 25 tons per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAPs)) not applicable.

~~D.1.6 Volatile Organic Compounds (VOC) [326 IAC 2-8-4] [326 IAC 8-1-6]~~

~~The usage of liquid binder in the production of cold mix cutback asphalt shall be limited such that VOC emissions do not exceed twenty-one and forty-three hundreths (21.43) tons per 365 consecutive day period, with compliance determined at the end of each day. Compliance with this limit, combined with the limits in Condition D.1.3 shall limit the source-wide VOC to less than twenty-five (25) tons per 365 consecutive day period and shall render 326 IAC 2-7 (Part 70), 326 IAC 8-1-6 and 326 IAC 2-2 (PSD) not applicable.~~

D.1.6 Volatile Organic Compounds (VOC) [326 IAC 2-8-4] [326 IAC 2-2]

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

(a) VOC emissions from the sum of the binders shall not exceed 2.72 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

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

(1) <u>Cut back asphalt rapid cure</u>, containing a maximum of 25.3% by weight of VOC solvent in the liquid binder and 95% by weight of VOC solvent evaporating.

(2) <u>Cut back asphalt medium cure</u>, containing a maximum of 28.6% by weight of VOC solvent in the liquid binder and 70% by weight of VOC solvent evaporating.

(3) <u>Cut back asphalt slow cure</u>, containing a maximum of 20% by weight of VOC solvent in the liquid binder and 25% by weight of VOC solvent evaporating.

(4) <u>Emulsified asphalt with solvent</u>, containing a maximum of 15% by weight of VOC solvent in the liquid binder and 46.4% by weight of VOC solvent evaporating. The percent oil distillate in emulsified asphalt with solvent liquid, as determined by ASTM, must be 7% or less of the total emulsion by volume

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

(c) The liquid binder used in the production of cold mix asphalt shall be limited as follows:

(1) The amount of VOC solvent used in rapid cure cut back asphalt shall not exceed 2.86 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 cut back asphalt shall not exceed 3.89 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 cut back asphalt shall not exceed 10.9 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 5.86 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 108 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

(6) 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.

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

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

Compliance with these limits, combined with the limited potential to emit VOC from all other emission units at this source, shall limit the source-wide total potential to emit of VOC to less than 25 tons per 12 consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD) not applicable.

D.1.7 Volatile Organic Compound~~s (VOCs)~~ **Rules for Asphalt Pavers** [326 IAC 8-5-2]]

Pursuant to 326 IAC 8-5-2 ~~(Miscellaneous Operations: asphalt paving), the owner or operator shall not cause or allow the use of asphalt emulsion containing~~ **, Volatile Organic Compound Rules for Asphalt Pavers, the cutback asphalt or asphalt emulsions produced by the source shall not contain** more than seven (7.0**%**) percent oil distillate by volume of emulsion **as determined by ASTM D244-80a "Emulsific Asphalts" ASTM part 15, 1981 ASTM 1916 Race St., Philadelphia, PA 19103, Library of Congress Card Catalog #40-10712,** 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.1.9 Testing Requirement~~s~~ [326 IAC 2-8-5(1), (4)] [326 IAC 2-1.1-11]

~~(a)~~ In order to demonstrate compliance with Conditions D.1.1, D.1.2(b) and D.1.3(c), the Permittee shall perform PM, PM 2.5, and PM10 testing for dryer/mixer (Baghouse SV-1) within 180 days of publication of the new or revised condensable PM test method(s) referenced in the U. S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5), signed on May 8th, 2008, or five years from the most recent valid compliance test, whichever is later. This testing shall be conducted utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 and PM2.5 includes filterable and condensable PM.

~~(b) Within five (5) years from the issuance date of this renewal (F127-2705-05241), the Permittee shall perform SO_2 testing for the dryer/mixer, in order to demonstrate compliance with Conditions D.1.3(g) and D.1.3(h), utilizing methods as approved by the Commissioner. This test 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.~~

D.1.10 Particulate Control

(a) In order to comply with Conditions D.1.1, D.1.2, and D.1.3, the baghouse for particulate control shall be in operation and control emissions from the dryer/mixer at all times when the dryer/mixer is in operation.

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

~~D.1.10 Single Fuel and Slag Usage Limitations~~

~~(a) In order to comply with Conditions D.1.3(b), D.1.3(h), and D.1.4(b) when adding slag to the aggregate mix, and when combusting waste oil in the dryer/mixer burner and all other combustion equipment, the Permittee shall limit slag usage, and waste oil usage in the dryer/mixer burner and all other combustion equipment, according to the following formulas:~~

~~(1) Sulfur dioxide emission calculation~~

$$S = \frac{U(E_U) + L(E_L)}{2{,}000 \text{ lbs/ton}}$$

~~where:~~
~~S = tons of sulfur dioxide emissions for three hundred sixty-five (365) consecutive day period;~~
~~U = gallons of waste oil as defined in condition D.1.4(b)(6); and~~
~~L = tons of slag used in the last three hundred sixty-five (365) consecutive days, with less than or equal to one and fifty hundredths percent (1.50%) sulfur content;~~

~~Emission Factors for Sulfur Dioxide~~
~~E_U = one hundred forty-seven thousandths (0.147) pounds per gallon of waste oil.~~
~~E_L = seventy-four hundredths (0.74) pounds per ton of slag processed.~~

~~Compliance with this limit, combined with the SO2 emissions from all other units at this source, will limit the source-wide SO2 emissions to less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period and shall render 326 IAC 2-7 (Part 70 Permit Program), and 326 IAC 2-2 (PSD), not applicable.~~

~~(2) Hydrogen chloride emission calculation~~

$$HCl = \frac{U(E_{Cl})}{[2000 \text{ lbs/ ton}]}$$

~~where:~~
~~U = gallons of waste oil as defined in condition D.1.4(b)(6);~~

~~Emission Factors for Hydrogen Chloride~~

~~E_{Cl} = sixty-six thousandths (0.066) pounds per gallon of waste oil.~~

~~Compliance with this limit, combined with the HCl emissions from all other emission units at this source, will limit the source-wide HCl emissions to less than 9.90 tons per three hundred sixty-five (365) consecutive day period and total combined HAP emissions shall be limited to less than twenty-five (25) tons per three hundred sixty-five (365) consecutive day period, and render 326 IAC 2-7 (Part 70) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.~~

~~D.1.11 Multiple Fuel and Slag Usage Limitations~~

~~(a) In order to comply with Conditions D.1.3(b), D.1.3(g), and D.1.4(c) when adding slag to the aggregate mix, and when combusting more than one fuel per three hundred sixty-five (365) consecutive day period in the dryer/mixer burner and all other combustion equipment, the Permittee shall limit slag usage, and fuel usage in the dryer/mixer burner and all other combustion equipment, according to the following formulas:~~

~~(1) Sulfur Dioxide emission calculation~~

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

~~where:~~

~~S = tons of sulfur dioxide emissions for three hundred sixty-five (365) consecutive day period;~~
~~G = million cubic feet of natural gas used in last three hundred sixty-five (365) days;~~
~~O = gallons of No. 2 fuel oil used in last three hundred sixty-five (365) days, with less than or equal to fifty hundredths percent (0.50%) sulfur content;~~
~~F = gallons of No. 4 fuel oil used in last three hundred sixty-five (365) days, with less than or equal to fifty hundredths percent (0.50%) sulfur content;~~
~~P = gallons of propane used in the last three hundred sixty-five (365) days, with less than or equal to twenty thousandths (0.20) grains per one hundred (100) cubic feet of sulfur in content;~~
~~B = gallons of butane used in the last three hundred sixty-five (365) days, with less than or equal to twenty thousandths (0.22) grains per one hundred (100) cubic feet of sulfur in content;~~
~~U = gallons of waste oil as defined in condition D.1.4(b)(6);~~
~~L = tons of slag used in the last three hundred sixty-five (365) consecutive days, with less than or equal to one and fifty hundredths percent (1.50%) sulfur content.~~

~~Emission Factors for Sulfur Dioxide~~
~~E_G = six tenths (0.6) pounds per million cubic feet of natural gas;~~
~~E_O = seven hundred eighty-five hundred-thousandths (0.0785) pounds per gallon of No. 2 fuel oil;~~
~~E_F = seventy-five ten-thousandths (0.075) pounds per gallon of No. 4 fuel oil;~~
~~E_P = two millionths (0.00002) pounds per gallon of propane;~~
~~E_B = two millionths (0.00002) pounds per gallon of butane; and~~
~~E_U = one hundred forty-seven thousandths (0.147) pounds per gallon of waste oil.~~
~~E_L = seventy-four hundredths (0.74) pounds per ton of slag processed.~~

~~Compliance with these limits, combined with the SO2 emissions from all other units at this source, will limit the source-wide SO2 emissions to less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period and shall render 326 IAC 2-7 (Part 70 Permit Program), and 326 IAC 2-2 (PSD), not applicable.~~

~~(2) Hydrogen chloride emission calculation~~

$$HCl = \frac{U(E_{Cl})}{[2000 \text{ lbs/ ton}]}$$

~~where:~~

~~U = gallons waste oil as defined in condition D.1.4(b)(6);~~

~~Emission Factors for Hydrogen Chloride~~
~~E_{Cl} = sixty-six thousandths (0.066) pounds per gallon of waste oil.~~

~~Compliance with this limit, combined with the HCl emissions from all other emission units at this source, will limit the source-wide HCl emissions to less than 9.90 tons per three hundred sixty-five (365) consecutive day period and total combined HAP emissions shall be limited to less than twenty-five (25) tons per three hundred sixty-five (365) consecutive day period, and render 326 IAC 2-7 (Part 70) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.~~

~~(3) Nitrogen oxides emission calculation~~

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

~~where:~~
~~N = tons of nitrogen oxides emissions for a three hundred sixty-five (365) consecutive day period;~~
~~G = million cubic feet of natural gas used in the last three hundred sixty-five (365) days;~~
~~O = gallons of No. 2 fuel oil used in last three hundred sixty-five (365) days;~~
~~F = gallons of No. 4 fuel oil used for last three hundred sixty-five (365) days;~~
~~P = gallons of propane used in the last three hundred sixty-five (365) days;~~
~~B = gallons of butane used in the last three hundred sixty-five (365) days; and~~
~~U = gallons waste oil as defined in condition D.1.4(b)(6);~~

~~Emission Factors for nitrogen oxides~~
~~E_G = one hundred ninety (190) pounds per million cubic feet of natural gas;~~
~~E_O = twenty-four ten-thousandths (0.024) pounds per gallon of No. 2 fuel oil;~~
~~E_F = forty-seven ten-thousandths (0.047) pounds per gallon of No. 4 fuel oil;~~
~~E_P = thirteen hundredths (0.013) pounds per gallon of propane;~~
~~E_B = fifteen hundredths (0.015) pounds per gallon of butane; and~~
~~E_U = nineteen ten-thousandths (0.019) pounds per gallon of waste oil.~~

~~Compliance with these limits, combined with the NOx emissions from all other units at this source, will limit source-wide NOx emissions to less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period. Compliance with these limits will render 326 IAC 2-7 (Part 70 Permit Program), and 326 IAC 2-2 (PSD), not applicable.~~

D.1.12 Fuel and Slag Limitations

In order to comply with Conditions D.1.4(a)(1), D.1.4(b), D.1.4(c), and D.1.4(d), the Permittee shall limit fuel usage in the dryer/mixer burner, generators, and hot oil heater and slag usage in the dryer/mixer burner according to the following formulas:

(a) Waste oil usage with respect to the actual sulfur content shall be determined using the following equation:

$$U = \sum_{e=1}^{d} (W_A * S_A)$$

Where:
U = waste oil usage in previous 12 consecutive months;
d = total number of waste oil deliveries;

e = each specific waste oil delivery;
W_A = actual gallons of waste oil used from each specific waste oil delivery; and
S_A = actual percent by weight sulfur content of waste oil for each specific waste oil delivery.

(b) When the 30 day calendar month average sulfur content is less than or equal to 1.11 percent by weight, the slag usage shall be determined using the following equation:

$$L = \sum_{i=1}^{m} (J)$$

Where:
L = slag usage in previous 12 consecutive months with an average sulfur content less than or equal to 1.11 percent by weight;
m = total number of months where the 30 day calendar month average sulfur content is less than or equal to 1.11 percent by weight;
i = each specific month where the 30 day calendar month average sulfur content is less than or equal to 1.11 percent by weight; and
J = actual tons of slag used per month where the 30 day calendar month average sulfur content is less than or equal to 1.11 percent by weight.

(c) When the 30 day calendar month average sulfur content is greater than 1.11 percent by weight, the slag usage shall be determined using the following equation:

$$X = \sum_{b=1}^{a} (K)$$

Where:
X = slag usage in previous 12 consecutive months with an average sulfur content greater than 1.11 percent by weight;
a = total number of months where the 30 day calendar month average sulfur content is greater than 1.11 percent by weight;
b = each specific month where the 30 day calendar month average sulfur content is greater than 1.11 percent by weight; and
K = actual tons of slag used per month where the 30 day calendar month average sulfur content is greater than 1.11 percent by weight.

(d) Sulfur dioxide (SO2) emissions shall be determined using the following equation:

$$S = \frac{[D(0.0792) + I(0.04) + H(0.071) + G(0.6) + O(0.0785) + F(0.075) + P(0.00002) + B(0.00002) + U(0.147) + L(0.5413) + X(0.74)]}{2000}$$

Where:
S = tons of sulfur dioxide emissions for previous 12 consecutive month period;
D = gallons of diesel fuel used in generator EU-16 in previous 12 months;
I = gallons of diesel fuel used in generator EU-17 in previous 12 months;
H = gallons of No. 2 fuel oil used in hot oil heater in previous 12 months;
G = million cubic feet of natural gas used in dryer/mixer in previous 12 months;
O = gallons of No. 2 fuel oil used in dryer/mixer in previous 12 months;
F = gallons of No. 4 fuel oil used in dryer/mixer in previous 12 months;
P = gallons of propane used in dryer/mixer in last previous 12 months;
B = gallons of butane used in dryer/mixer in last previous 12 months;
U = gallons of waste oil as defined by Condition D.1.12(a);
L = tons of slag as defined by Condition D.1.12(b); and

X = tons of slag as defined by Condition D.1.12(c).

<u>Emission Factors:</u>
Diesel Fuel (generator EU-16) = 0.0792 pounds per gallon of diesel fuel;
Diesel Fuel (generator EU-17) = 0.04 pounds per gallon of diesel fuel;
No. 2 Fuel Oil (hot oil heater) = 0.071 pounds per gallon of No. 2 fuel oil;
Natural Gas (dryer/mixer) = 0.6 pounds per million cubic feet of natural gas;
No. 2 Fuel Oil (dryer/mixer) = 0.0785 pounds per gallon of No. 2 fuel oil;
No. 4 Fuel Oil (dryer/mixer) = 0.075 pounds per gallon of No. 4 fuel oil;
Propane (dryer/mixer) = 0.00002 pounds per gallon of propane;
Butane (dryer/mixer) = 0.00002 pounds per gallon of butane;
Waste Oil (dryer/mixer) = 0.147 pounds per gallon of waste oil; and
Slag = 0.5413 pounds per ton of slag processed, with a 30 day calendar month average sulfur content less than or equal to 1.11 percent by weight or 0.74 pounds per ton of slag processed, with a 30 day calendar month average sulfur content greater than 1.11 percent by weight.

(e) Nitrogen oxide (NOx) emissions shall be determined using the following equation:

$$N = \frac{\left[D(0.47) + I(0.61) + H(0.02) + G(190) + O(0.024) + F(0.047) + P(0.015) + B(0.013) + U(0.019)\right]}{2000}$$

<u>Where:</u>
N = tons of nitrogen oxide emissions for previous 12 consecutive month period;
D = gallons of diesel fuel used in generator EU-16 in previous 12 months;
I = gallons of diesel fuel used in generator EU-17 in previous 12 months;
H = gallons of No. 2 fuel oil used in hot oil heater in previous 12 months;
G = million cubic feet of natural gas used in dryer/mixer in previous 12 months;
O = gallons of No. 2 fuel oil used in dryer/mixer in previous 12 months;
F = gallons of No. 4 fuel oil used in dryer/mixer in previous 12 months;
P = gallons of propane used in dryer/mixer in previous 12 months;
B = gallons of butane used in dryer/mixer in previous 12 months; and
U = gallons of waste oil used in dryer/mixer in previous 12 months.

<u>Emission Factors</u>
Diesel Fuel (generator EU-16) = 0.47 pounds per gallon of diesel fuel;
Diesel Fuel (generator EU-17) = 0.61 pounds per gallon of diesel fuel;
No. 2 Fuel Oil (hot oil heater) = 0.02 pounds per gallon of No. 2 fuel oil;
Natural Gas (dryer/mixer) = 190 pounds per million cubic feet of natural gas;
No. 2 Fuel Oil (dryer/mixer) = 0.024 pounds per gallon of No. 2 fuel oil;
No. 4 Fuel Oil (dryer/mixer) = 0.047 pounds per gallon of No. 4 fuel oil;
Propane (dryer/mixer) = 0.015 pounds per gallon of propane;
Butane (dryer/mixer) = 0.013 pounds per gallon of butane; and
Waste Oil (dryer/mixer) = 0.019 pounds per gallon of waste oil.

(f) Waste oil usage with respect to the actual chlorine content shall be determined using the following equation:

$$U = \sum_{k=1}^{n} \left(W_A * Cl_A\right)$$

<u>Where:</u>
U = waste oil usage in previous 12 consecutive months;
n = total number of waste oil deliveries;
k = each specific waste oil delivery;

WA = actual gallons of waste oil used from each specific waste oil delivery; and
Cl_A = actual percent by weight chlorine content of waste oil for each specific waste oil delivery.

(g) Hydrogen Chloride (HCl) emissions shall be determined using the following equation:

$$HCl = \frac{U(0.066)}{2000}$$

Where:
HCl = tons of hydrogen chloride emissions for previous 12 consecutive month period; and

U = gallons of waste oil as defined in Condition D.1.12(f).

Emission Factor:
Waste Oil = 0.066 pounds per gallon of waste oil.

~~D.1.13 Sulfur Dioxide (SO_2) Emissions and Sulfur Content~~

~~(a) Compliance with the slag limitations established in Conditions D.1.3(g) and D.1.3(h) shall be determined utilizing one of the following options:~~

~~(1) Providing vendor analysis of all slag delivered, if accompanied by a vendor certification; or~~

~~(2) Analyzing a sample of the slag delivery to determine the sulfur content of the slag, utilizing any applicable procedures and analysis method 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 one hundred fifty (150) million British thermal units per hour burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6, or other procedures approved by IDEM, OAQ.~~

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

~~(b) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate compliance with sulfur dioxide emissions and sulfur content limitations by:~~

~~(1) Providing vendor analysis of 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.~~

~~(c) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the dryer/mixer, using 40 CFR 60, Appendix A, Method 6 in accordance~~

~~with the procedures in 326 IAC 3-6.~~

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

D.1.11 Sulfur Dioxide Emissions and Sulfur Content

(a) Pursuant to 326 IAC 2-8-4, compliance with Condition D.1.4(a)(1) shall be determined utilizing one of the following options:

(1) Providing vendor analysis of slag delivered, if accompanied by a vendor certification; or

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

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.

(b) Pursuant to 326 IAC 3-7-4, compliance with Conditions D.1.5(a) and D.1.5(b) shall be demonstrated utilizing one of the following options:

(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.

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

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

(c) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the dryer/mixer, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

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

D.1.13 Hydrogen Chloride (HCl) Emissions and Chlorine Content

In order to comply with Condition D.1.4(a)(7), the Permittee shall demonstrate that the chlorine content of the waste oil combusted in the dryer/mixer does not exceed 0.4 percent by weight, by providing a vendor analysis of each fuel delivery accompanied by a vendor certification.

~~D.1.18 Cutback Asphalt Production Rate [326 IAC 2-8-4][326 IAC 2-3]~~

~~To document compliance with Conditions D.1.6 and D.1.7, the Permittee shall maintain daily records at the source of the following values:~~

~~(1) Amount and type of liquid binder used in the production of cold mix asphalt each day;~~

~~(2) Type and VOC solvent content by weight of the liquid binder used in the production of cold mix asphalt each day;~~

~~(3) Amount of VOC solvent used in the production of cold mix asphalt each day.~~

~~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.~~

~~D.1.19 Record Keeping Requirements~~

~~(a) To document compliance with Conditions D.1.1, D.1.2(a), D.1.2(b), D.1.3 (a), D.1.3(c), D.1.3(d) and D.1.3(f), the Permittee shall keep records of the amount of asphalt processed through the dryer/mixer. Records necessary to demonstrate compliance shall be available within thirty (30) days of the end of each compliance period.~~

~~(b) To document compliance with Condition D.1.3(b) the Permittee shall maintain records of the amount of slag used per day. For the annual slag usage limit, the compliance determination period is the most recent three hundred sixty-five (365) consecutive day period.~~

~~(c) To document compliance with Conditions D.1.3(g) and D.1.3 (h), the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) shall be taken daily and shall be complete and sufficient to establish compliance with the SO_2 emission limits established in Conditions D.1.3(g) and D.1.3(h). For the sulfur content limit, the compliance determination period is each calendar month.~~

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

~~(2) Actual slag usage, sulfur content in weight percent (wt%) and the equivalent sulfur dioxide emission rates for all slag used at the source per day;~~

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

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

~~(4) Slag supplier certifications;~~

~~(5) The name of the slag supplier;~~

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

~~(d) To document compliance with Conditions D.1.4 and D.1.5, the Permittee shall maintain records in accordance with (1) through (7) below. Records maintained for (1) through (7) shall be taken daily and shall be complete and sufficient to establish compliance with the SO2, HCl and NOx emission limits established in Condition D.1.4 and D.1.5. For the annual fuel limits, the compliance determination period is the most recent three hundred sixty-five (365) consecutive day period. For the HCl and sulfur content limits, the compliance determination period is each calendar month.~~

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

~~(2) Actual fuel usage of each fuel used since last compliance determination period and equivalent sulfur dioxide, nitrogen oxide emissions, and hydrochloric acid emissions;~~

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

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

~~(4) Fuel supplier certifications;~~

~~(5) The name of the fuel supplier; and~~

~~(6) A statement from the fuel supplier that certifies the sulfur content of the fuel oil, or waste oil, and a statement from the fuel supplier that certifies the chlorine content of the waste oil; and~~

~~(7) Amount of hours of operation of each of the two (2) reciprocating internal combustion engines.~~

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

~~(e) To document compliance with Conditions D.1.4(c) and D.1.11 when combusting more than one fuel per three hundred sixty-five (365) consecutive day period in the dryer/mixer burner and hot oil heating system, the Permittee shall maintain records of actual fuel usage, and equivalent nitrogen oxides and sulfur dioxide emission rates for each fuel used at the source per day.~~

~~(f) To document compliance with Condition D.1.15, the Permittee shall maintain daily records of the visible emission notations from each of the conveyors, screens, material transfer points, and the dryer/mixer stack (SV1) exhaust. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).~~

~~(g) To document compliance with Condition D.1.16, the Permittee shall maintain daily records of the pressure drop across the baghouse controlling the dryer/mixer. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of pressure drop reading (e.g. the process did not operate that day).~~

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

D.1.17 Record Keeping Requirements

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

(b) To document compliance with Conditions D.1.4 and D.1.5, the Permittee shall maintain records in accordance with (1) through (8) below. Records maintained for (1) through (8) below shall be taken monthly and shall be complete and sufficient to establish compliance with the limits established in Conditions D.1.4 and D.1.5.

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

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

(3) A certification, signed by the owner or operator, that the records of the slag

supplier certifications represent all of the slag used during the period; and

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

(i) Slag supplier certifications;

(ii) The name of the slag supplier; and

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

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

(6) Actual waste oil usage, chlorine content, and equivalent hydrogen chloride emission rate for waste oil used at the source since the last compliance determination period;

(7) 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

(8) 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 and No. 4 fuel oils, diesel fuel, and waste oil, and the chlorine content of waste oil.

(c) To document compliance with Condition D.1.6, 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.1.6.

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

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

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

(4) 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.

(d) To document compliance with Condition D.1.14, the Permittee shall maintain records of visible emission notations of the dryer/mixer stack (S-1) 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 compliance with Condition D.1.15, the Permittee shall maintain records once per day of the pressure drop 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).

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

D.1.~~20~~**18** Reporting Requirements

A quarterly summary of the information to document compliance with Conditions ~~D.1.2(a), D.1.2(b), D.1.3(a), D.1.3(b), D.1.3(c), D.1.3(e), D.1.3(f), D.1.3(g), D.1.5(a), D.1.5(b), D.1.6, D.1.10 and D.1.11~~ **D.1.1(a), D.1.2(a), D.1.4, D.1.5, and D.1.6** shall be submitted to the addresses listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

The following are the Quarterly Reporting forms in the permit that have been revised:

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

FESOP Usage Report
(Submit Report Quarterly)

Source Name: Rieth-Riley Construction Co., Inc.
Source Address: Portable
Mailing Address: P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.: F127-27075-05241
Facility: Mixer/burner
Parameter: Amount of asphalt produced
Limit: 1,000,000 tons per 365 consecutive day period with compliance determined at the end of each day.

Month: _____ **Year:** _____

Day	This day (tons)	Previous 364 days (tons)	365 day Total (tons)	Day	This day (tons)	Previous 364 days (tons)	365 day Total (tons)
1				17			
2				18			
3				19			
4				20			
5				21			
6				22			
7				23			
8				24			
9				25			
10				26			
11				27			
12				28			
13				29			
14				30			
15				31			
16							

☐ No deviation occurred in this month.

☐ Deviation/s occurred in this month.
Deviation has been reported on_____

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

Attach a signed certification to complete this report.

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

~~FESOP Quarterly Report~~

~~Page 1 of 5~~

~~Source Name:~~ ~~Rieth-Riley Construction Co., Inc.~~
~~Source Address:~~ ~~Portable~~
~~Mailing Address:~~ ~~P.O. Box 477, Goshen, Indiana 46527~~
~~FESOP Permit No.:~~ ~~F127-27075-05241~~
~~Facilities:~~ ~~Dryer/mixer burner and all other combustion equipment~~
~~Parameters:~~ ~~**Fuel Usage and Sulfur Dioxide (SO_2) Emissions**~~
~~Limit:~~ ~~Sulfur dioxide (SO_2) emissions shall be less than 100 tons per 365 consecutive day period based on the following equation:~~

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

~~where:~~
~~S = tons of sulfur dioxide emissions for 365 consecutive day period;~~
~~G = million cubic feet of natural gas used in last 365 days;~~
~~O = gallons of No. 2 fuel oil used in last 365 days with less than or equal to 0.50% sulfur content;~~
~~F = gallons of No. 4 fuel oil used in last 365 days with less than or equal to 0.50% sulfur content;~~
~~P = gallons of propane used in the last 365 days with less than or equal to 0.20 grains per 100 cubic feet of sulfur content;~~
~~B = gallons of butane used in the last 365 days with less than or equal to 0.20 grains per 100 cubic feet of sulfur content;~~
~~U = gallons waste oil as defined in condition D.1.4(b)(6); and~~
~~L = tons of slag used in the last 365 days with less than or equal to one and fifty hundredths percent (1.50%) sulfur content.~~

~~Emission Factors for Sulfur dioxide~~
~~E_G = 0.6 pounds per million cubic feet of natural gas;~~
~~E_O = 0.0785 pounds per gallon of No. 2 fuel oil;~~
~~E_F = 0.075 pounds per gallon of No. 4 fuel oil;~~
~~E_P = 0.00002 pounds per gallon of propane;~~
~~E_B = 0.00002 pounds per gallon of butane; and~~
~~E_U = 0.147 pounds per gallon of waste oil.~~
~~E_L = 0.74 pounds per ton of slag processed.~~

~~QUARTER:~~ _____ ~~MONTH:~~ _____ ~~YEAR:~~ _____

~~☐ No deviation occurred in this month.~~
~~☐ Deviation/s occurred in this month.~~
~~Deviation has been reported on:~~

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

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

FESOP Fuel Usage, Slag Usage, and Sulfur Dioxide (SO2) Emissions Reporting Form Page 2 of 5

QUARTER:_____ MONTH: _____ YEAR: _____

	Natural Gas				No. 2 Fuel Oil				
	Column 1	Column 2	Column 1 + Column 2	Equation Results	Sulfur Content of Fuel	Column 1	Column 2	Column 1 + Column 2	Equation Results
Day	Fuel Usage This Day (million cubic feet)	Fuel Usage Previous 364 days (million cubic feet)	Fuel Usage 365 day Total (million cubic feet)	SO2 Emissions (tons per 365 days)		Fuel Usage This Day (gal)	Fuel Usage Previous 364 days (gal)	Fuel Usage 365 day Total (gal)	SO2 Emissions (tons per 365 days)
1	-	-	-	-	≤ 0.5 wt%	-	-	-	-
2	-	-	-	-		-	-	-	-
3	-	-	-	-		-	-	-	-
4	-	-	-	-		-	-	-	-
5	-	-	-	-		-	-	-	-
6	-	-	-	-		-	-	-	-
7	-	-	-	-		-	-	-	-
8	-	-	-	-		-	-	-	-
9	-	-	-	-		-	-	-	-
10	-	-	-	-		-	-	-	-
11	-	-	-	-		-	-	-	-
12	-	-	-	-		-	-	-	-
13	-	-	-	-		-	-	-	-
14	-	-	-	-		-	-	-	-
15	-	-	-	-		-	-	-	-
16	-	-	-	-		-	-	-	-
17	-	-	-	-		-	-	-	-
18	-	-	-	-		-	-	-	-
19	-	-	-	-		-	-	-	-
20	-	-	-	-		-	-	-	-
21	-	-	-	-		-	-	-	-
22	-	-	-	-		-	-	-	-
23	-	-	-	-		-	-	-	-
24	-	-	-	-		-	-	-	-
25	-	-	-	-		-	-	-	-
26	-	-	-	-		-	-	-	-
27	-	-	-	-		-	-	-	-
28	-	-	-	-		-	-	-	-
29	-	-	-	-		-	-	-	-
30	-	-	-	-		-	-	-	-
31	-	-	-	-		-	-	-	-

~~FESOP Fuel Usage, Slag Usage, and Sulfur Dioxide (SO2) Emissions Reporting Form~~ ~~Page 3 of 5~~

~~QUARTER:~~_____ ~~MONTH:~~ _____ ~~YEAR:~~ _____

	~~No. 4 Fuel Oil~~					**~~Propane~~**				
~~Day~~	~~Sulfur Content of Fuel~~	~~Column 1~~ ~~Fuel Usage This Day (gal)~~	~~Column 2~~ ~~Fuel Usage Previous 364 days (gal)~~	~~Column 1 + Column 2~~ ~~Fuel Usage 365 day Total (gal)~~	~~Equation Results~~ ~~SO2 Emissions (tons per 365 days)~~	~~Sulfur Content of Fuel~~	~~Column 1~~ ~~Fuel Usage This Day (gal)~~	~~Column 2~~ ~~Fuel Usage Previous 364 days (gal)~~	~~Column 1 + Column 2~~ ~~Fuel Usage 365 day Total (gal)~~	~~Equation Results~~ ~~SO2 Emissions (tons per 365 days)~~
~~1~~	~~≤ 0.5 wt%~~	-	-	-	-	~~≤ 0.20 gr/100 ft^3~~	-	-	-	-
~~2~~		-	-	-	-		-	-	-	-
~~3~~		-	-	-	-		-	-	-	-
~~4~~		-	-	-	-		-	-	-	-
~~5~~		-	-	-	-		-	-	-	-
~~6~~		-	-	-	-		-	-	-	-
~~7~~		-	-	-	-		-	-	-	-
~~8~~		-	-	-	-		-	-	-	-
~~9~~		-	-	-	-		-	-	-	-
~~10~~		-	-	-	-		-	-	-	-
~~11~~		-	-	-	-		-	-	-	-
~~12~~		-	-	-	-		-	-	-	-
~~13~~		-	-	-	-		-	-	-	-
~~14~~		-	-	-	-		-	-	-	-
~~15~~		-	-	-	-		-	-	-	-
~~16~~		-	-	-	-		-	-	-	-
~~17~~		-	-	-	-		-	-	-	-
~~18~~		-	-	-	-		-	-	-	-
~~19~~		-	-	-	-		-	-	-	-
~~20~~		-	-	-	-		-	-	-	-
~~21~~		-	-	-	-		-	-	-	-
~~22~~		-	-	-	-		-	-	-	-
~~23~~		-	-	-	-		-	-	-	-
~~24~~		-	-	-	-		-	-	-	-
~~25~~		-	-	-	-		-	-	-	-
~~26~~		-	-	-	-		-	-	-	-
~~27~~		-	-	-	-		-	-	-	-
~~28~~		-	-	-	-		-	-	-	-
~~29~~		-	-	-	-		-	-	-	-
~~30~~		-	-	-	-		-	-	-	-
~~31~~		-	-	-	-		-	-	-	-

~~FESOP Fuel Usage, Slag Usage, and Sulfur Dioxide (SO2) Emissions Reporting Form~~ ~~Page 4 of 5~~

~~QUARTER:~~_____ ~~MONTH:~~ _____ ~~YEAR:~~ _____

	~~Butane~~					**~~Used/Waste Oil~~**				
~~Day~~	~~Sulfur Content of Fuel~~	~~Column 1~~ ~~Fuel Usage This Day (gal)~~	~~Column 2~~ ~~Fuel Usage Previous 364 days (gal)~~	~~Column 1 + Column 2~~ ~~Fuel Usage 365 day Total (gal)~~	~~Equation Results~~ ~~SO2 Emissions (tons per 365 days)~~	~~Sulfur Content of Fuel (%)~~	~~Column 1~~ ~~Fuel Usage This Day (gal)~~	~~Column 2~~ ~~Fuel Usage Previous 364 days (gal)~~	~~Column 1 + Column 2~~ ~~Fuel Usage 365 day Total (gal)~~	~~Equation Results~~ ~~SO2 Emissions (tons per 365 days)~~
~~1~~	~~≤ 0.20 gr/100 ft^3~~	-	-	-	-	-	-	-	-	-
~~2~~		-	-	-	-	-	-	-	-	-
~~3~~		-	-	-	-	-	-	-	-	-
~~4~~		-	-	-	-	-	-	-	-	-
~~5~~		-	-	-	-	-	-	-	-	-
~~6~~		-	-	-	-	-	-	-	-	-
~~7~~		-	-	-	-	-	-	-	-	-
~~8~~		-	-	-	-	-	-	-	-	-
~~9~~		-	-	-	-	-	-	-	-	-
~~10~~		-	-	-	-	-	-	-	-	-
~~11~~		-	-	-	-	-	-	-	-	-
~~12~~		-	-	-	-	-	-	-	-	-
~~13~~		-	-	-	-	-	-	-	-	-
~~14~~		-	-	-	-	-	-	-	-	-
~~15~~		-	-	-	-	-	-	-	-	-
~~16~~		-	-	-	-	-	-	-	-	-
~~17~~		-	-	-	-	-	-	-	-	-
~~18~~		-	-	-	-	-	-	-	-	-
~~19~~		-	-	-	-	-	-	-	-	-
~~20~~		-	-	-	-	-	-	-	-	-
~~21~~		-	-	-	-	-	-	-	-	-
~~22~~		-	-	-	-	-	-	-	-	-
~~23~~		-	-	-	-	-	-	-	-	-
~~24~~		-	-	-	-	-	-	-	-	-
~~25~~		-	-	-	-	-	-	-	-	-
~~26~~		-	-	-	-	-	-	-	-	-
~~27~~		-	-	-	-	-	-	-	-	-
~~28~~		-	-	-	-	-	-	-	-	-
~~29~~		-	-	-	-	-	-	-	-	-
~~30~~		-	-	-	-	-	-	-	-	-
~~31~~		-	-	-	-	-	-	-	-	-

~~FESOP Fuel Usage, Slag Usage, and Sulfur Dioxide (SO2) Emissions Reporting Form~~ **~~Page 5 of 5~~**

~~QUARTER:_____ MONTH: _____ YEAR: _____~~

-		~~Slag~~				
-		~~Column 1~~	~~Column 2~~	~~Column 1 + Column 2~~	~~Equation Results~~	**~~Total SO2 Emissions for All Fuels and Slag Used (N) (tons per 365 days)~~**
~~Day~~	~~Sulfur Content of Slag (%)~~	~~Slag Usage This Day (tons)~~	~~Slag Usage Previous 364 days (tons)~~	~~Slag Usage 365 day Total (tons)~~	~~SO2 Emissions (tons per 365 days)~~	
~~1~~	~~≤ 1.50%~~	-	-	-	-	-
~~2~~		-	-	-	-	-
~~3~~		-	-	-	-	-
~~4~~		-	-	-	-	-
~~5~~		-	-	-	-	-
~~6~~		-	-	-	-	-
~~7~~		-	-	-	-	-
~~8~~		-	-	-	-	-
~~9~~		-	-	-	-	-
~~10~~		-	-	-	-	-
~~11~~		-	-	-	-	-
~~12~~		-	-	-	-	-
~~13~~		-	-	-	-	-
~~14~~		-	-	-	-	-
~~15~~		-	-	-	-	-
~~16~~		-	-	-	-	-
~~17~~		-	-	-	-	-
~~18~~		-	-	-	-	-
~~19~~		-	-	-	-	-
~~20~~		-	-	-	-	-
~~21~~		-	-	-	-	-
~~22~~		-	-	-	-	-
~~23~~		-	-	-	-	-
~~24~~		-	-	-	-	-
~~25~~		-	-	-	-	-
~~26~~		-	-	-	-	-
~~27~~		-	-	-	-	-
~~28~~		-	-	-	-	-
~~29~~		-	-	-	-	-
~~30~~		-	-	-	-	-
~~31~~		-	-	-	-	-

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

~~FESOP Quarterly Report~~

~~Page 1 of 4~~

~~Source Name:~~ ~~Rieth-Riley Construction Co., Inc.~~
~~Source Address:~~ ~~Portable~~
~~Mailing Address:~~ ~~P.O. Box 477, Goshen, Indiana 46527~~
~~FESOP Permit No.:~~ ~~F127-27075-05241~~
~~Facilities:~~ ~~Dryer/mixer burner and all other combustion equipment~~
~~Parameters:~~ ~~**Fuel Usage and Nitrogen Oxides (NOx) Emissions**~~
~~Limit:~~ ~~NOx emissions shall be less than 100 tons per three hundred sixty-five (365) consecutive day period based on the following equation:~~

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

~~where:~~
~~N = tons of nitrogen oxide emissions for a 365 consecutive day period;~~
~~G = million cubic feet of natural gas used in the last 365 days;~~
~~O = gallons of No. 2 fuel oil used in last 365 days;~~
~~F = gallons of No. 4 fuel oil used for last 365 days;~~
~~P = gallons of propane used in the last 365 days;~~
~~B = gallons of butane used in the last 365 days; and~~
~~U = gallons used/waste oil as defined in condition D.1.4(b)(6).~~

~~Emission Factors for Nitrogen oxides~~
~~E_G = 280 pounds per million cubic feet of natural gas;~~
~~E_O = 0.024 pounds per gallon of No. 2 fuel oil;~~
~~E_F = 0.047 pounds per gallon of No. 4 fuel oil;~~
~~E_P = 0.013 pounds per gallon of propane;~~
~~E_B = 0.015 pounds per gallon of butane; and~~
~~E_U = 0.019 pounds per gallon of used/waste oil.~~

~~QUARTER:~~ _____ ~~MONTH:~~ _____ ~~YEAR:~~ _____

~~☐ No deviation occurred in this month.~~
~~☐ Deviation/s occurred in this month.~~
~~Deviation has been reported on:~~

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

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

FESOP Fuel Usage and Nitrogen Oxides (NOx) Emissions Reporting Form Page 2 of 4 QUARTER:_____ MONTH: _____ YEAR: _____

	Natural Gas				No. 2 Fuel Oil			
	Column 1	Column 2	Column 1 + Column 2	Equation Results	Column 1	Column 2	Column 1 + Column 2	Equation Results
Day	Fuel Usage This Day (million cubic feet)	Fuel Usage Previous 364 days (million cubic feet)	Fuel Usage 365 day Total (million cubic feet)	NOx Emissions (tons per 365 days)	Fuel Usage This Day (gal)	Fuel Usage Previous 364 days (gal)	Fuel Usage 365 day Total (gal)	NOx Emissions (tons per 365 days)
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-

~~FESOP Fuel Usage and Nitrogen Oxides (NOx) Emissions Reporting Form Page 3 of 4~~ ~~UARTER:~~ _____ ~~MONTH:~~ _____ ~~YEAR:~~ _____

	~~No. 4 Fuel Oil~~				~~Propane~~			
	~~Column 1~~	~~Column 2~~	~~Column 1 + Column 2~~	~~Equation Results~~	~~Column 1~~	~~Column 2~~	~~Column 1 + Column 2~~	~~Equation Results~~
~~Day~~	~~Fuel Usage This Day (gal)~~	~~Fuel Usage Previous 364 days (gal)~~	~~Fuel Usage 365 day Total (gal)~~	~~NOx Emissions (tons per 365 days)~~	~~Fuel Usage This Day (gal)~~	~~Fuel Usage Previous 364 days (gal)~~	~~Fuel Usage 365 day Total (gal)~~	~~NOx Emissions (tons per 365 days)~~
~~1~~	-	-	-	-	-	-	-	-
~~2~~	-	-	-	-	-	-	-	-
~~3~~	-	-	-	-	-	-	-	-
~~4~~	-	-	-	-	-	-	-	-
~~5~~	-	-	-	-	-	-	-	-
~~6~~	-	-	-	-	-	-	-	-
~~7~~	-	-	-	-	-	-	-	-
~~8~~	-	-	-	-	-	-	-	-
~~9~~	-	-	-	-	-	-	-	-
~~10~~	-	-	-	-	-	-	-	-
~~11~~	-	-	-	-	-	-	-	-
~~12~~	-	-	-	-	-	-	-	-
~~13~~	-	-	-	-	-	-	-	-
~~14~~	-	-	-	-	-	-	-	-
~~15~~	-	-	-	-	-	-	-	-
~~16~~	-	-	-	-	-	-	-	-
~~17~~	-	-	-	-	-	-	-	-
~~18~~	-	-	-	-	-	-	-	-
~~19~~	-	-	-	-	-	-	-	-
~~20~~	-	-	-	-	-	-	-	-
~~21~~	-	-	-	-	-	-	-	-
~~22~~	-	-	-	-	-	-	-	-
~~23~~	-	-	-	-	-	-	-	-
~~24~~	-	-	-	-	-	-	-	-
~~25~~	-	-	-	-	-	-	-	-
~~26~~	-	-	-	-	-	-	-	-
~~27~~	-	-	-	-	-	-	-	-
~~28~~	-	-	-	-	-	-	-	-
~~29~~	-	-	-	-	-	-	-	-
~~30~~	-	-	-	-	-	-	-	-
~~31~~	-	-	-	-	-	-	-	-

FESOP Fuel Usage and Nitrogen Oxides (NOx) Emissions Reporting Form Page 4 of 4 QUARTER:_____ MONTH: _____ YEAR: _____

	Butane				Used/Waste Oil				Total NOx Emissions for All Fuels Used (N) (tons per 365 days)
	Column 1	Column 2	Column 1 + Column 2	Equation Results	Column 1	Column 2	Column 1 + Column 2	Equation Results	
Day	Fuel Usage This Day (gal)	Fuel Usage Previous 364 days (gal)	Fuel Usage 365 day Total (gal)	NOx Emissions (tons per 365 days)	Fuel Usage This Day (gal)	Fuel Usage Previous 364 days (gal)	Fuel Usage 365 day Total (gal)	NOx Emissions (tons per 365 days)	
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-

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

FESOP Quarterly Report

Page 1 of 2

Source Name: Rieth-Riley Construction Co., Inc.
Source Address: Portable
Mailing Address: P.O. Box 477, Goshen, Indiana 46527
FESOP Permit No.: F127-27075-05241
Facilities: Dryer/mixer burner and all other combustion equipment
Parameters: **Fuel Usage and Hydrogen Chloride (HCl) Emissions**
Limit: HCl emissions shall be less than 9.9 tons per three hundred sixty-five (365) consecutive day period based on the following equation:

$$HCl = \frac{U(E_{Cl})}{[2000 \text{ lbs/ ton}]}$$

where:
U = gallons used/waste oil as defined in condition D.1.4(b)(6).

Emission Factors for Hydrogen Chloride
E_{Cl} = 0.066 pounds per gallon of waste oil.

QUARTER:_____ MONTH: _____ YEAR: _____

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

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

Attach a signed certification to complete this report.

FESOP Fuel Usage and Hydrogen Chloride (HCL) Emissions Reporting Form Page 2 of 2

QUARTER:_____ MONTH: _____ YEAR: _____

	Used/Waste Oil ≤ 0.40 wt% chlorine				
	Chlorine Content of Fuel (%)	Column 1	Column 2	Column 1 + Column 2	Equation Results
Day		Fuel Usage This Day (gal)	Fuel Usage Previous 364 days (gal)	Fuel Usage 365 day Total (gal)	**Total HCl Emissions from Waste Oil (tons per 365 days)**
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
6	-	-	-	-	-
7	-	-	-	-	-
8	-	-	-	-	-
9	-	-	-	-	-
10	-	-	-	-	-
11	-	-	-	-	-
12	-	-	-	-	-
13	-	-	-	-	-
14	-	-	-	-	-
15	-	-	-	-	-
16	-	-	-	-	-
17	-	-	-	-	-
18	-	-	-	-	-
19	-	-	-	-	-
20	-	-	-	-	-
21	-	-	-	-	-
22	-	-	-	-	-
23	-	-	-	-	-
24	-	-	-	-	-
25	-	-	-	-	-
26	-	-	-	-	-
27	-	-	-	-	-
28	-	-	-	-	-
29	-	-	-	-	-
30	-	-	-	-	-
31	-	-	-	-	-

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

~~FESOP Usage Report~~
~~(Submit Report Quarterly)~~

~~Source Name:~~ ~~Rieth-Riley Construction Co., Inc.~~
~~Source Address:~~ ~~Portable~~
~~Mailing Address:~~ ~~P.O. Box 477, Goshen, Indiana 46527~~
~~FESOP Permit No.:~~ ~~F127-27075-05241~~
~~Facility:~~ ~~Cutback Asphalt Process~~
~~Parameter:~~ ~~Volatile Organic Compound (VOC) emissions~~
~~Limit:~~ ~~2.72 tons of VOC emitted per 365 consecutive day period with compliance determined at the end of each day, where VOC emissions (tons) = Amount of diluent Used (tons) x Weight % VOC in diluent.~~

~~Month:~~ _____ **~~Year:~~** _____

~~Day~~	~~This day (tons)~~	~~Previous 364 days (tons)~~	~~365 day Total (tons)~~	~~Day~~	~~This day (tons)~~	~~Previous 364 days (tons)~~	~~365 day Total (tons)~~
~~1~~				~~17~~			
~~2~~				~~18~~			
~~3~~				~~19~~			
~~4~~				~~20~~			
~~5~~				~~21~~			
~~6~~				~~22~~			
~~7~~				~~23~~			
~~8~~				~~24~~			
~~9~~				~~25~~			
~~10~~				~~26~~			
~~11~~				~~27~~			
~~12~~				~~28~~			
~~13~~				~~29~~			
~~14~~				~~30~~			
~~15~~				~~31~~			
~~16~~							

☐ ~~No deviation occurred in this month.~~
☐ ~~Deviation/s occurred in this month.~~
~~Deviation has been reported on~~ _____

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

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

The following are the new reporting forms added to the permit:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
FESOP Quarterly Report
Page 1 of 3

Source Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **Portable**
Mailing Address: **P.O. Box 477, Goshen, Indiana 46527**
FESOP Permit No.: **F127-27075-05241**
Facility: **Dryer/mixer burner, internal combustion engine/generators, hot oil heater, and slag processing**
Parameter: **SO2 and NOx emissions**
Limit: **SO2 emissions from the dryer/mixer burner, internal combustion engine/generators, hot oil heater, and slag processing shall not exceed 99.0 tons per twelve (12) consecutive month period, with compliance determined at the end of each month; and**
NOx emissions from the dryer/mixer burner, internal combustion engine/generators, and hot oil heater shall not exceed 99.0 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Sulfur dioxide (SO2) emissions shall be determined using the following equation:

$$S = \frac{[D(0.0792) + I(0.04) + H(0.071) + G(0.6) + O(0.0785) + F(0.075) + P(0.00002) + B(0.00002) + U(0.147) + L(0.5413) + X(0.74)]}{2000}$$

Where:	Emission Factors:
S = tons of sulfur dioxide emissions for previous 12 consecutive month period; D = gallons of diesel fuel used in internal combustion engine/generator EU-16 in previous 12 months; I = gallons of diesel fuel used in internal combustion engine/generator EU-17 in previous 12 months; H = gallons of No. 2 fuel oil used in hot oil heater in previous 12 months; G = million cubic feet of natural gas used in dryer/mixer in previous 12 months; O = gallons of No. 2 fuel oil used in dryer/mixer in previous 12 months; F = gallons of No. 4 fuel oil used in dryer/mixer in previous 12 months; P = gallons of propane used in dryer/mixer in previous 12 months; B = gallons of butane used in dryer/mixer in previous 12 months; U = gallons of waste oil as defined by Condition D.1.12(a); L = tons of slag as defined by Condition D.1.12(b); and X = tons of slag as defined by Condition D.1.12(c).	Diesel Fuel (internal combustion engine/generator EU-16 = 0.0792 lbs/gal of diesel fuel; Diesel Fuel (internal combustion engine/generator EU-17) = 0.04 lbs/gal of diesel fuel; No. 2 Fuel Oil (hot oil heater) = 0.071 lbs/gal of No. 2 fuel oil; Natural Gas (dryer/mixer) = 0.6 lbs/MMcf of natural gas; No. 2 Fuel Oil (dryer/mixer) = 0.0785 lbs/gal of No. 2 fuel oil; No. 4 Fuel Oil (dryer/mixer) = 0.075 lbs/gal of No. 4 fuel oil; Propane (dryer/mixer) = 0.00002 lbs/gal of propane; Butane (dryer/mixer) = 0.00002 lbs/gal of butane; Waste Oil (dryer/mixer) = 0.147 lbs/gal of waste oil; and Slag = 0.5413 lbs/ton of slag processed, with a sulfur content ≤ 1.11 percent by weight or 0.74 lbs/ton of slag processed, with a sulfur content > 1.11 percent by weight.

Nitrogen oxide (NOx) emissions shall be determined using the following equation:

$$N = \frac{[D(0.47) + I(0.61) + H(0.02) + G(190) + O(0.024) + F(0.047) + P(0.015) + B(0.013) + U(0.019)]}{2000}$$

Where:	Emission Factors
N = tons of nitrogen oxide emissions for previous 12 consecutive month period; D = gallons of diesel fuel used in internal combustion engine/generator EU-16 in previous 12 months; I = gallons of diesel fuel used in internal combustion engine/generator EU-17 in previous 12 months; H = gallons of No. 2 fuel oil used in hot oil heater in previous 12 months; G = million cubic feet of natural gas used in dryer/mixer in previous 12 months; O = gallons of No. 2 fuel oil used in dryer/mixer in previous 12 months; F = gallons of No. 4 fuel oil used in dryer/mixer in previous 12 months; P = gallons of propane used in dryer/mixer in previous 12 months; B = gallons of butane used in dryer/mixer in previous 12 months; and U = gallons of waste oil used in dryer/mixer in previous 12 months.	Diesel Fuel (internal combustion engine/generator EU-16) = 0.47 lbs/gal of diesel fuel; Diesel Fuel (internal combustion engine/generator EU-17) = 0.61 lbs/gal of diesel fuel; No. 2 Fuel Oil (hot oil heater) = 0.02 lbs/gal of No. 2 fuel oil; Natural Gas (dryer/mixer) = 190 lbs/MMcf of natural gas; No. 2 Fuel Oil (dryer/mixer) = 0.024 lbs/gal of No. 2 fuel oil; No. 4 Fuel Oil (dryer/mixer) = 0.047 lbs/gal of No. 4 fuel oil; Propane (dryer/mixer) = 0.015 lbs/gal of propane; Butane (dryer/mixer) = 0.013 lbs/gal of butane; and Waste Oil (dryer/mixer) = 0.019 lbs/gal of waste oil.

Quarter: _____ **Year:** _____

Month	Fuel Types (units)	Column 1	Column 2	Column 1 + Column 2	Total SO2 Emissions From All Fuels and Slag Used (tons per 12 month consecutive period)	Total NOx Emissions From All Fuels Used (tons per 12 month consecutive period)
		Usage This Month	Usage Previous 11 Months	Usage 12 Month Total		
Month 1	Diesel fuel EU-16 (gallons)					
	Diesel fuel EU-17 (gallons)					
	No. 2 fuel oil (Hot Oil Heater) (gallons)					
	Natural gas (mmcf)					
	No. 2 fuel oil (gallons)					
	No. 4 fuel oil (gallons)					
	Propane (gallons)					
	Butane (gallons)					
	Waste oil (gallons)					
	Slag (tons)					
	Average sulfur content of slag (%)					
Month 2	Diesel fuel EU-16 (gallons)					
	Diesel fuel EU-17 (gallons)					
	No. 2 fuel oil (Hot Oil Heater) (gallons)					
	Natural gas (mmcf)					
	No. 2 fuel oil (gallons)					
	No. 4 fuel oil (gallons)					
	Propane (gallons)					
	Butane (gallons)					
	Waste oil (gallons)					
	Slag (tons)					
	Average sulfur content of slag (%)					
Month 3	Diesel fuel EU-16 (gallons)					
	Diesel fuel EU-17 (gallons)					
	No. 2 fuel oil (Hot Oil Heater) (gallons)					
	Natural gas (mmcf)					
	No. 2 fuel oil (gallons)					
	No. 4 fuel oil (gallons)					
	Propane (gallons)					
	Butane (gallons)					
	Waste oil (gallons)					
	Slag (tons)					
	Average sulfur content of slag (%)					

FESOP Fuel Usage, Slag Usage, and SO2 and NOx Emissions Quarterly Reporting Form

☐ **No deviation occurred in this quarter.**

☐ **Deviation/s occurred in this quarter.**

Deviation has been reported on:_____

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

Attach a signed certification to complete this report.

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

Source Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **Portable**
Mailing Address: **P.O. Box 477, Goshen, Indiana 46527**
FESOP Permit No.: **F127-27075-05241**
Facility: **Drum dryer/mixer**
Parameter: **HCl emissions**
Limit: **HCl emissions dryer/mixer burner, internal combustion engine/generators, and hot oil heater shall not exceed 9.9 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. Hydrogen Chloride (HCl) emissions shall be determined using the following equation:**

$$HCl = \frac{U(0.066)}{2000}$$

Where:	**Emission Factor:**
HCl = tons of hydrogen chloride emissions for previous 12 consecutive month period; and U = gallons of waste oil as defined in Condition D.1.12(f).	**Waste Oil = 0.066 pounds per gallon of waste oil.**

Quarter: _____ **Year:** _____

Month	Column 1	Column 2	Column 1 + Column 2	Total HCl Emissions From Waste Oil Used (tons per 12 month consecutive period)
	Usage This Month	Usage Previous 11 Months	Usage 12 Month Total	
Month 1				
Month 2				
Month 3				

☐ **No deviation occurred in this quarter.**
☐ **Deviation/s occurred in this quarter.**
Deviation has been reported on:_____
Submitted by: _____
Title / Position:_____
Signature: _____
Date: _____
Phone: _____
Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **Portable**
Mailing Address: **P.O. Box 477, Goshen, Indiana 46527**
FESOP Permit No.: **F127-27075-05241**
Facility: **Drum dryer/mixer**
Parameter: **Hot mix asphalt production**
Limit: **The asphalt production rate 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
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

☐ **No deviation occurred in this quarter.**

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

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

Attach a signed certification to complete this report.

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

FESOP Quarterly Report
Page 1 of 2

Source Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **Portable**
Mailing Address: **P.O. Box 477, Goshen, Indiana 46527**
FESOP Permit No.: **F127-27075-05241**
Facility: **Cold-mix asphalt production**
Parameter: **VOC emissions**
Limit: **VOC emissions from the sum of the binders shall not exceed 2.72 tons per twelve (12) consecutive month period, with compliance determined at the end of each month, using the following equation:**

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

Quarter: _____ **Year:** _____

Month	Type of Liquid Binder	Solvent Usage This Month (tons)	Adjustment Factor	VOC Emissions from Each Binder This Month (tons)	VOC Emissions This Month (tons)	VOC Emissions Previous 11 Months (tons)	VOC Emissions 12 Month Total (tons)
Month 1	Cut back asphalt rapid cure		1.053				
	Cut back asphalt medium cure		1.429				
	Cut back asphalt slow cure		4.0				
	Emulsified asphalt		2.155				
	Other asphalt		40.0				
Month 2	Cut back asphalt rapid cure		1.053				
	Cut back asphalt medium cure		1.429				
	Cut back asphalt slow cure		4.0				
	Emulsified asphalt		2.155				
	Other asphalt		40.0				
Month 3	Cut back asphalt rapid cure		1.053				
	Cut back asphalt medium cure		1.429				
	Cut back asphalt slow cure		4.0				
	Emulsified asphalt		2.155				
	Other asphalt		40.0				

FESOP Cold Mix Asphalt Usage and VOC Emissions Quarterly Reporting Form **Page 2 of 2**

☐ **No deviation occurred in this quarter.**

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

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

Attach a signed certification to complete this report.

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

On Page 21 of 22 of the Technical Support Document a change is noted:

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

Emission Unit	Control Device	Timeframe for Testing	Pollutant	Frequency of Testing	Limit or Requirement
Aggregate Mixer/Dryer	Baghouse	180 days after publication of revised test method	PM,PM10 and PM2.5	Once every 5 years	0.132 lb PM/ton of asphalt; 0.107 lb PM10/ton of asphalt
~~Aggregate Mixer/Dryer~~	~~Stack SV-1~~	~~Within 5 years of issuance of this renewal~~	~~SO_2~~	~~Once every 5 years~~	~~0.74 pounds SO_2 per ton of slag processed~~

IDEM Contact

Questions regarding this proposed FESOP Renewal can be directed to Janet Mobley 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) 234-5373 or toll free at 1-800-451-6027 extension 4-5373.

Attachment: Revised Limited Calculations

Appendix A.2: Emissions Calculations
Limited Emission Summary

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

Asphalt Plant Limitations

Maximum Hourly Asphalt Production =	400	ton/hr						
Annual Asphalt Production Limitation =	1,000,000	ton/yr						
Slag Content Limitation =	1.50	% sulfur						
No. 2 Fuel Oil Content Limitation =	0.50	% sulfur						
No. 4 Fuel Oil Content Limitation =	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Content Limitation =	0.00	% sulfur						
Used/Waste Oil Content Limitations =	1.00	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead
Diesel Engine Oil (Generator > 600) Content Limitation =	0.50	% sulfur						
PM Dryer/Mixer Limitation =	0.132	lb/ton of asphalt production						
PM10 Dryer/Mixer Limitation =	0.107	lb/ton of asphalt production						
PM2.5 Dryer/Mixer Limitation =	0.177	lb/ton of asphalt production						
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production						
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production						
Slag SO2 Dryer/Mixer Limitation =	0.740	lb/ton of slag processed						
Cold Mix Asphalt VOC Usage Limitation =	2.72	tons/yr						
HCl Limitation =	0.0264	lb/gal						

Limited/Controlled Emissions

	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2[2]**	**NOx[2]**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Dryer Fuel Combustion (worst case)	24.00	19.13	19.13			4.95	37.77	11.22	9.90	(hydrogen chloride)
Dryer/Mixer (Process)[1]	66.00	53.50	88.50			16.00	65.00	5.33	1.55	(formaldehyde)
Dryer/Mixer Slag Processing	0	0	0	99.0	99.0	0	0	0	0	
Recipricating Internal Combustion Engine	2.91	1.67	1.67			2.62	24.76	4.58E-02	2.26E-02	(benzene)
Recipricating Internal Combustion Engine	0.90	0.90	0.90			1.05	2.77	1.13E-02	3.44E-03	(formaldehyde)
Hot Oil Heater Fuel Combustion (worst case)	0.19	0.31	0.31			0.02	0.47	0.007	0.006	(formaldehyde)
Worst Case Emissions[3,4]	**70.00**	**56.38**	**91.38**	**99.00**	**99.00**	**19.69**	**92.99**	**11.28**	**9.90**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out and On-Site Yard	0.26	0.26	0.26	0	0	2.47	0.85	0.05	0.01	(formaldehyde)
Material Storage Piles	2.23	0.78	0.78	0	0	0	0	0	0	
Material Processing and Handling	3.23	1.53	0.23	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	15.87	5.80	5.80	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	35.52	9.05	0.91	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	2.72	0	0.71	0.24	(xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0	0	0	0	
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	negl	negl	
Total Fugitive Emissions	**57.11**	**17.42**	**7.97**	**0**	**0**	**5.19**	**0.85**	**0.76**	**0.24**	(xylenes)
Totals Limited/Controlled Emissions	**127.11**	**73.80**	**99.36**	**99.00**	**99.00**	**24.88**	**93.84**	**12.04**	**9.90**	(hydrogen chloride)

negl = negligible
Fuel component percentages provided by the source.
Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.

[1] Based on the unlimited and limited potential to emit, the dryer/mixer process represents the worst case emissions of PM, PM10, PM2.5, VOC, and CO. Therefore, the source has elected to limit PM, PM10, PM2.5, VOC, and CO emissions to less than Title V and PSD applicability by accepting an asphalt production limit and a lb/ton emission limit (see TSD for more detail).

[5]The source will limit the combined SO2 emissions from the dryer mixer burner, generators, hot oil heater, and slag processing and the combined NOx emissions from the dryer mixer burner, generators, and hot oil heater such that the SO2 and NOx emissions do not exceed 99.0 tons per year, each. In addition, the source will limit the HCl emissions from the combustion of waste oil such that they do not exceed 9.9 tons per year. Compliance with these limits will be demonstrated using equations.

[3]Worst Case PM, PM10, PM2.5, VOC, CO, and Total HAPs Emissions (tons/yr) = Worst Case Emissions from Dryer/Mixer + Emissions from Generator > 600 + Emissions from Generator < 600 + Hot Oil Heater.

[4]Worst Case Single HAP Emissions (tons/yr) = Worst Case HAP Emission from Dryer/Mixer, Generator > 600, Generator < 600, or Hot Oil Heater.

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

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

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 Limitations and Fuel Usage

Maximum Hourly Asphalt Production =	400	ton/hr								
Annual Asphalt Production Limitation =	1,000,000	ton/yr								
Natural Gas Usage[1] =	876	MMCF/yr								
No. 2 Fuel Oil Usage[4] =	2,788,732	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Usage[4] =	2,640,000	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage =	0	gal/yr, and	0.00	% sulfur						
Propane Usage[1] =	9,679,558	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Usage[1] =	8,993,840	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Usage[2] =	750,000	gal/yr, and	1.00	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% 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)	Residual (No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Residual (No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	**Worse Case Fuel (tons/yr)**
PM[4]	1.9	2	7	3.22	0.5	0.6	64	0.83	2.79	9.24	0.00	2.420	2.698	24.00	**24.00**
PM10[2]	7.6	3.3	8.3	4.72	0.5	0.6	51	3.33	4.60	10.96	0.00	2.420	2.698	19.13	**19.13**
SO2[3]	0.6	71.0	75.0	0.0	0.020	0.020	147.0	0.26	99.00	99.00	0.00	0.097	0.089	55.13	**99.00**
NOx[3]	190	24.0	47.0	47.0	13.0	15.0	19.0	83.22	33.46	62.04	0.00	62.92	67.45	7.13	**83.22**
VOC[2]	5.5	0.20	0.20	0.28	1.00	1.10	1.0	2.41	0.28	0.26	0.00	4.84	4.95	0.38	**4.95**
CO[2]	84	5.0	5.0	5.0	7.5	8.4	5.0	36.79	6.97	6.60	0.00	36.30	37.77	1.88	**37.77**
Hazardous Air Pollutant															
HCl[5]							26.4							9.90	**9.90**
Antimony			5.25E-03	5.25E-03			negl			6.93E-03	0.00E+00			negl	**6.9E-03**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	8.8E-05	7.81E-04	1.74E-03	0.00E+00			4.13E-02	**4.1E-02**
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	5.3E-06	5.86E-04	3.67E-05	0.00E+00			negl	**5.9E-04**
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	4.8E-04	5.86E-04	5.25E-04	0.00E+00			3.49E-03	**3.5E-03**
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	6.1E-04	5.86E-04	1.12E-03	0.00E+00			7.50E-03	**7.5E-03**
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04	3.7E-05		7.95E-03	0.00E+00			7.88E-05	**7.9E-03**
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55	2.2E-04	1.76E-03	1.99E-03	0.00E+00			2.06E-01	**0.21**
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	1.7E-04	1.17E-03	3.96E-03	0.00E+00			2.55E-02	**0.03**
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				1.1E-04	5.86E-04	1.49E-04	0.00E+00				**5.9E-04**
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	9.2E-04	5.86E-04	1.12E-01	0.00E+00			4.13E-03	**0.112**
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl	1.1E-05	2.93E-03	9.02E-04	0.00E+00			negl	**2.9E-03**
1.1.1-Trichloroethane			2.36E-04	2.36E-04						3.12E-04	0.00E+00				**3.1E-04**
1,3-Butadiene															**0.0E+00**
Acetaldehyde															**0.0E+00**
Acrolein															**0.0E+00**
Benzene	2.1E-03		2.14E-04	2.14E-04				9.2E-04		2.82E-04	0.00E+00				**9.2E-04**
Bis(2-ethylhexyl)phthalate							2.2E-03							8.25E-04	**8.3E-04**
Dichlorobenzene	1.2E-03						8.0E-07	5.3E-04						3.00E-07	**5.3E-04**
Ethylbenzene			6.36E-05	6.36E-05						8.40E-05	0.00E+00				**8.4E-05**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				3.3E-02	8.51E-02	4.36E-02	0.00E+00				**0.085**
Hexane	1.8E+00							0.79							**0.788**
Phenol							2.4E-03							9.00E-04	**9.0E-04**
Toluene	3.4E-03		6.20E-03	6.20E-03				1.5E-03		8.18E-03	0.00E+00				**8.2E-03**
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		1.49E-03	0.00E+00			1.47E-02	**1.5E-02**
Polycyclic Organic Matter		3.30E-03							4.60E-03						**4.6E-03**
Xylene			1.09E-04	1.09E-04						1.44E-04	0.00E+00				**1.4E-04**
							Total HAPs	**0.83**	**0.10**	**0.19**	**0.00**	**0**	**0**	**10.20**	**11.22**

Methodology

[1]The natural gas, propane, and butane fuel usage rates were determined using the maximum fuel input rate for the dryer (see Appendix A.1 for more details).

[2]Based on the unlimited potential to emit, the dryer/mixer process (page 3 of Appendix A.1) represents the worst case emissions of PM, PM10, PM2.5, VOC, and CO. Therefore, the source has elected to limit PM, PM10, PM2.5, VOC, and CO emissions to less than Ti and PSD applicability by accepting an asphalt production limit and a lb/ton emission limit (see page 3 of Appendix A.2 for more detail).

[3]The source will limit the combined SO2 emissions from the dryer mixer burner, generators, hot oil heater, and slag processing and the combined NOx emissions from the dryer mixer burner, generators, and hot oil heater such that the SO2 and NOx emissions do not e 99.0 tons per year, each. Compliance with these limits will be demonstrated using equations.

[4]SO2 emissions from the dryer/mixer shall not exceed 99.0 tons per year. This would be equivalent to combusting 2,788,732 gallons of No. 2 Fuel Oil or 2,640,000 gallons of No. 4 Fuel Oil if the source only used No. 2 or No. 4 fuel oil.

[5]Hydrogen Chloride emissions from waste oil combustion shall not exceed 9.90 tons per year. This would be equivalent to combusting 750,000 gallons of waste oil per year with a chlorine content of 0.4%. Compliance with this limit will be demonstrated using an equation.

Natural Gas: Limited Potential to Emit (tons/yr) = (Natural Gas Usage (MMCF/yr)) * (Emission Factor (lb/MMCF)) * (ton/2000 lbs)
All Other Fuels: Limited Potential to Emit (tons/yr) = (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

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

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

Appendix A.2: Emissions Calculations
Dryer/Mixer
Limited Process Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2352 Industrial Drive, Valparaiso, Indiana 46383**
Permit Number: **127-27075-05241**
Reviewer: **Janet Mobley**

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

Maximum Hourly Asphalt Production =	400	ton/hr
Annual Asphalt Production Limitation =	1,000,000	ton/yr
PM Dryer/Mixer Limitation =	0.132	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.107	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.177	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*	0.132	0.132	0.132	66.0	66.0	66.0	**66.0**
PM10*	0.107	0.107	0.107	53.5	53.5	53.5	**53.5**
PM2.5*	0.177	0.177	0.177	88.5	88.5	88.5	**88.5**
SO2**	0.003	0.011	0.058	1.7	5.5	29.0	**29.0**
NOx**	0.026	0.055	0.055	13.0	27.5	27.5	**27.5**
VOC**	0.032	0.032	0.032	16.0	16.0	16.0	**16.0**
CO***	0.130	0.130	0.130	65.0	65.0	65.0	**65.0**
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	**0.00E+00**
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	**3.15E-02**
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	**2.00E-02**
Acetaldehyde			1.30E-03			0.65	**0.65**
Acrolein			2.60E-05			1.30E-02	**1.30E-02**
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.

**** The source will limit the combined SO2 emissions from the dryer mixer burner, generators, hot oil heater, and slag processing and the combined NOx emissions from the dryer mixer burner, generators, and hot oil heater such that the SO2 and NOx emissions do not exceed 99.0 tons per year, each. Compliance with these limits will be demonstrated using equations.

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

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

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2352 Industrial Drive, Valparaiso, Indiana 46383**
Permit Number: **127-27075-05241**
Reviewer: **Janet Mobley**

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

Slag Usage Limitation =	see note**	ton/yr		
SO2 Slag Limitation =	0.740	lb/ton of slag processed	1.50	% sulfur

Criteria Pollutant	Emission Factor or Limitation (lb/ton)* Slag Processing	Limited Potential to Emit (tons/yr) Slag Processing
SO2	0.740	see note**

Methodology

* Testing results for slag, obtained January 9, 2009, at this facility, produced an Emission Factor of 0.54 lb/ton from 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%. When the 30 day calendar month average sulfur content is less than or equal to 1.11% by weight, an emission factor of 0.5413 lb of SO2 per ton of slag will be used. When the 30 day calendar month average sulfur content is greater than 1.11% and less than or equal to 1.5% by weight, an emission factor of 0.74 lb of SO2 per ton of slag wi be used.
** The source will limit the combined SO2 emissions from the dryer mixer burner, generators, hot oil heater, and slag processing such that the SO2 emissions do not exceed 99.0 tons per year. Compliance with this limit will be demonstrated using an equation.
Limited Potential to Emit SO2 from Slag (tons/yr) = (Slag Usage Limitation (ton/yr)] * [Limited Emission Factor (lb/ton)] * [ton/2000 lbs]
Abbreviations
SO2 = Sulfur Dioxide

Appendix A.2: Limited Emission Calculations

Large Reciprocating Internal Combustion Engines - Diesel Fuel

Output Rating (>600 HP)

Maximum Input Rate (>4.2 MMBtu/hr)

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indiana 46383**
Permit Number: **127-27075-05241**
Reviewer: **Janet Mobley**

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity =	6.65	MMBtu/hr
Maximum Hours of Operation =	8760	hr/yr
Potential Throughput =	58,254	MMBtu/yr
Diesel Engine Oil Limitation =	425,119	gal/yr
Sulfur Content (S) of Fuel =	0.5	% by weight

	Pollutant						
	PM[1]	PM10[1]	PM2.5[1]	SO2[2]	NOx[2]	VOC	CO
Emission Factor in lb/MMBtu	0.10	0.0573	0.0573	0.505 *(1.01S)*	3.2 [3]see below	0.09	0.85
Potential Emission in tons/yr	2.91	1.67	1.67	14.71	93.21	2.62	24.76
or							
Emission Factor in lb/gal[4]	0.014	0.008	0.008	0.069	0.438	0.012	0.116
Potential Emission in tons/yr	2.91	1.67	1.67	14.71	93.21	2.62	24.76

[1]No information was given regarding which method was used to determine the PM emission factor or whether condensable PM is included.
The PM10 emission factor is filterable and condensable PM10 combined. The PM2.5 emissions were assumed to be equal to PM10.

[2]The source will limit the combined SO2 emissions from the dryer mixer burner, generators, hot oil heaters, and slag processing and the combined NOx emissions from the dryer mixer burner, generators, and hot oil heaters such that the SO2 and NOx emissions do not exceed 99.0 tons per year, each.

[3]NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBt

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs[4]
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Potential Emission in tons/yr	2.26E-02	8.18E-03	5.62E-03	2.30E-03	7.34E-04	2.30E-04	6.17E-03

[4]PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**4.58E-02**

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4
[3]Emission Factor in lb/gal = AP-42 emission factor (lb/MMBtu) * 1/1000000 (MMBtu/Btu) * 19300 (lb/Btu) * 7.1 (gal/lb
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Throughput (gal/yr) = 58254 (MMBtu/yr) * 1000000 (Btu/MMBtu) * 1/19300 (lb/Btu) * 1/7.1 (gal/lb)
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]
or
Potential Emissions (tons/yr) = [Potential Throughput (gal/yr) x Emission Factor (lb/gal)] / (2,000 lb/ton)

Appendix A.2: Limited Emission Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (<=600 HP)
Maximum Input Rate (<=4.2 MMBtu/hr)

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indiana 46383**
Permit Number: **127-27075-05241**
Reviewer: **Janet Mobley**

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity =	0.67	MMBtu/hr
Maximum Hours of Operation =	8760	hr/yr
Potential Throughput =	5,825	MMBtu/yr
Diesel Engine Oil Limita	42,512	gal/yr

	Pollutant						
	PM[1]	PM10[1]	PM2.5[1]	SO2[2]	NOx[2]	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.36	0.95
Potential Emission in tons/yr	0.90	0.90	0.90	0.84	12.85	1.05	2.77
Emission Factor in lb/gal[3]	0.042	0.042	0.042	0.04	0.60	0.05	0.13
Potential Emission in tons/yr	0.90	0.90	0.90	0.84	12.85	1.05	2.77

[1]PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

[2]The source will limit the combined SO2 emissions from the dryer mixer burner, generators, hot oil heaters, and slag processing and the combined NOx emissions from the dryer mixer burner, generators, and hot oil heaters such that the SO2 and NOx emissions do not exceed 99.0 tons per year, each.

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs[4]
Emission Factor in lb/MMBtu	9.33E-04	4.09E-04	2.85E-04	3.91E-05	1.18E-03	7.67E-04	9.25E-05	1.68E-04
Potential Emission in tons/yr	2.72E-03	1.19E-03	8.30E-04	1.14E-04	3.44E-03	2.23E-03	2.69E-04	4.89E-04

[4]PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**1.13E-02**

Methodology

Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2

[3]Emission Factor in lb/gal = AP-42 emission factor (lb/MMBtu) * 1/1000000 (MMBtu/Btu) * 19300 (lb/Btu) * 7.1 (gal/lb)

Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]

Potential Throughput (gal/yr) = 5825 (MMBtu/yr) * 1000000 (Btu/MMBtu) * 1/19300 (lb/Btu) * 1/7.1 (gal/lb)

Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

or

Potential Emissions (tons/yr) = [Potential Throughput (gal/yr) x Emission Factor (lb/gal)] / (2,000 lb/ton)

Appendix A.2: Emissions Calculations
Hot Oil Heater
Fuel Combustion with Maximum Capacity < 100 MMBtu/hr
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Location: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

Maximum Hot Oil Heater Fuel Input Rate =	3.00	MMBtu/hr		
Natural Gas Usage =	0	MMCF/yr		
No. 2 Fuel Oil Usage =	187,714	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	0.000	0.188	**0.19**
PM10/PM2.5	7.6	3.3	0.000	0.310	**0.31**
SO2*	0.6	71.0	0.000	6.664	**6.66**
NOx*	100	20.0	0.000	1.877	**1.88**
VOC	5.5	0.20	0.000	0.019	**0.02**
CO	84	5.0	0.000	0.469	**0.47**
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	0.0E+00	5.26E-05	**5.3E-05**
Beryllium	1.2E-05	4.2E-04	0.0E+00	3.94E-05	**3.9E-05**
Cadmium	1.1E-03	4.2E-04	0.0E+00	3.94E-05	**3.9E-05**
Chromium	1.4E-03	4.2E-04	0.0E+00	3.94E-05	**3.9E-05**
Cobalt	8.4E-05		0.0E+00		**0.0E+00**
Lead	5.0E-04	1.3E-03	0.0E+00	1.18E-04	**1.2E-04**
Manganese	3.8E-04	8.4E-04	0.0E+00	7.88E-05	**7.9E-05**
Mercury	2.6E-04	4.2E-04	0.0E+00	3.94E-05	**3.9E-05**
Nickel	2.1E-03	4.2E-04	0.0E+00	3.94E-05	**3.9E-05**
Selenium	2.4E-05	2.1E-03	0.0E+00	1.97E-04	**2.0E-04**
Benzene	2.1E-03		0.0E+00		**0.0E+00**
Dichlorobenzene	1.2E-03		0.0E+00		**0.0E+00**
Ethylbenzene					**0**
Formaldehyde	7.5E-02	6.10E-02	0.0E+00	5.73E-03	**0.006**
Hexane	1.8E+00		0.00		**0.000**
Phenol					**0**
Toluene	3.4E-03		0.0E+00		**0.0E+00**
Total PAH Haps	negl		negl		**0**
Polycyclic Organic Matter		3.30E-03		3.10E-04	**3.1E-04**
		Total HAPs =	**0.0E+00**	**6.7E-03**	**0.007**

Methodology
*The source will limit the combined SO2 emissions from the dryer mixer burner, generators, hot oil heater, and slag processing and the combined NOx emissions from the dryer mixer burner, generators, and hot oil heater such that the SO2 and NOx emissions do not exceed 99.0 tons per year, each.
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
PM10 = Particulate Matter (<10 um)
SO2 = Sulfur Dioxide
NOx = Nitrous Oxides
VOC - Volatile Organic Compounds
CO = Carbon Monoxide
HAP = Hazardous Air Pollutant
HCl = Hydrogen Chloride
PAH = Polyaromatic Hydrocarbon

Appendix A.2: Emissions Calculations
Asphalt Load-Out and Yard Emissions
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

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

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

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

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

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

Total VOCs	**1.95**	**0.5**	**2.5**
Total HAPs	**0.04**	**0.008**	**0.05**
		Worst Single HAP	**0.011 (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)
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: Emissions Calculations
Asphalt Load-Out and Yard Emissions (continued)
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

Organic Particulate-Based Compounds (Table 11.1-15)

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

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

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

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

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

Organic Volatile-Based Compounds (Table 11.1-16)

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile: Load-out and Onsite Yard (% by weight of TOC)	Limited Potential to Emit (tons/yr): Load-out	Onsite Yard	Total
VOC		VOC	---	TOC	94%	**1.95**	**0.52**	**2.47**
non-VOC/non-HAPS								
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	1.4E-01	3.6E-02	0.171
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	9.6E-04	2.5E-04	0.001
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.5E-02	3.9E-03	0.019
Total non-VOC/non-HAPS					7.30%	**0.152**	**0.040**	**0.19**
Volatile organic HAPs								
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	1.1E-03	2.9E-04	1.4E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	2.0E-04	5.3E-05	2.5E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	1.0E-03	2.7E-04	1.3E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	2.7E-04	7.2E-05	3.4E-04
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	4.4E-06	1.2E-06	5.5E-06
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	3.1E-04	8.3E-05	3.9E-04
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	2.3E-03	6.1E-04	2.9E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	5.8E-03	1.5E-03	0.007
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	1.8E-03	4.8E-04	0.002
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	3.1E-03	8.3E-04	0.004
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	3.7E-05	9.9E-06	4.7E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0	0	0.0E+00
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	1.5E-04	4.0E-05	1.9E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	1.6E-04	4.2E-05	2.0E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	4.4E-03	1.2E-03	0.006
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	2.7E-05	7.2E-06	3.4E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	8.5E-03	2.3E-03	0.011
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	1.7E-03	4.4E-04	2.1E-03
Total volatile organic HAPs					1.50%	**0.031**	**0.008**	**0.039**

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: Emissions Calculations
Material Storage Piles
Limited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2352 Industrial Drive, Valparaiso, Indiana 46383**
Permit Number: **127-27075-05241**
Reviewer: **Janet Mobley**

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	0.80	0.439	0.154
Limestone	1.6	1.85	1.30	0.439	0.154
RAP	0.5	0.58	1.40	0.148	0.052
Gravel	1.6	1.85	1.20	0.406	0.142
Slag	3.8	4.40	1.00	0.803	0.281
			Totals	**2.23**	**0.78**

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.

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.2: Emissions Calculations
Material Processing, Handling, Crushing, Screening, and Conveying
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

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

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)	Limited PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	1.08	0.51	0.08
Front-end loader dumping of materials into feeder bins	1.08	0.51	0.08
Conveyor dropping material into dryer/mixer or batch tower	1.08	0.51	0.08
Total (tons/yr)	**3.23**	**1.53**	**0.23**

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	2.57	1.14
Screening	0.025	0.0087	11.88	4.13
Conveying	0.003	0.0011	1.43	0.52
Limited Potential to Emit (tons/yr) =			**15.87**	**5.80**

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: Emissions Calculations
Unpaved Roads
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

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 =	1,000,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	950,000	tons/yr
Maximum Asphalt Cement/Binder Throughput =	50,000	tons/yr
No. 2 Fuel Oil Limitation =	2,788,732	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	4.2E+04	1.7E+06	300	0.057	2409.7
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	4.2E+04	7.2E+05	300	0.057	2409.7
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	1.4E+03	6.7E+04	300	0.057	78.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.4E+03	1.7E+04	300	0.057	78.9
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	2.9E+02	1.3E+04	300	0.057	16.7
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	2.9E+02	3.5E+03	300	0.057	16.7
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	2.3E+05	4.3E+06	300	0.057	12851.7
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	2.3E+05	3.4E+06	300	0.057	12851.7
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	4.2E+04	1.7E+06	300	0.057	2367.4
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	4.2E+04	7.1E+05	300	0.057	2367.4
	Total				**6.2E+05**	**1.3E+07**			**3.5E+04**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.057	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 =	6.10	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)	7.34	1.87	0.19	4.83	1.23	0.12	2.41	0.62	0.06
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	7.34	1.87	0.19	4.83	1.23	0.12	2.41	0.62	0.06
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.240	0.061	0.01	0.158	0.040	4.0E-03	0.079	0.020	2.0E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.240	0.061	0.01	0.158	0.040	4.0E-03	0.079	0.020	2.0E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.051	0.013	1.3E-03	0.034	0.009	8.5E-04	0.017	0.004	4.3E-04
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.051	0.013	1.3E-03	0.034	0.009	8.5E-04	0.017	0.004	4.3E-04
Aggregate/RAP Loader Full	Front-end loader (3 CY)	39.17	9.98	1.00	25.75	6.56	0.66	12.88	3.28	0.33
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	39.17	9.98	1.00	25.75	6.56	0.66	12.88	3.28	0.33
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	7.21	1.84	0.18	4.74	1.21	0.12	2.37	0.60	0.06
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	7.21	1.84	0.18	4.74	1.21	0.12	2.37	0.60	0.06
	Totals	**108.03**	**27.53**	**2.75**	**71.04**	**18.10**	**1.81**	**35.52**	**9.05**	**0.91**

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.2: Emissions Calculations
Paved Roads
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

Paved Roads at Industrial Site

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

Annual Asphalt Production Limitation =	1,000,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	950,000	tons/yr
Maximum Asphalt Cement/Binder Throughput =	50,000	tons/yr
No. 2 Fuel Oil Limitation =	2,788,732	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	4.2E+04	1.7E+06	300	0.057	2409.7
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	4.2E+04	7.2E+05	300	0.057	2409.7
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	1.4E+03	6.7E+04	300	0.057	78.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.4E+03	1.7E+04	300	0.057	78.9
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	2.9E+02	1.3E+04	300	0.057	16.7
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	2.9E+02	3.5E+03	300	0.057	16.7
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	2.3E+05	4.3E+06	300	0.057	12851.7
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	2.3E+05	3.4E+06	300	0.057	12851.7
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	4.2E+04	1.7E+06	300	0.057	2367.4
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	4.2E+04	7.1E+05	300	0.057	2367.4
	Total				**6.2E+05**	**1.3E+07**			**3.5E+04**

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

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

	PM	PM10	PM2.5	
where k =	0.082	0.016	0.0024	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)
C =	0.00047	0.00047	0.00036	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
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 =	0.66	0.13	0.02	lb/mile
Mitigated Emission Factor, Eext =	0.60	0.12	0.02	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)	0.79	0.15	0.02	0.72	0.14	0.02	0.36	0.07	0.01
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.79	0.15	0.02	0.72	0.14	0.02	0.36	0.07	0.01
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.026	0.005	7.5E-04	0.024	0.005	6.8E-04	0.012	2.3E-03	3.4E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.026	0.005	7.5E-04	0.024	0.005	6.8E-04	0.012	2.3E-03	3.4E-04
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	5.5E-03	1.1E-03	1.6E-04	5.0E-03	9.8E-04	1.4E-04	2.5E-03	4.9E-04	7.2E-05
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	5.5E-03	1.1E-03	1.6E-04	5.0E-03	9.8E-04	1.4E-04	2.5E-03	4.9E-04	7.2E-05
Aggregate/RAP Loader Full	Front-end loader (3 CY)	4.23	0.82	0.12	3.87	0.75	0.11	1.93	0.38	0.06
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	4.23	0.82	0.12	3.87	0.75	0.11	1.93	0.38	0.06
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.78	0.15	0.02	0.71	0.14	0.02	0.36	0.07	0.01
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.78	0.15	0.02	0.71	0.14	0.02	0.36	0.07	0.01
	Totals	**11.66**	**2.27**	**0.34**	**10.66**	**2.07**	**0.31**	**5.33**	**1.04**	**0.15**

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.2: Emissions Calculations
Cold Mix Asphalt Production and Stockpiles
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2352 Industrial Drive, Valparaiso, Indiana 46383
Permit Number: 127-27075-05241
Reviewer: Janet Mobley

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 = 2.7 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%	2.9	2.7	1.053
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	3.9	2.7	1.429
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	10.9	2.7	4.0
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	5.9	2.7	2.155
Other asphalt with solvent binder	25.9%	2.5%	108.8	2.7	40.0
			Worst Case Limited PTE of VOC =	**2.7**	

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) =	**0.71**	
Limited PTE of Single HAP (tons/yr) =	**0.24**	**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: Emissions Calculations
Gasoline Fuel Transfer and Dispensing Operation
Limited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2352 Industrial Drive, Valparaiso, Indiana 46383**
Permit Number: **127-27075-05241**
Reviewer: **Janet Mobley**

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
=	0.0	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	0.00
Tank breathing and emptying	1.0	0.00
Vehicle refueling (displaced losses - controlled)	1.1	0.00
Spillage	0.7	0.00
Total		**0.00**

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) =	**0.00**	
Limited PTE of Single HAP (tons/yr) =	**0.00**	**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
Office of Air Quality

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

Source Background and Description

Source Name:	**Rieth-Riley Construction Co., Inc.**
Current Source Location:	**2325 Industrial Drive, Valparaiso, IN 46383**
County:	**Porter**
SIC Code:	**2951**
Permit Renewal No.:	**127-27075-05241**
Permit Reviewer:	**Janet Mobley**

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Reith-Riley Construction Co., Inc. relating to the operation of a portable drum hot mix asphalt manufacturing operation that uses slag in their aggregate mix.

History

On October 6, 2008, Reith-Riley Construction Co., Inc. submitted an application to the OAQ requesting to renew its operating permit. Reith-Riley Construction Co., Inc. was issued a New Source FESOP Permit on June 30, 2004. In order to continue to maintain FESOP status and be allowed to operate in all counties, the source requests to limit their total emissions to less than one hundred (100) tons per year for PM10, PM2.5, SO2, NOx and CO and less than twenty-five (25) tons per year for VOC.

Permitted Emission Units and Pollution Control Equipment

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

(a) One (1) drum mixer, identified as EU-3, approved for construction in 2004, with a maximum capacity of 400 tons of asphalt per hour, processing slag in the aggregate mix, equipped with one (1) aggregate dryer/burner, having a maximum heat input capacity of 100 MMBtu per hour, firing waste oil as the primary fuel, using No. 2 distillate oil, No. 4 distillate oil, natural gas, propane gas, and butane gas as backup fuels, equipped with a baghouse for particulate control, and exhausting through Stack SV-1.

Under NSPS subpart I, the drum mixer and aggregate dryer/burner are considered an affected facility.

(b) Two (2) reciprocating internal combustion engines/generators, identified as EU-16 and EU-17, installed in 2004, rated at 550 and 55 kilowatts (6.65 and 0.665 MMBtu hour heat input capacity), respectively, firing No. 2 Diesel fuel oil, exhausting through stacks SV9 and SV10**.**

(c) Cold-mix cutback asphalt production and storage piles, constructed in 2004.

(d) Five (5) Liquid Asphalt Storage Tanks, identified as Tank 13A, Tank 13B, Tank 13C, Tank 13D, and Tank 18, installed in 2004, with a maximum capacity of: 35,000, 20,000, 15,000, 30,000 and 1,000 gallons, respectively, and exhausting through stacks SV3, SV4, and SV5,

SV14, and SV13, respectively. Tank 18 is used only when calibrating the liquid asphalt metering system.

(e) Two (2) waste oil storage tanks for Hot Mix Drum/Mixer Burner, identified as Tank 11A and Tank 11B, installed in 2004, with a maximum storage capacity of 10,000 gallons each, exhausting through stacks SV7 and SV8.

(f) One (1) No. 2 Distillate fuel oil storage tank for Hot Oil Heater, identified as Tank 12A, installed in 2004, with a maximum capacity of 350 gallons, exhausting through stack SV6.

(g) Two (2) No. 2 diesel fuel oil storage tanks for reciprocating internal combustion engines/generators, identified as Tank 12B and Tank 12C, installed in 2004, with a maximum storage capacity of 1,200 gallons each, exhausting through stacks SV11 and SV12 respectively.

The following is a list of the Insignificant Activities:

(a) One (1) hot oil heater, identified as EU-14, approved for construction in 2004, with a maximum heat input capacity of 1.0 MMBtu per hour, firing No. 2 distillate oil as primary fuel with natural gas and propane gas as backup fuels, exhausting through stack SV2.

(b) One (1) hot oil heater , identified as EU-14B, approved for construction in 2004, with a maximum heat input capacity of 2.0 MMBtu per hour, firing No. 2 distillate oil as primary fuel with natural gas and propane gas as backup fuels, exhausting through stack SV14.

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

(d) The following VOC and HAP storage containers: vessels storing lubricating oil, hydraulic oils, machining oils, and machining fluids.

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

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

There are no emission units that were constructed and/or is operating without a permit during this review.

Emission Units and Pollution Control Equipment Removed From the Source

A gasoline fuel transfer dispensing operation was listed in the previous permit in the insignificant activities section and has been removed from the permit. The source does not have this operation, and believes that it was listed in error.

Existing Approvals

Since the issuance of the New Source FESOP 097-18257-05241 on June 30, 2004, the source has constructed or has been operating under the following approvals as well:

(a) Relocation No.: 127-21095-05241 issued on April 14, 2005
(b) Administrative Amendment No.: 127-22446-05241 issued on January 10, 2006.
(c) Significant Permit Revision No.: 127-25248-05241 issued on January 23, 2008

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.

The following terms and conditions have been added in this FESOP Renewal:

In 2008, IDEM became aware that aggregate mixes that contain slag contribute significantly to SO_2 emissions from the mixer/dryer in asphalt plants. In conjunction with fuel limitations and in order for a source to remain compliant, the allowable weight percentage (wt%) of sulfur in slag and the allowable tonnage of slag are limited according to the source-wide limit on SO_2 emissions. Due to this change the limits for SO_2, PM10, PM2.5, NOx and CO are changed to meet the limit required by 326 IAC 2-8-4, which is one hundred tons per year, each. The calculations have been updated for slag and fuel calculations and the limit for HCI. These new limits and limit revisions are incorporated into this FESOP Renewal.

Testing results for slag obtained January 9, 2009, produced an emission factor of 0.54 lb/ton from 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%.

Enforcement Issue

IDEM is aware that this FESOP renewal application was not submitted before September 30, 2008, which represents the date nine (9) months prior to the expiration date of the original FESOP. 326 IAC 2-8-3(h) requires that in order to be considered timely, a FESOP renewal application must be submitted at least nine (9) months prior to the expiration date of the current operating permit. IDEM is reviewing this matter and will take appropriate action.

Emission Calculations

See Appendix A.1 and A.2 of this document for detailed emission calculations.

County Attainment Status

The source is currently located in Porter County

Pollutant	Designation
SO_2	Cannot be classified for the area bounded on the north by Lake Michigan; on the west by the Lake County and Porter County line; on the south by I-80 and I-90; and on the east by the LaPorte County and Porter County line. The remainder of Porter County is better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O_3	Nonattainment Subpart 2 Moderate effective June 15, 2004, for the 8-hour ozone standard.[1]
PM_{10}	Unclassifiable effective November 15, 1990.
NO_2	Cannot be classified or better than national standards.
Pb	Not designated.
[1]Nonattainment Severe 17 effective November 15, 1990, for the Chicago-Gary-Lake County area, including Porter County, for the 1-hour standard which was revoked effective June 15, 2005. Basic nonattainment designation effective federally April 5, 2005, for PM2.5.	

(a) Ozone Standards

(1) On October 25, 2006, the Indiana Air Pollution Control Board finalized a rule revision to 326 IAC 1-4-1 revoking the one-hour ozone standard in Indiana.

(2) On September 6, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Allen, Clark, Elkhart, Floyd, LaPorte, and St. Joseph as attainment for the 8-hour ozone standard.

(3) On November 9, 2007, the Indiana Air Pollution Control Board finalized a temporary emergency rule to re-designate Boone, Clark, Elkhart, Floyd, LaPorte, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, Shelby, and St. Joseph as attainment for the 8-hour ozone standard.

(4) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone.

(i) 1-hour ozone standard

On December 22, 2006 the United States Court of Appeals, District of Columbia issued a decision which served to partially vacate and remand the U.S. EPA's final rule for implementation of the eight-hour National Ambient Air quality Standard for ozone. *South Coast Air Quality Mgmt. Dist. v. EPA*, 472 F.3d 882 (D.C. Cir., December 22, 2006), *rehearing denied* 2007 U.S. App. LEXIS 13748 (D.C. Cir., June 8, 2007). The U.S. EPA has instructed IDEM to issue permits in accordance with its interpretation of the *South Coast* decision as follows: Gary-Lake-Porter County was previously designated as a severe non-attainment area prior to revocation of the one-hour ozone standard, therefore, pursuant to the anti-backsliding provisions of the Clean Air Act, any new or existing source must be subject to the major source applicability cut-offs and offset ratios under the area's previous one-hour standard designation. This means that a source must achieve the Lowest Achievable Emission Rate (LAER) if it exceeds 25 tons per year of VOC emissions and must offset any increase in VOC emissions by a decrease of 1.3 times that amount.

On January 26, 1996 in 40 CFR 52.777(i), the U.S. EPA granted a waiver of the requirements of Section 182(f) of the CAA for Lake and Porter Counties, including the lower NOx threshold for nonattainment new source review. Therefore, VOC emissions alone are considered when evaluating the rule applicability relating to the 1-hour ozone standards. Therefore, VOC emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability for the source section.

(ii) 8-hour ozone standard

VOC and NOx emissions are considered when evaluating the rule applicability relating to the 8-hour ozone standard. Porter County has been designated as nonattainment for the 8-hour ozone standard. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3. See the State Rule Applicability – Entire Source section.

(b) PM 2.5
U.S. EPA, in the Federal Register Notice 70 FR 943 dated January 5, 2005, has designated Porter County as nonattainment for PM2.5. On March 7, 2005, the Indiana Attorney General's Office, on behalf of IDEM, filed a law suit with the Court of Appeals for

the District of Columbia Circuit challenging U.S. EPA's designation of nonattainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for a violation of the Clean Air Act, the OAQ is following the U.S. EPA's New Source Review Rule for PM2.5 promulgated on May 8, 2008, and effective on July 15, 2008. Therefore, direct PM2.5 and SO2 emissions were reviewed pursuant to the requirements of Nonattainment New Source Review, 326 IAC 2-1.1-5. See the State Rule Applicability - Entire Source section.

(c) Other Criteria Pollutants
Porter County has been classified as nonattainment in Indiana for ozone and PM2.5. Therefore, these emissions were reviewed pursuant to the requirements for Emission Offset, 326 IAC 2-3.

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

Portable Source

(a) This is a portable source and its current location at the time of this review for a FESOP Renewal is in Porter County at 2325 Industrial Drive, Valparaiso, Indiana 46383.

(b) PSD, Emission Offset and Non Attainment New Source Review Requirements
The emissions from this portable source were reviewed under the requirements of the Prevention of Significant Deterioration (PSD) 326 IAC 2-2 and Emission Offset 326 IAC 2-3.

Unrestricted Potential Emissions

Appendix A.1 of this TSD reflects the unrestricted potential emissions of the source.

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of PM_{10}, PM2.5, SO_2, NOx, VOC and CO is equal to or greater than 100 tons per year. The source is subject to the provisions of 326 IAC 2-7. However, the source has agreed to limit their PM_{10}, PM2.5, SO_2, NOx, VOC and CO emissions to less than Title V levels, therefore the source will be issued a FESOP renewal.

(b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all other criteria pollutants are less than 100 tons per year.

(c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year.

Actual Emissions

No previous emission data has been received from the source.

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. See Appendix A.2 for the detailed calculations.

Potential to Emit of the Entire Source After Issuance of the FESOP (tons/year) Limited/Controlled Potential Emissions										
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP	
Ducted Emissions										
Fuel Combustion (worst case)	21.61	17.22	17.22	49.64	96.02	7.39	55.40	10.21	9.90	(hydrogen chloride)
Dryer/Mixer	66.00	53.50	88.38	29.00	27.50	16.00	65.00	5.33	1.55	(formaldehyde)
Dryer/Mixer Slag Processing	0.00	0.00	0.00	37.00	0.00	0.00	0.00	0.00		
Internal Combustion Engine	2.91	1.67	1.67	****	****	2.62	2.62	24.76	0.05	
Internal Combustion Engine	0.91	0.91	0.91	****	****	1.06	2.79	0.01	0.003	
Hot Oil Heater Fuel Combustion (worst case)	0.19	0.31	0.31	6.66	1.88	0.07	1.10	0.024	0	(naphthalene)
Worst Case Emissions	70.01	56.39	91.27	93.30	97.90	19.75	93.65	10.29	9.90	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	0.26	0.26	0.26	0	0	2.47	0.85	0.05	0.01	(formaldehyde)
Material Storage Piles	1.53	0.54	0.54	0	0	0	0	0	0	
Material Processing and Handling	3.23	1.53	0.23	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	15.87	5.80	5.80	0	0	0	0	0	0	
Paved and Unpaved Roads (worst case)	35.50	9.05	0.90	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	2.72	0	0.71	0.24	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	negl	negl	
Total Fugitive Emissions	56.38	17.17	7.73	0	0	5.19	0.85	0.85	0.24	(xylenes)
Totals Limited/Controlled Emissions	126.39	73.56	99.00	93.30	97.90	24.94	94.50	11.14	9.90	(hydrogen chloride)
Title V Major Source Thresholds	NA	100	100	100	100	100	100	25	10	
PSD Major Source Thresholds	250	250	100	250	250	25***	250	NA	NA	

(1) PTE after Production Limitation.
negl. = negligible
* Under the Part 70 Permit program (40 CFR 70), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM10), not particulate matter (PM), is considered as a "regulated air pollutant". US EPA has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions.
** Fugitive emissions from each of the volitile organic liquid storage tanks were calculated using the EPA Tanks 4.0.9d program and were determined to be negligible.
*** Limit pursuant to 326 IAC 2-3 (Emission Offset) source agreed to limit sourcewide VOC emissions to less than 25 tons per year.
**** The limited fuel usage for the generators are included in the SO2 and NOx limits for the dryer/mixer.

(a) This existing portable source is not major under Title V (326 IAC 2-7) nor PSD (326 IAC 2-2) because no attainment regulated pollutant is emitted at a rate of two hundred fifty (<250) tons per year or more.

(b) Pursuant to 326 IAC 2-3, this existing portable source is not major for Emission Offset because the emissions of the nonattainment pollutants ozone and PM2.5, are limited to less than one hundred (<100) tons per year and VOC is limited at a rate of less than 25 tons per year.

(c) This existing portable source is not major source of HAP, as defined in 40 CFR 63.41, because the potential to emit HAP is limited to less than ten (10) tons per year for a single HAP and limited to less than twenty-five (25) tons per year of Total HAP. 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).

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

Federal Rule Applicability

New Source Performance Standards (NSPS)

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

The source will be able to comply with this rule by using the baghouse to limit particulate matter emissions from the dryer/mixer to less than 0.04 grains per dry standard cubic foot (gr/dscf).

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

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

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

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

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

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

(d) The requirements of the New Source Performance Standard (326 IAC 12 and 40 CFR Part 60.110, Subpart K) “Standards of Performance for Volatile Organic Liquid Storage Vessels for which Construction, Reconstruction, or Modification Commenced after June 11, 1973 and prior to May 19, 1978” applies to storage vessels with storage capacity greater than 40,000 gallons. This subpart does not apply to this source because the storage vessels have storage capacities of less than 40,000 gallons.

(e) The requirements of the New Source Performance Standard (326 IAC 12 and 40 CFR Part 60.110, Subpart Ka) "Standards of Performance for Volatile Organic Liquid Storage Vessels for which Construction, Reconstruction, or Modification Commenced after May 18, 1978 and prior to July 23, 1984" applies to storage vessels with storage capacity greater than 40,000 gallons. This subpart does not apply because the storage vessels have storage capacities of less than 40,000 gallons.

(f) The requirements of the New Source Performance Standard (326 IAC 12 and 40 CFR Part 60.110, Subpart Kb) "Standards of Performance for Volatile Organic Liquid Storage Vessels for which Construction, Reconstruction, or Modification Commenced after July 23, 1984" apply to storage vessels with storage capacity greater than or equal to 19,813 gallons. This subpart does not apply because the storage vessels have storage capacities of less than 19,813 gallons.

National Emission Standards for Hazardous Air Pollutants (NESHAPs)

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

(h) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Gasoline Dispensing Facilities (GDF) 40 CFR 63.1111, Subpart CCCCCC. This Rieth-Riley portable drum hot-mix asphalt plant does not have gasoline dispensing facilities in this renewal and is therefore not subject to subpart CCCCCC.

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

CAM (Compliance Assurance Monitoring)

(j) Pursuant to 40 CFR Part 64, 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

326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset)

This source was initially constructed in 2004 in Marion County. The source-wide potential to emit of PM, PM10, SO_2, NOx, VOC and CO are greater than 250 tons per year. The previous permit issued on June 30, 2004, limited the PM10, SO_2, NOx and CO emissions to less than 100 tons per year and limited PM emissions to less than 250 tons per year. Porter County was previously designated severe nonattainment under the 1-hour Ozone standard. In order to be located in Porter County without triggering 326 IAC 2-3 (Emission Offset), the source agreed to limit source-wide VOC emissions to less than 25 tons per year in Significant Permit Revision No. 127-26248-05241 issued January 23, 2008.

This existing source is not in 1 of 28 source categories defined in 326 IAC 2-2-1(gg)(1). The potential to emit PM from this source before controls, is greater than two hundred fifty (250) tons per year.

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

(1) The amount of asphalt processed shall not exceed one million (1,000,000) tons per 365 consecutive day period with compliance determined at the end of each day.

(2) PM emissions from the dryer/mixer shall not exceed one hundred thirty-two thousandths (0.132) pounds of PM per ton of asphalt produced. This limit did not change from the existing permit.

Compliance with these limits, combined with the potential to emit PM from all other emission units at this source, will limit the source-wide total potential to emit of PM to less than two hundred fifty tons per 365 consecutive day period. The use of the baghouse with the drum mixer and aggregate dryer/burner ensures compliance with this limit.

The source also accepted FESOP requirements to limit the PM10, PM2.5 and SO2 emissions from the entire source to less than 100 tons per 365 consecutive day period. Therefore, the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) are not applicable.

See Appendix A.2 for detailed calculations.

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

The operation of each facility at the asphalt plant will emit less than ten (10) tons per year for a single HAP and less than twenty-five (25) tons per year for a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

See Appendix A.2 for detailed calculations.

326 IAC 2-6 (Emission Statement)

Although currently located in Porter County and allowed to relocate in Lake County, this portable source is still not subject to 326 IAC 2-6-1, because it is not required to have an operating permit under 326 IAC 2-7 (Part 70), the potential to emit VOC is limited to less than twenty-five (25) tons per year, and each criteria pollutant is limited to less than one hundred (100) tons per year. Therefore, 326 IAC 2-6-1(a) still does not apply.

326 IAC 2-8-4 (FESOP)

The source still has the potential to emit PM10, PM2.5, SO2, VOC and NOx before controls, of greater than 100 tons per year. In order to make the requirements of 326 IAC 2-7 (Part 70 Program) not applicable the Permittee will continue to be limited to less than the Title V major source threshold levels**.**

(a) In order to limit PM10, PM2.5 and CO emissions, the source will continue to comply with the following:

(1) The asphalt production rate shall not exceed 1,000,000 tons per 365 consecutive day period with compliance determined at the end of each day.

(2) PM10 emissions from the dryer/mixer shall not exceed 0.107 pounds of PM10 per ton of asphalt produced.

(3) PM2.5 emissions from the dryer/mixer shall not exceed 0.177 pounds of PM10 per ton of asphalt produced.

(4) CO emissions from the aggregate dryer/mixer shall be limited to less than 0.130 pounds of CO per ton of asphalt produced

Compliance with these limits, combined with the potential to emit PM10, PM2.5 and CO from all other emission units at this source, the PM10 and PM2.5 from the entire source are both still limited to less than one hundred (100) tons per 365 consecutive day period.

(b) In order to limit SO_2 , NOx and HCl emissions from the dryer/mixer burner, the internal combustion engines, hot oil heaters and slag processing shall be limited as follows:

(1) The sulfur content of the waste oil shall be limited to 1.00% by weight.

(2) The sulfur content of the No. 2 and No. 4 fuel oil shall not exceed 0.5% by weight.

(3) The sulfur content of the slag used in any aggregate mix shall not exceed one and five-tenths percent (1.5) by weight. This is a new requirement due to updated emission factors.

(4) SO_2 emissions from the slag used in the dryer/mixer shall not exceed 0.74 pounds of SO_2 per ton of slag processed. This is a new requirement.

(5) The amount of slag used shall not exceed one hundred thousand (100,000) tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each month.

(6) HCl emissions from the dryer/mixer burner, internal combustion engines and hot oil heaters shall not exceed 9.9 tons per 365 consecutive day period with compliance determined at the end of each month.

This limit is required in order to limit the source-wide emissions of HCl to less than 10 tons per year.

Note: The limits are specified in terms of three hundred and sixty-five (365) consecutive days to maintain the same period as already specified in the existing permit.

(1) Single Fuel Limitations
When combusting only one type of fuel per three hundred sixty-five (365) consecutive day period in the dryer/mixer burner and all other combustion equipment, the usage of fuel shall be limited as follows:

(A) Natural gas usage shall not exceed 1010.77 million cubic feet per three hundred and sixty-five (365) consecutive day period, with compliance determined at the end of each day. This is a new natural gas limit;

(B) No. 2 fuel oil usage shall not exceed 1,264,615 gallons per three hundred and sixty-five (365) consecutive day period, with compliance determined at the end of each day, This is a new No. 2 fuel oil limit;

(C) No. 4 fuel oil usage shall not exceed 1,323,630 gallons per three hundred and sixty-five (365) consecutive day period, with compliance determined at the end of each day. This is a new No. 4 fuel oil limit;

(D) Propane usage shall not exceed 14,772,747 gallons per three hundred and sixty-five (365) consecutive day period, with compliance determined at the end of each day, This is a new propane limit;

(E) Butane usage shall not exceed 12,803,048 gallons per three hundred and sixty-five (365) consecutive day period, with compliance determined at the end of each day, This is a new butane limit;

(F) Since the Permittee has requested the option to vary the amount (gallons per year) of waste oil used based on the actual sulfur and chlorine content in each fuel delivery, waste oil usage shall be determined using the following equations:

$U = W_A * S_A$

$U = W_A * Cl_A$

where:

U = Waste oil usage

W_A = actual gallons of waste oil used in the last three hundred sixty-five (365) days, with less than or equal to one percent (1.00%) by weight sulfur content and less than forty hundredths percent (0.40%) chlorine content.

S_A = actual percent (%) sulfur content of waste oil.

Cl_A = actual percent (%) chlorine content of waste oil.

The limit on waste oil usage will sometimes be dictated by the sulfur content and other times be dictated by the chlorine content. However, waste oil usage shall in no case exceed 675,322 gallons at the maximum allowable sulfur content (one percent (1.00%)) and chlorine content (forty hundredths percent (0.40%)) per three hundred and sixty-five (365) consecutive day period, with compliance determined at the end of each day. This waste oil limit was changed.

(2) Multiple Fuel Limitations

When combusting more than one fuel per three hundred sixty-five (365) consecutive day period in the dryer/mixer burner and all other combustion equipment, emissions from the dryer/mixer and all other combustion equipment shall be limited as follows:

(1) Sulfur dioxide (SO2) emissions from the dryer/mixer and all other combustion equipment shall be less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each day;

(2) Hydrogen Chloride (HCl) emissions from the dryer/mixer and all other combustion equipment shall be less than ten (10) tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each day; and

(3) Nitrogen oxides (NOx) emissions from the dryer/mixer and all other combustion equipment shall be less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period, with compliance determined at the end of each day.

Compliance with these limits, combined with the potential emissions from all other emission units at this source, shall limit the source-wide total potential to emit NOx and SO2 to less than 100 tons per twelve (12) consecutive month period, each, HCl to less than 10 tons per 12 consecutive month period, and any combination of HAPs to less than 25 tons per 12 consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (PSD), and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

Single Fuel and Slag Usage Limitations
When adding slag to the aggregate mix, and when combusting waste oil in the dryer/mixer burner and all other combustion equipment, the slag usage, and waste oil usage in the dryer/mixer burner the following formulas are used:

(1) Sulfur dioxide emission calculation

$$S = \frac{U(E_U) + L(E_L)}{2{,}000 \text{ lbs/ton}}$$

where:

S = tons of sulfur dioxide emissions for three hundred sixty-five (365) consecutive day period;

U = gallons of waste oil as defined in condition D.1.4(b)(6); and

L = tons of slag used in the last three hundred sixty-five (365) consecutive days, with less than or equal to one and fifty hundredths percent (1.50%) sulfur content;

Emission Factors for Sulfur Dioxide

E_U = one hundred forty-seven thousandths (0.147) pounds per gallon of waste oil.

E_L = seventy-four hundredths (0.74) pounds per ton of slag processed.

Compliance with this limit, combined with the SO2 emissions from all other units at this source, will limit the source-wide SO2 emissions to less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period and shall render 326 IAC 2-7 (Part 70 Permit Program), and 326 IAC 2-2 (PSD), not applicable.

(2) Hydrogen chloride emission calculation

$$HCl = \frac{U(E_{Cl})}{[2000 \text{ lbs/ ton}]}$$

where:

U = gallons of waste oil

Emission Factors for Hydrogen Chloride

E_{Cl} = sixty-six thousandths (0.066) pounds per gallon of waste oil.

Compliance with this limit, combined with the HCl emissions from all other emission units at this source, will limit the source-wide HCl emissions to less than 9.90 tons per three hundred sixty-five (365) consecutive day period and total combined HAP emissions shall be limited to less than twenty-five (25) tons per three hundred sixty-five (365) consecutive day period, and render 326 IAC 2-7 (Part 70) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

The existing permit specifies the compliance in terms of fuel equivalency, however, the source has indicated that compliance be demonstrated by equation, as follows;

(A) Pursuant to 326 IAC 2-8-4, Sulfur Dioxide (SO2) emissions from the dryer/mixer shall be limited to less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period, as follows:

(i) The sulfur content of the waste oil shall not exceed one percent (1.00%) by weight.

(ii) The sulfur content of the No. 2 and No. 4 fuel oils, each, shall not exceed fifty hundredths percent (0.50%) by weight.

(iii) Compliance shall be determined using the following equation:

(1) Sulfur Dioxide emission calculation

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

where:

S = tons of sulfur dioxide emissions for three hundred sixty-five (365) consecutive day period;

G = million cubic feet of natural gas used in last three hundred sixty-five (365) days;

O = gallons of No. 2 fuel oil used in last three hundred sixty-five (365) days, with less than or equal to fifty hundredths percent (0.50%) sulfur content;

F = gallons of No. 4 fuel oil used in last three hundred sixty-five (365) days, with less than or equal to fifty hundredths percent (0.50%) sulfur content;

P = gallons of propane used in the last three hundred sixty-five (365) days, with less than or equal to twenty thousandths (0.20) grains per one hundred (100) cubic feet of sulfur in content;

B = gallons of butane used in the last three hundred sixty-five (365) days, with less than or equal to twenty thousandths (0.22) grains per one hundred (100) cubic feet of sulfur in content;

U = gallons of waste oil;

L = tons of slag used in the last three hundred sixty-five (365) consecutive days, with less than or equal to one and fifty hundredths percent (1.50%) sulfur content.

Emission Factors for Sulfur Dioxide

E_G = six tenths (0.6) pounds per million cubic feet of natural gas;

E_O = seven hundred eighty-five hundred-thousandths (0.0785) pounds per gallon of No. 2 fuel oil;

E_F = seventy-five ten-thousandths (0.075) pounds per gallon of No. 4 fuel oil;

E_P = two millionths (0.00002) pounds per gallon of propane;

E_B = two millionths (0.00002) pounds per gallon of butane; and

E_U = one hundred forty-seven thousandths (0.147) pounds per gallon of waste oil.

E_L = seventy-four hundredths (0.74) pounds per ton of slag processed.

Compliance with these limits, combined with the SO2 emissions from all other units at this source, will limit the source-wide SO2 emissions to less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period and shall render 326 IAC 2-7 (Part 70 Permit Program), and 326 IAC 2-2 (PSD), not applicable.

(2) Hydrogen chloride emission calculation

$$HCl = \frac{U(E_{Cl})}{[2000 \text{ lbs/ ton}]}$$

where:

U = gallons waste oil;

Emission Factors for Hydrogen Chloride

E_{Cl} = sixty-six thousandths (0.066) pounds per gallon of waste oil.

Compliance with this limit, combined with the HCl emissions from all other emission units at this source, will limit the source-wide HCl emissions to less than 9.90 tons per three hundred sixty-five (365) consecutive day period and total combined HAP emissions shall be limited to less than twenty-five (25) tons per three hundred sixty-five (365) consecutive day period, and render 326 IAC 2-7 (Part 70) and 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP)) not applicable.

(3) Nitrogen oxides emission calculation

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

where:
N = tons of nitrogen oxides emissions for a three hundred sixty-five (365) consecutive day period;
G = million cubic feet of natural gas used in the last three hundred sixty-five (365) days;
O = gallons of No. 2 fuel oil used in last three hundred sixty-five (365) days;
F = gallons of No. 4 fuel oil used for last three hundred sixty-five (365) days;
P = gallons of propane used in the last three hundred sixty-five (365) days;
B = gallons of butane used in the last three hundred sixty-five (365) days; and
U = gallons waste oil;

Emission Factors for nitrogen oxides
E_G = one hundred ninety (190) pounds per million cubic feet of natural gas;
E_O = twenty-four ten-thousandths (0.024) pounds per gallon of No. 2 fuel oil;
E_F = forty-seven ten-thousandths (0.047) pounds per gallon of No. 4 fuel oil;
E_P = thirteen hundredths (0.013) pounds per gallon of propane;
E_B = fifteen hundredths (0.015) pounds per gallon of butane; and
E_U = nineteen ten-thousandths (0.019) pounds per gallon of waste oil.

Compliance with these limits, combined with the NOx emissions from all other units at this source, will limit source-wide NOx emissions to less than one hundred (100) tons per three hundred sixty-five (365) consecutive day period. Compliance with these limits will render 326 IAC 2-7 (Part 70 Permit Program), and 326 IAC 2-2 (PSD), not applicable.

See Appendix A for the detailed calculations.

(3) Pursuant to 326 IAC 2-8-4, Particulate Matter less than ten (10) microns in diameter (PM10), Volatile Organic Compound (VOC), and Carbon Monoxide (CO) emissions from the dryer/mixer shall be limited as follows:

(A) The asphalt production rate shall continue to be limited to less than one million (1,000,000) tons per three hundred sixty-five (365) consecutive day period with compliance determined at the end of each day. This limit did not change from the existing permit.

(B) PM10 emissions from the dryer/mixer shall be limited to less than one hundred seven ten thousands (0.107) pounds of PM10 per ton of asphalt produced.

(C) VOC emissions from the dryer/mixer shall limited to less than thirty-two ten-thousandths (0.032) pounds of VOC per ton of asphalt produced.

(D) CO emissions from the dryer/mixer shall continue to be limited to less than one hundred thirty thousandths (0.130) pounds of CO per ton of asphalt produced.

Compliance with these limits, combined with the PM10,and CO emissions from all other units at this source, will limit source-wide PM10 and CO emissions, each, to less than one hundred (100) tons and VOC is limited to twenty-five (25) tons per three hundred sixty-five (365) consecutive day period. Compliance with these limits will render 326 IAC 2-7 (Part 70 Permit Program), and 326 IAC 2-2 (PSD), not applicable.

See Appendix A for the detailed calculations.

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

(A) The usage of liquid binder in the production of cold mix cutback asphalt shall be limited such that VOC emissions do not exceed two and seventy-two hundredths (2.72) tons per three hundred sixty-five (365) consecutive day period with compliance determined at the end of each day.

Compliance with this limit, combined with the VOC emissions from all other emission units at this source, will continue to limit source-wide VOC emissions to less than twenty-five (25) tons per three hundred sixty-five (365) consecutive day period, and render 326 IAC 2-7 (Part 70 Permit Program), 326 IAC 2-2 (PSD)), and 326 IAC 2-3 (Emission Offset) not applicable.

See Appendix A for the detailed calculations.

The VOC emissions from the VOC solvents used in the liquid binders for the cold mix asphalt production process shall not exceed 2.72 tons of VOC emissions are emitted per 365 consecutive day period, with compliance determined at the end of each day.

When more than one binder is used, the formula in (6) must be applied so that the total VOC usage for each liquid binder used in cold mix asphalt production shall be limited 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% by weight of VOC solvent evaporating.

Cutback asphalt rapid cure liquid binder usage shall not exceed 2.86 tons of VOC solvent per 365 consecutive day period with compliance determined at the end of each day.

(2) Cut back asphalt medium cure, containing a maximum of 28.6% of the liquid binder by weight of VOC solvent and 70% by weight of VOC solvent evaporating.

Cutback asphalt medium cure liquid binder usage shall not exceed 3.89 tons of VOC solvent per 365 consecutive day period with compliance determined at the end of each day.

(3) Cut back asphalt slow cure, containing a maximum of 20% of the liquid binder by weight of VOC solvent and 25% by weight of VOC solvent evaporating.

Cutback asphalt slow cure liquid binder usage shall not exceed 10.9 tons of VOC solvent per 365 consecutive day period with compliance determined at the end of each day.

(4) Emulsified asphalt with solvent, containing a maximum of 15% 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 7% or less of the total emulsion by volume.

Emulsified asphalt with solvent liquid binder usage shall not exceed 5.86 tons of VOC solvent per 365 consecutive day period with compliance determined at the end of each day.

(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

Other asphalt with solvent liquid binder shall not exceed 108 tons of VOC solvent per 365 consecutive day period with compliance determined at the end of each day.

(6) The VOC solvent allotments in (1) through (5) above shall be adjusted when more than one type of binder is used per 365 consecutive day period with compliance determined at the end of each day.. 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.

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

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

Compliance with these limits, combined with the VOC emissions from other units at this source, will limit source-wide VOC emissions to less than 25 tons per year and render 326 IAC 2-7 (Part 70 Permit Program), 326 IAC 2-2 (PSD), 326 IAC 2-3 (Emission Offset) not applicable.

326 IAC 5-1 (Opacity Limitations)

Since this source is located in Porter County, pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4, when the source is located in any County except Lake or the areas specified in (3)(a) through (g).

(2) Opacity shall not exceed an average of twenty percent (20%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4, when the source is located in Lake County.

(3) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4, when the source is located in the following areas listed in 326 IAC 5-1-1(c):

(a) Clark County (Jefferson Township - Cities of Jeffersonville, Clarksville, Oak Park);

(b) Dearborn County (Lawrenceburg Township - Cities of Lawrenceburg and Greendale);

(c) Dubois County (Bainbridge Township - the City of Jasper);

(d) Marion County (except the area of Washington Township east of Fall Creek and the area of Franklin Township south of Thompson Road and east of Five Points Road);

(e) St. Joseph County (the area north of Kern Road and east of Pine Road);

(f) Vanderburgh County (the area included in the City of Evansville and Pigeon Township); and

(g) Vigo County (Indiana State University campus, 0.5km radius around UTM Easting 464,519.00, Northing 4,369,208.00, Zone 16.

(4) 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, when the source is located in any County.

326 IAC 6-4 (Fugitive Dust Emissions)

This source is subject to 326 IAC 6-4 for fugitive dust emissions because the Hot Oil Heaters (EU-14 and EU-14B), the storage piles and unpaved roads all have the potential to emit fugitive particulate emissions. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), fugitive dust shall not be visible crossing the boundary or property line of a source. Observances of visible emissions crossing property lines may be refuted by factual data expressed in 326 IAC 6-4-2(1), (2) or (3).
326 IAC 6.8-1

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

This source is subject to 326 IAC 6-5 for fugitive particulate matter emissions. Pursuant to 326 IAC 6-5, for any new source which has not received all the necessary pre-construction approvals before December 13, 1985, a fugitive dust control plan must be submitted, reviewed and approved. The fugitive dust control plan for this source was submitted on October 15, 2003, (Attachment A) to the permit, includes the following:

(a) Aggregate storage piles will be watered when dust can be observed blowing from the piles. Water will be applied at a rate of 275 gallons of water per acre of storage piles or greater if needed to suppress dust.

(b) The plant roadways will be watered when dust can be observed coming up from the road upon vehicular passage. Water will be applied at a rate of 3 gallons of water per mile of roadway, or greater if needed to suppress dust.

(c) Asphalt pavement will be applied as it becomes available.

326 IAC 6-6 (Source Specific and Facility Emission Limitations for TSP to Porter County)

The rule applies to sources and facilities specifically listed in 326 IAC 6-6-4 and IAC 6-6-5. Although this source is currently located in Porter County, this source is not one of those listed and is therefore, not subject to the emission limitations contained in 326 IAC 6-6

326 IAC 6.8-8 (Lake County: Continuous Compliance Plan)

When located in Lake County, the Permittee shall submit to IDEM, and maintain at the source, a copy of the Continuous Compliance Plan. The Permittee shall perform the inspections, monitoring and record keeping requirements as specified in 326 IAC 6.8-8-7. The Permittee shall update the CCP (as needed), retain a copy on site and make the updated CCP available for inspection as specified in 326 IAC 6.8-8-8.

326 IAC 6.8-10 (Lake County Fugitive Particulate Matter)

Pursuant to 326 IAC 6.8-10 (Lake County Fugitive Particulate Matter) when located in Lake County, the particulate matter emissions from source wide activities shall meet the requirements and achieve the limits by controlling fugitive particulate matter emissions according to the Fugitive Dust Plan.

326 IAC 8-7 (Specific VOC Reduction Requirements for Lake, Porter, Clark and Floyd Counties)

Although the source is located in Porter County, it is not a stationary source and its actual VOC emissions are less than five (5) tons per year. Therefore, pursuant to 326 IAC 8-7-2(a)(1)(D), the Requirements of this rule do not apply to this source.

326 IAC 6.8-1-2 (Particulate Matter Limitations for Lake County)

When located in Lake County, the source is subject to the requirements of 326 IAC 6.8-1-2 (Particulate Matter Limitations for Lake County). Particulate Matter (PM) emissions from the dryer/mixer shall not exceed 0.03 grains per dry standard cubic foot (gr/dscf) of exhaust air. Since the source is currently located in Porter County, at this time the source is not subject to 326 IAC 6.8-1-1.

State Rule Applicability – Individual Facilities

326 IAC 6-2 (Particulate Emission Limitations for Sources of Indirect Heating)

The hot oil heaters were both constructed after September 21, 1983. The hot oil heaters are considered to be indirect heating units, as defined by 326 IAC 1-2-19, since they employ a hot oil heat exchange system. For these units, the fuel burner indirectly heats oil within a heat exchange system, the hot oil is then pumped to heat exchange coils within the asphalt binder storage tank in order to heat the asphalt binder, and the oil is then pumped backed to the burner to be heated again. Therefore the hot oil heaters are subject to the requirements of 326 IAC 6-2-4.

(a) Pursuant to 326 IAC 6-2-4(a), particulate emissions from the hot oil heater identified as Emission Unit 14 shall be limited by the following equation:

$$P_t = \frac{1.09}{Q^{0.26}}$$

Where:

P_t = pounds of particulate matter emitted per million Btu heat input (lb/MMBtu).

Q = total source operating capacity (1 heater with a heat input of 1.00 MMBtu/hour)

$$P_t = \frac{(1.09)}{(1.00)^{0.26}}$$

P_t = 1.09 lb/MMBtu

Pursuant to 326 IAC 6-2-4(a) for Q less than 10 MMBtu/hr, Pt shall not exceed 0.6 pounds per million Btu heat input, which is more stringent than the limit calculated using the equation. Therefore, the particulate emissions from the hot oil heater identified as Emission Unit 14 are limited to less than 0.6 pounds per million Btu heat input.

(b) Pursuant to 326 IAC 6-2-4(a), particulate emissions from the hot oil heater identified as Emission Unit 14B shall be limited by the following equation:

$$P_t = \frac{1.09}{Q^{0.26}}$$

Where:

P_t = pounds of particulate matter emitted per million Btu heat input (lb/MMBtu).

Q = total source operating capacity (1 heater with a heat input of 1.00 MMBtu/hour and 1 heater with a heat input of 2.00 MMBtu/hour)

$$P_t = \frac{(1.09)}{(3.00)^{0.26}}$$

P_t = 0.82 lb/MMBtu

Pursuant to 326 IAC 6-2-4(a) for Q less than 10 MMBtu/hr, Pt shall not exceed 0.6 pounds per million Btu heat input, which is more stringent than the limit calculated using the equation. Therefore, the particulate emissions from the hot oil heater identified as Emission Unit 14B are limited to less than 0.6 pounds per million Btu heat input.

Based on a heating value of 140,000 Btu per gallon of No. 2 fuel oil and the AP-42 emission factor for No. 2 fuel oil combustion in the hot oil heaters, the hot oil heaters are able to comply with these limits when burning No. 2 fuel oil. Based on a heating value of 1,020 million Btu per million standard cubic foot (MMscf) of natural gas and the AP-42 emission factor for natural gas combustion in the hot oil heaters, the hot oil heaters are able to comply with this limit when burning natural gas. Based on a heating value of 91,500 Btu per gallon of propane and the AP-42 emission factor for propane combustion in the hot oil heaters, the hot oil heaters are able to comply with this limit when burning propane.

Pursuant to 40 CFR 60.90, the hot oil heaters are not affected facilities under 40 CFR 60, Subpart I (New Source Performance Standards for Hot Mix Asphalt Facilities). Therefore, the hot oil heaters are not subject to a particulate limit under 40 CFR 60, Subpart I, and the hot oil heaters are subject to the limits pursuant to 326 IAC 6-2 as described above.

326 IAC 7-1.1-2 (Sulfur Dioxide Emission Limitations)

The potential to emit SO_2 from the hot oil heaters are still less than twenty-five (25) tons per year, therefore the hot oil hearts are not subject to the requirements of 326 IAC 7-1.1-2.

326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)

The aggregate dryer/mixer is subject to 40 CFR 60, Subpart I (326 IAC 12). Pursuant to 326 IAC 6-3-1(c)(5), the aggregate dryer/mixer is not subject to the requirements of 326 IAC 6-3 because it is subject to a particulate limit established in 326 IAC 12.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

The aggregate dryer/mixer is subject to the requirements of 326 IAC 7-1.1-2, because it has potential sulfur dioxide emissions greater than twenty-five (25) tons per year. Pursuant to 7-1.1-2, sulfur dioxide emissions from the aggregate dryer/mixer shall be limited as follows:

(a) One and six-tenths (1.6) pounds per MMBtu for residual oil combustion, and

(b) Five-tenths (0.5) pound per MMBtu for distillate oil combustion.

326 IAC 7-4-14 (Porter County Sulfur Dioxide Emission Limitations)

This source is not specifically listed in 326 IAC 7-4-14; therefore, it is not subject to the requirements of 326 IAC 7-4-14.

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

This rule applies to any paving application anywhere in the state. 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:

1) penetrating prime coating
2) stockpile storage
3) application during the months of November, December, January, February and March.

This source uses liquid asphalt binder to manufacture stockpile mix for stockpile storage. Therefore, there is no limit on the percent (%) of oil distillate in the liquid asphalt used. The source is in compliance with 326 IAC 8-5-2.

326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)
Pursuant to 326 IAC 8-4-1 (Applicability) and 326 IAC 8-4-3 (Petroleum Liquid Storage Facilities), all petroleum liquid storage vessels with capacities greater than one hundred fifty thousand (150,000) liters (39,000 gallons) containing VOC whose true vapor pressure is greater than 10.5 kPa (1.52 psi) shall comply with the requirements for external fixed and floating roof tanks and the specified record keeping and reporting requirements. The storage tanks at this source are not subject to 326 IAC 8-4-3 because the tanks have storage capacities less than 39,000 gallons each.

326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)
The source is subject to this rule because it is located in Porter County. Storage vessels with storage capacities less than 39,000 gallons each are subject to the reporting and record keeping provisions of this rule and are exempt from all other provisions.

There are no other 326 IAC 8 Rules that are applicable.

326 IAC 6.8-1-2 Particulate emission limitations; fuel combustion steam generators, asphalt concrete plant, grain elevators, foundries, mineral aggregate operations; modification by commissioner
This rule does not apply to the source at the present time because it is located in Porter County, but if the source relocates to Lake County, the particulate matter (PM) emissions from the drum-mix dryer shall not exceed 0.03 grains per dry standard cubic foot (gr/dscf) of exhaust air.

326 IAC 6.5-1-2 Particulate emission limitations; fuel combustion steam generators, asphalt concrete plant, grain elevators, foundries, mineral aggregate operations; modification by commissioner
This rule does not apply to the source at the present time because it is located in Porter County, but if the source relocates to Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo, or Wayne Counties the particulate matter (PM) emissions from the dryer/mixer shall not exceed 0.03 grain per dry standard cubic foot of exhaust air.

326 IAC 8-7 (Specific VOC Reduction Requirements for Lake, Porter, Clark, and Floyd Counties)
The potential source-wide VOC emissions are limited to less than twenty-five (25) tons per year in order for the source to be located in Porter County. Pursuant to 326 IAC 8-7-2(d), the facilities at this asphalt plant are not subject to the requirements of 326 IAC 8-7.

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 monitoring requirements applicable to this source are as follows:

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

Emission Unit	Control Device	Timeframe for Testing	Pollutant	Frequency of Testing	Limit or Requirement
Aggregate Mixer/Dryer	Baghouse	180 days after publication of revised test method	PM,PM10 and PM2.5	Once every 5 years	0.132 lb PM/ton of asphalt; 0.107 lb PM10/ton of asphalt
Aggregate Mixer/Dryer	Stack SV-1	Within 5 years of issuance of this renewal	SO_2	Once every 5 years	0.74 pounds SO_2 per ton of slag processed

PM, PM 2.5, and PM10 testing for dryer/mixer (Baghouse SV-1) within 180 days of publication of the new or revised condensable PM test method(s) referenced in the U. S. EPA's Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5), signed on May 8th, 2008, or five years from the most recent valid compliance test, whichever is later. This testing shall be conducted utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing. PM10 and PM2.5 includes filterable and condensable PM.

The aggregate mixer/dryer is controlled by a baghouse. To render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-7 (Part 70 Permit Program) not applicable, the PM and PM10 emissions from the aggregate mixer/dryer are limited to 0.132 and 0.107 pounds per ton of asphalt, respectively. PM and PM10 testing is required in order to demonstrate with these limits.

The Permittee conducted a stack test of their mixer/dryer on October 28, 2008. The stack test demonstrated compliance with the requirements.

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

(b) The aggregate mixer/dryer has applicable compliance monitoring conditions as specified below:

Control	Parameter	Frequency	Range	Excursions and Exceedances
Aggregate Mixer/Dryer Baghouse	Water Pressure Drop	Daily	1 to 9 inches	Response Steps
	Visible Emissions		Normal-Abnormal	

These monitoring conditions are necessary because the baghouse used in conjunction with the aggregate mixer/dryer must operate properly to ensure compliance with 326 IAC 2-8 (FESOP), and to render the requirements of 326 IAC 2-2 (PSD), 326 IAC 2-3 (Emission Offset), and 326 IAC 2-7 (Part 70 Permit Program) not applicable.

Recommendation

The staff recommends to the Commissioner that the FESOP Renewal be approved. This recommendation is based on the following facts and conditions:

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 October 6, 2008 and additional information received on December 10, 2008 and January 9, 2009.

Conclusion

The operation of this portable drum mix hot asphalt manufacturing operation shall be subject to the conditions of the attached FESOP Renewal No. 127-27075-05241.

IDEM Contact

(a) Questions regarding this proposed permit can be directed to Janet Mobley 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) 234-5373 or toll free at 1-800-451-6027.

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

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

Appendix A.1: Emissions Calculations
Unlimited Emission Summary

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

Asphalt Plant Maximum Capacity

Maximum Hourly Asphalt Production =	400	ton/hr								
Maximum Annual Asphalt Production =	3,504,000	ton/yr								
Maximum Annual Slag Usage =	1,471,680	ton/yr	1.5	% sulfur						
Maximum Dryer Fuel Input Rate =	100.0	MMBtu/hr								
Natural Gas Usage =	876	MMCF/yr								
No. 2 Fuel Oil Usage =	6,257,143	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Usage =	6,257,143	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage =	0	gal/yr, and	0.00	% sulfur						
Propane Usage =	9,679,558	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Usage =	8,993,840	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	6,257,143	gal/yr, and	1.00	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead
Diesel Engine Oil Usage =	0	gal/yr, and								
Unlimited PM Dryer/Mixer Emission Factor =	28.0	lb/ton of asphalt production								
Unlimited PM10 Dryer/Mixer Emission Factor =	6.5	lb/ton of asphalt production								
Unlimited PM2.5 Dryer/Mixer Emission Factor =	1.5	lb/ton of asphalt production								
Unlimited VOC Dryer/Mixer Emission Factor =	0.032	lb/ton of asphalt production								
Unlimited CO Dryer/Mixer Emission Factor =	0.13	lb/ton of asphalt production								
Unlimited Slag SO2 Dryer/Mixer Emission Factor =	0.74	lb/ton of slag processed								

Unlimited/Uncontrolled Emissions

	Unlimited/Uncontrolled Potential to Emit (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Dryer Fuel Combustion (worst case)	200.23	159.56	159.56	689.85	147.04	4.95	37.77	86.42	82.59	(hydrogen chloride)
Dryer/Mixer (Process)	49056.00	11388.00	2628.00	101.62	96.36	56.06	227.76	18.68	5.43	(formaldehyde)
Dryer/Mixer Slag Processing	0	0	0	544.52	0	0	0	0	0	
Hot Oil Heater Fuel Combustion (worst case)	0.19	0.31	0.31	6.66	1.88	0.07	1.10	0.030	0.024	(hexane)
Recipricating Internal Combustion Engines	2.91	1.67	1.67	14.71	93.21	2.62	24.76	0.046	0.023	(formaldehyde)
Recipricating Internal Combustion Engines	0.91	0.91	0.91	0.85	12.94	1.06	2.79	0.011	0.003	(formaldehyde)
Worst Case Emissions*	**49060.01**	**11390.89**	**2630.89**	**1256.60**	**255.07**	**59.81**	**256.41**	**86.51**	**82.59**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out and On-Site Yard	0.91	0.91	0.91	0	0	8.66	2.98	0.18	0.04	(formaldehyde)
Material Storage Piles	2.23	0.78	0.78	0	0	0	0	0	0	
Material Processing and Handling	11.32	5.35	0.81	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	55.59	20.31	20.31	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	124.40	31.71	3.17	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	42109.32	0	10983.67	3789.84	(xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.00	0	0.00	0.00	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	negl	0	
Total Fugitive Emissions	**194.46**	**59.06**	**25.98**	**0**	**0.00**	**42117.98**	**2.98**	**10983.85**	**3789.84**	(xylenes)
Totals Unlimited/Uncontrolled PTE	**49254.47**	**11449.95**	**2656.87**	**1256.60**	**255.07**	**42177.80**	**259.39**	**11070.36**	**3789.84**	(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 + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion + Internal Combustion Engines
Fuel component percentages provided by the source.
This source uses slag

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

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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 =	100	MMBtu/hr								
Natural Gas Usage =	876	MMCF/yr								
No. 2 Fuel Oil Usage =	6,257,143	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Usage =	6,257,143	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage =	0	gal/yr, and	0.00	% sulfur						
Propane Usage =	9,679,558	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Usage =	8,993,840	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	6,257,143	gal/yr, and	1.50	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead
Diesel Engine Oil Usage =	0	gal/yr, and								

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)	Residual (No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Diesel Engine (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Residual (No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	Diesel Engine (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2.0	7.0	3.22	0.5	0.6	64.0	43.4	0.83	6.26	21.90	0.00	2.420	2.698	200.23	0.00	**200.23**
PM10/PM2.5	7.6	3.3	8.3	4.72	0.5	0.6	51	43.4	3.33	10.32	25.97	0.00	2.420	2.698	159.56	0.00	**159.56**
SO2	0.6	78.5	75.0	0.0	0.020	0.020	220.5	40.6	0.26	245.59	234.64	0.00	0.097	0.089	689.85	0.00	**689.85**
NOx	190	24.0	47.0	47.0	13.0	15.0	19.0	617.4	83.22	75.09	147.04	0.00	62.92	67.45	59.44	0.00	**147.04**
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	49.00	2.41	0.63	0.63	0.00	4.84	4.95	3.13	0.00	**4.95**
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	133.0	36.792	15.64	15.64	0.00	36.30	37.77	15.64	0.00	**37.77**
Hazardous Air Pollutant																	
HCl							26.4								82.59		**82.59**
Antimony			5.25E-03	5.25E-03			negl				1.64E-02	0.00E+00			negl		**1.6E-02**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01		8.8E-05	1.75E-03	4.13E-03	0.00E+00			3.44E-01		**3.4E-01**
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl		5.3E-06	1.31E-03	8.70E-05	0.00E+00			negl		**1.3E-03**
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03		4.8E-04	1.31E-03	1.25E-03	0.00E+00			2.91E-02		**2.9E-02**
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02		6.1E-04	1.31E-03	2.64E-03	0.00E+00			6.26E-02		**6.3E-02**
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04		3.7E-05		1.88E-02	0.00E+00			6.57E-04		**1.9E-02**
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55		2.2E-04	3.94E-03	4.72E-03	0.00E+00			1.7E+00		**1.72**
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02		1.7E-04	2.63E-03	9.39E-03	0.00E+00			2.13E-01		**0.21**
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04					1.1E-04	1.31E-03	3.54E-04	0.00E+00					**1.3E-03**
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02		9.2E-04	1.31E-03	2.64E-01	0.00E+00			3.44E-02		**0.264**
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl		1.1E-05	6.57E-03	2.14E-03	0.00E+00			negl		**6.6E-03**
1.1.1-Trichloroethane			2.36E-04	2.36E-04							7.38E-04	0.00E+00					**7.4E-04**
1,3-Butadiene								5.47E-03								0.00E+00	**0.0E+00**
Acetaldehyde								1.07E-01								0.00E+00	**0.0E+00**
Acrolein								1.30E-02								0.00E+00	**0.0E+00**
Benzene	2.1E-03		2.14E-04	2.14E-04				1.31E-01	9.2E-04		6.70E-04	0.00E+00				0.00E+00	**9.2E-04**
Bis(2-ethylhexyl)phthalate							2.2E-03								6.88E-03		**6.9E-03**
Dichlorobenzene	1.2E-03						8.0E-07		5.3E-04						2.50E-06		**5.3E-04**
Ethylbenzene			6.36E-05	6.36E-05							1.99E-04	0.00E+00					**2.0E-04**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				1.65E-01	3.3E-02	1.91E-01	1.03E-01	0.00E+00				0.00E+00	**0.191**
Hexane	1.8E+00								0.79								**0.788**
Phenol							2.4E-03								7.51E-03		**7.5E-03**
Toluene	3.4E-03		6.20E-03	6.20E-03				5.73E-02	1.5E-03		1.94E-02	0.00E+00				0.00E+00	**1.9E-02**
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	2.35E-02	negl		3.54E-03	0.00E+00			1.22E-01	0.00E+00	**1.2E-01**
Polycyclic Organic Matter		3.30E-03								1.03E-02							**1.0E-02**
Xylene			1.09E-04	1.09E-04				3.99E-02			3.41E-04	0.00E+00				0.00E+00	**3.4E-04**
								Total HAPs	**0.83**	**0.22**	**0.45**	**0.00**	**0**	**0**	**85.14**	**0.00**	**86.42**

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
Diesel Engine Oil: AP-42 Chapter 3.3 (dated 10/96), Tables 3.3-1 and 3.3-2
*Since there are no specific AP-42 HAP emission factors for combustion of No. 4 fuel oil, it was assumed that HAP emissions from combustion of No. 4 fuel oil were equal to combustion of residual or No. 6 fuel oil.

Abbreviations

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

Appendix A.1: Emissions Calculations
Dryer/Mixer
Unlimited Process Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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	49056	49056	49056	**49056**
PM10*	6.5	6.5	6.5	11388	11388	11388	**11388**
PM2.5*	1.5	1.5	1.5	2628	2628	2628	**2628**
SO2**	0.0034	0.011	0.058	6.0	19.3	101.6	**101.6**
NOx**	0.026	0.055	0.055	45.6	96.4	96.4	**96.4**
VOC**	0.032	0.032	0.032	56.1	56.1	56.1	**56.1**
CO***	0.13	0.13	0.13	227.8	227.8	227.8	**227.8**
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	**0.00E+00**
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	**2.63E-02**
Manganese	7.70E-06	7.70E-06	7.70E-06	1.35E-02	1.35E-02	1.35E-02	**1.35E-02**
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	**4.56E-02**
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: Emissions Calculations
Dryer/Mixer Slag Processing
Unlimited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

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

Maximum Annual Slag Usage* = 1,471,680 ton/yr 1.5 % sulfur

	Emission Factor (lb/ton)**	Unlimited Potential to Emit (tons/yr)
Criteria Pollutant	Slag Processing	Slag Processing
SO2	0.74	544.5

Methodology
* The maximum annual slag usage was provided by the source.

** Testing results for Slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from slag containing 1.10% sulfur content. 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%.
Unlimited Potential to Emit SO2 from Slag (tons/yr) = [(Maximum Annual Slag Usage (ton/yr)] * [Emission Factor (lb/ton)] * [ton/2000 lbs]
Abbreviations
SO2 = Sulfur Dioxide

Appendix A.1: Emissions Calculations
Hot Oil Heater
Fuel Combustion with Maximum Capacity < 100 MMBtu/hr
Unlimited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Location: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

Maximum Hot Oil Heater Fuel Input Rate =	3.00	MMBtu/hr		
Natural Gas Usage =	26	MMCF/yr		
No. 2 Fuel Oil Usage =	187,714	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	0.025	0.188	**0.19**
PM10/PM2.5	7.6	3.3	0.100	0.310	**0.31**
SO2	0.6	71.0	0.008	6.664	**6.66**
NOx	100	20.0	1.314	1.877	**1.88**
VOC	5.5	0.20	0.072	0.019	**0.07**
CO	84	5.0	1.104	0.469	**1.10**
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	2.6E-06	5.26E-05	**5.3E-05**
Beryllium	1.2E-05	4.2E-04	1.6E-07	3.94E-05	**3.9E-05**
Cadmium	1.1E-03	4.2E-04	1.4E-05	3.94E-05	**3.9E-05**
Chromium	1.4E-03	4.2E-04	1.8E-05	3.94E-05	**3.9E-05**
Cobalt	8.4E-05		1.1E-06		**1.1E-06**
Lead	5.0E-04	1.3E-03	6.6E-06	1.18E-04	**1.2E-04**
Manganese	3.8E-04	8.4E-04	5.0E-06	7.88E-05	**7.9E-05**
Mercury	2.6E-04	4.2E-04	3.4E-06	3.94E-05	**3.9E-05**
Nickel	2.1E-03	4.2E-04	2.8E-05	3.94E-05	**3.9E-05**
Selenium	2.4E-05	2.1E-03	3.2E-07	1.97E-04	**2.0E-04**
Benzene	2.1E-03		2.8E-05		**2.8E-05**
Dichlorobenzene	1.2E-03		1.6E-05		**1.6E-05**
Ethylbenzene					**0.0E+00**
Formaldehyde	7.5E-02	6.10E-02	9.9E-04	5.73E-03	**5.7E-03**
Hexane	1.8E+00		0.02		**2.4E-02**
Phenol					**0.0E+00**
Toluene	3.4E-03		4.5E-05		**4.5E-05**
Total PAH Haps	negl		negl		**0.0E+00**
Polycyclic Organic Matter		3.30E-03		3.10E-04	**3.1E-04**
		Total HAPs =	**2.5E-02**	**6.7E-03**	**0.030**

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
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: Emission Calculations
Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Company Name: **Rieth-Riley Construction Co., Inc.**
Address City IN Zip: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity (MMBtu/hr)	6.65
Maximum Hours Operated per Year	8760
Potential Throughput (MMBtu/yr)	58,254
Sulfur Content (S) of Fuel (% by weight)	0.5

	Pollutant						
	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.10	0.0573	0.0573	0.505 *(1.01S)*	3.2 **see below	0.09	0.85
Potential Emission in tons/yr	2.91	1.67	1.67	14.71	93.21	2.62	24.76

*No information was given regarding which method was used to determine the PM emission factor or whether condensable PM is included. The PM10 emission factor is filterable and condensable PM10 combined. The PM2.5 emissions were assumed to be equal to PM10.
**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Potential Emission in tons/yr	2.26E-02	8.18E-03	5.62E-03	2.30E-03	7.34E-04	2.30E-04	6.17E-03

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**4.58E-02**

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (<=600 HP)
Maximum Input Rate (<=4.2 MMBtu/hr)

Company Name: **Rieth-Riley Construction Co., Inc.**
Address City IN Zip: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity (MMBtu/hr)	0.67
Maximum Hours Operated per Year	8760
Potential Throughput (MMBtu/yr)	5,869

	Pollutant						
	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.36	0.95
Potential Emission in tons/yr	0.91	0.91	0.91	0.85	12.94	1.06	2.79

*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/MMBtu	9.33E-04	4.09E-04	2.85E-04	3.91E-05	1.18E-03	7.67E-04	9.25E-05	1.68E-04
Potential Emission in tons/yr	2.74E-03	1.20E-03	8.36E-04	1.15E-04	3.46E-03	2.25E-03	2.71E-04	4.93E-04

Potential Emission of Total HAPs (tons/yr)	**1.14E-02**

Methodology
Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

Appendix A.1: Emissions Calculations
Asphalt Load-Out and Yard Emissions
Unlimited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Maximum Annual Asphalt Production =	3,504,000	tons/yr

	Emission Factor (lb/ton asphalt)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		
Pollutant	**Load-Out**	**On-Site Yard**	**Load-Out**	**On-Site Yard**	**Total**
Total PM*	5.2E-04	NA	0.91	NA	**0.91**
Organic PM	3.4E-04	NA	0.60	NA	**0.60**
TOC	0.004	0.001	7.29	1.927	**9.2**
CO	0.001	3.5E-04	2.36	0.617	**2.98**

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

PM/HAPs	**0.042**	**0**	**0.042**
VOC/HAPs	**0.108**	**0.028**	**0.136**
non-VOC/HAPs	**5.6E-04**	**1.5E-04**	**7.1E-04**
non-VOC/non-HAPs	**0.53**	**0.14**	**0.67**

Total VOCs	**6.85**	**1.8**	**8.7**
Total HAPs	**0.15**	**0.029**	**0.18**
		Worst Single HAP	**0.038 (formaldehyde)**

Methodology
The asphalt temperature and volatility factor were provided by the source.
Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16
Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::
Total PM/PM10/PM2.5 Ef = 0.000181 + 0.00141(-V)e^((0.0251)(T+460)-20.43)
Organic PM Ef = 0.00141(-V)e^((0.0251)(T+460)-20.43)
TOC Ef = 0.0172(-V)e^((0.0251)(T+460)-20.43)
CO Ef = 0.00558(-V)e^((0.0251)(T+460)-20.43)
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: Emissions Calculations
Asphalt Load-Out and Yard Emissions (continued)
Unlimited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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)**	**Load-out**	**Onsite Yard**	**Total**
PAH HAPs								
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	1.6E-03	NA	1.6E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	1.7E-04	NA	1.7E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	4.2E-04	NA	4.2E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	1.1E-04	NA	1.1E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	4.5E-05	NA	4.5E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	1.3E-05	NA	1.3E-05
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	1.1E-05	NA	1.1E-05
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	1.4E-05	NA	1.4E-05
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	4.7E-05	NA	4.7E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	6.2E-04	NA	6.2E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	2.2E-06	NA	2.2E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	3.0E-04	NA	3.0E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	4.6E-03	NA	4.6E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	2.8E-06	NA	2.8E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	1.4E-02	NA	0.014
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	7.5E-03	NA	7.5E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	1.3E-04	NA	1.3E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	4.8E-03	NA	4.8E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	9.0E-04	NA	9.0E-04
Total PAH HAPs						**0.035**	**NA**	**0.035**
Other semi-volatile HAPs								
Phenol		PM/HAP	---	Organic PM	1.18%	7.0E-03	0	7.0E-03

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

Methodology

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

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

Abbreviations

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

Appendix A.1: Emissions Calculations
Asphalt Load-Out and Yard Emissions (continued)
Unlimited Emissions

Organic Volatile-Based Compounds (Table 11.1-16)

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile	Unlimited/Uncontrolled Potential to Emit (tons/yr)		
					Load-out and Onsite Yard (% by weight of TOC)	Load-out	Onsite Yard	Total
VOC		VOC	---	TOC	94%	**6.85**	**1.81**	**8.66**
non-VOC/non-HAPS								
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	4.7E-01	1.3E-01	0.599
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	3.4E-03	8.9E-04	0.004
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	5.2E-02	1.4E-02	0.065
Total non-VOC/non-HAPS					7.30%	**0.532**	**0.141**	**0.67**
Volatile organic HAPs								
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	3.8E-03	1.0E-03	4.8E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	7.0E-04	1.9E-04	8.8E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	3.6E-03	9.4E-04	4.5E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	9.5E-04	2.5E-04	1.2E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	1.5E-05	4.0E-06	1.9E-05
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	1.1E-03	2.9E-04	1.4E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	8.0E-03	2.1E-03	1.0E-02
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	2.0E-02	5.4E-03	0.026
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	6.4E-03	1.7E-03	0.008
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	1.1E-02	2.9E-03	0.014
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	1.3E-04	3.5E-05	1.7E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0	0	0.0E+00
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	5.3E-04	1.4E-04	6.7E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	5.6E-04	1.5E-04	7.1E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	1.5E-02	4.0E-03	0.019
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	9.5E-05	2.5E-05	1.2E-04
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	3.0E-02	7.9E-03	0.038
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	5.8E-03	1.5E-03	7.4E-03
Total volatile organic HAPs					1.50%	**0.109**	**0.029**	**0.138**

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

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

Appendix A.1: Emissions Calculations
Material Storage Piles
Unlimited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

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	0.80	0.439	0.154
Limestone	1.6	1.85	1.30	0.439	0.154
RAP	0.5	0.58	1.40	0.148	0.052
Gravel	1.6	1.85	1.20	0.406	0.142
Slag	3.8	4.40	1.00	0.803	0.281
			Totals	**2.23**	**0.78**

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.

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: Emissions Calculations
Material Processing, Handling, Crushing, Screening, and Conveying
Unlimited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

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

Ef = k*(0.0032)*[(U/5)^1.3 / (M/2)^1.4]
where: Ef = Emission factor (lb/ton)

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

Maximum Annual Asphalt Production =	3,504,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	3,328,800	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	3.77	1.78	0.27
Front-end loader dumping of materials into feeder bins	3.77	1.78	0.27
Conveyor dropping material into dryer/mixer or batch tower	3.77	1.78	0.27
Total (tons/yr)	**11.32**	**5.35**	**0.81**

Methodology
The percent asphalt cement/binder provided by the source.
Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
Unlimited Potential to Emit (tons/yr) = (Maximum Material Handling Throughput (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
Raw materials may include limestone, sand, recycled asphalt pavement (RAP), gravel, slag, and other 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	8.99	3.99
Screening	0.025	0.0087	41.61	14.48
Conveying	0.003	0.0011	4.99	1.83
Unlimited Potential to Emit (tons/yr) =			**55.59**	**20.31**

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: Emissions Calculations
Unpaved Roads
Unlimited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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 =	3,504,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	3,328,800	tons/yr
Maximum Asphalt Cement/Binder Throughput =	175,200	tons/yr
Maximum No. 2 Fuel Oil Usage =	6,257,143	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.4	1.5E+05	5.9E+06	300	0.057	8443.6
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	1.5E+05	2.5E+06	300	0.057	8443.6
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	4.9E+03	2.3E+05	300	0.057	276.5
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	4.9E+03	5.8E+04	300	0.057	276.5
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	6.6E+02	2.9E+04	300	0.057	37.6
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	6.6E+02	7.9E+03	300	0.057	37.6
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	7.9E+05	1.5E+07	300	0.057	45032.5
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	7.9E+05	1.2E+07	300	0.057	45032.5
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	1.5E+05	6.0E+06	300	0.057	8295.5
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	1.5E+05	2.5E+06	300	0.057	8295.5
	Total				**2.2E+06**	**4.4E+07**			**1.2E+05**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.057	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)	25.73	6.56	0.66	16.92	4.31	0.43	8.46	2.16	0.22
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	25.73	6.56	0.66	16.92	4.31	0.43	8.46	2.16	0.22
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.843	0.215	0.02	0.554	0.141	0.01	0.277	0.071	0.01
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.843	0.215	0.02	0.554	0.141	0.01	0.277	0.071	0.01
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.114	0.029	0.00	0.075	0.019	0.00	0.038	0.010	0.00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.114	0.029	0.00	0.075	0.019	0.00	0.038	0.010	0.00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	137.23	34.98	3.50	90.23	23.00	2.30	45.12	11.50	1.15
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	137.23	34.98	3.50	90.23	23.00	2.30	45.12	11.50	1.15
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	25.28	6.44	0.64	16.62	4.24	0.42	8.31	2.12	0.21
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	25.28	6.44	0.64	16.62	4.24	0.42	8.31	2.12	0.21
	Totals	**378.40**	**96.44**	**9.64**	**248.81**	**63.41**	**6.34**	**124.40**	**31.71**	**3.17**

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: Emissions Calculations
Paved Roads
Unlimited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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 =	3,504,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	3,328,800	tons/yr
Maximum Asphalt Cement/Binder Throughput =	175,200	tons/yr
Maximum No. 2 Fuel Oil Usage =	6,257,143	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.40	1.5E+05	5.9E+06	300	0.057	8443.6
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	1.5E+05	2.5E+06	300	0.057	8443.6
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	4.9E+03	2.3E+05	300	0.057	276.5
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	4.9E+03	5.8E+04	300	0.057	276.5
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	6.6E+02	2.9E+04	300	0.057	37.6
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	6.6E+02	7.9E+03	300	0.057	37.6
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	7.9E+05	1.5E+07	300	0.057	45032.5
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	7.9E+05	1.2E+07	300	0.057	45032.5
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	1.5E+05	6.0E+06	300	0.057	8295.5
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	1.5E+05	2.5E+06	300	0.057	8295.5
	Total				**2.2E+06**	**4.4E+07**			**1.2E+05**

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

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

	PM	PM10	PM2.5	
where k =	0.082	0.016	0.0024	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)
C =	0.00047	0.00047	0.00036	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
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 =	0.66	0.13	0.02	lb/mile
Mitigated Emission Factor, Eext =	0.60	0.12	0.02	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)	2.78	0.54	0.08	2.54	0.49	0.07	1.27	0.25	0.04
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	2.78	0.54	0.08	2.54	0.49	0.07	1.27	0.25	0.04
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.091	0.018	2.6E-03	0.083	0.016	2.4E-03	0.042	8.1E-03	1.2E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.091	0.018	2.6E-03	0.083	0.016	2.4E-03	0.042	8.1E-03	1.2E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	1.2E-02	2.4E-03	3.5E-04	1.1E-02	2.2E-03	3.2E-04	5.6E-03	1.1E-03	1.6E-04
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	1.2E-02	2.4E-03	3.5E-04	1.1E-02	2.2E-03	3.2E-04	5.6E-03	1.1E-03	1.6E-04
Aggregate/RAP Loader Full	Front-end loader (3 CY)	14.81	2.88	0.43	13.54	2.63	0.39	6.77	1.32	0.19
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	14.81	2.88	0.43	13.54	2.63	0.39	6.77	1.32	0.19
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	2.73	0.53	0.08	2.49	0.49	0.07	1.25	0.24	0.04
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	2.73	0.53	0.08	2.49	0.49	0.07	1.25	0.24	0.04
	Totals	**40.83**	**7.94**	**1.17**	**37.34**	**7.26**	**1.07**	**18.67**	**3.63**	**0.54**

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: Emissions Calculations
Cold Mix Asphalt Production and Stockpiles
Unlimited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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

If source does not produce cold mix asphalt enter a value of 0.

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%	44325.6	42109.3
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	50107.2	35075.0
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	35040.0	8760.0
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	26280.0	12193.9
Other asphalt with solvent binder	25.9%	2.5%	45376.8	1134.4
			Worst Case PTE of VOC =	**42109.3**

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) =	**10983.67**	
PTE of Single HAP (tons/yr) =	**3789.84**	**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: Emissions Calculations
Gasoline Fuel Transfer and Dispensing Operation
Unlimited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

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
=	0.0	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	0.00
Tank breathing and emptying	1.0	0.00
Vehicle refueling (displaced losses - controlled)	1.1	0.00
Spillage	0.7	0.00
Total		**0.00**

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) =	**0.00**	
Limited PTE of Single HAP (tons/yr) =	**0.00**	**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: Emissions Calculations
Limited Emission Summary

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

Asphalt Plant Limitations

Maximum Hourly Asphalt Production =	400	ton/hr								
Annual Asphalt Production Limitation =	1,000,000	ton/yr								
Slag Usage Limitation =	100,000	ton/yr	1.50	% sulfur						
Natural Gas Limitation =	1,010.77	MMCF/yr								
No. 2 Fuel Oil Limitation =	1,264,615	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	1,323,630	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Limitation =	0	gal/yr, and	0.00	% sulfur						
Propane Limitation =	14,772,747	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Limitation =	12,803,048	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	675,322	gal/yr, and	1.00	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead
Diesel Engine Oil Limitation =		gal/yr, and								

PM Dryer/Mixer Limitation =	0.132	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.107	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.177	lb/ton of asphalt production
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production
Slag SO2 Dryer/Mixer Limitation =	0.740	lb/ton of slag processed
Cold Mix Asphalt VOC Usage Limitation =	2.72	tons/yr

Limited/Controlled Emissions

	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
Process Description	**PM**	**PM10**	**PM2.5**	**SO2**	**NOx**	**VOC**	**CO**	**Total HAPs**	**Worst Case HAP**	
Ducted Emissions										
Dryer Fuel Combustion (worst case)	21.61	17.22	17.22	49.64	96.02	7.39	55.40	10.21	9.90	(hydrogen chloride)
Dryer/Mixer (Process)	66.00	53.50	88.38	29.00	27.50	16.00	65.00	5.33	1.55	(formaldehyde)
Dryer/Mixer Slag Processing	0	0	0	37.00	0	0	0	0	0	
Hot Oil Heater Fuel Combustion (worst case)	0.19	0.31	0.31	6.66	1.88	0.07	1.10	0.03	0.024	(hexane)
Recipricating Internal Combustion Engines	2.91	1.67	1.67			2.62	24.76	0.05	0.023	(formaldehyde)
Recipricating Internal Combustion Engines	0.91	0.91	0.91	**	**	1.06	2.79	0.01	0.003	(formaldehyde)
Worst Case Emissions*	**70.01**	**56.39**	**91.27**	**93.30**	**97.90**	**19.75**	**93.65**	**10.29**	**9.90**	(hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out and On-Site Yard	0.26	0.26	0.26	0	0	2.47	0.85	0.05	0.01	(formaldehyde)
Material Storage Piles	1.53	0.54	0.54	0	0	0	0	0	0	
Material Processing and Handling	3.23	1.53	0.23	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	15.87	5.80	5.80	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	35.50	9.05	0.90	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	2.72	0	0.71	0.24	(xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.00	0	0.09	0.00	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	negl	negl	
Total Fugitive Emissions	**56.38**	**17.17**	**7.73**	**0**	**0**	**5.19**	**0.85**	**0.85**	**0.24**	(xylenes)
Totals Limited/Controlled Emissions	**126.39**	**73.56**	**99.00**	**93.30**	**97.90**	**24.94**	**94.50**	**11.14**	**9.90**	(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 + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion + internal combustion engines
Fuel component percentages provided by the source.

This plant uses slag

** The limited fuel usage for the generators are included in the SO2 and N0x limits for the aggregate dryer/mixer. SO2 is limited to 93.3 and NOXx is limited to 97.9.The permit includes fuel equivalencies for the generators.

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

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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 =	400	ton/hr								
Annual Asphalt Production Limitation =	1,000,000	ton/yr								
Natural Gas Limitation =	1,011	MMCF/yr								
No. 2 Fuel Oil Limitation =	1,264,615	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	1,323,630	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Limitation =	0	gal/yr, and	0.00	% sulfur						
Propane Limitation =	14,772,747	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Limitation =	12,803,048	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	675,322	gal/yr, and	1.00	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead
Diesel Engine Oil Limitation =	0	gal/yr, and								

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)	Residual (No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/ Waste Oil (lb/kgal)	Diesel Engine (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Residual (No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/ Waste Oil (tons/yr)	Diesel Engine (tons/yr)	**Worse Case Fuel (tons/yr)**
PM	1.9	2	7	3.22	0.5	0.6	64	43.4	0.96	1.26	4.63	0.00	3.693	3.841	21.61	0.00	**21.61**
PM10	7.6	3.3	8.3	4.72	0.5	0.6	51	43.4	3.84	2.09	5.49	0.00	3.693	3.841	17.22	0.00	**17.22**
SO2	0.6	78.5	75.0	0.0	0.020	0.020	147.0	40.6	0.30	49.64	49.64	0.00	0.148	0.127	49.64	0.00	**49.64**
NOx	190	24.0	47.0	47.0	13.0	15.0	19.0	617.4	96.02	15.18	31.11	0.00	96.02	96.02	6.42	0.00	**96.02**
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	49.00	2.78	0.13	0.13	0.00	7.39	7.04	0.34	0.00	**7.39**
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	133.0	42.45	3.16	3.31	0.00	55.40	53.77	1.69	0.00	**55.40**
Hazardous Air Pollutant																	
HCl							26.4								8.91		**8.91**
Antimony			5.25E-03	5.25E-03			negl				3.47E-03	0.00E+00			negl		**3.5E-03**
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01		1.0E-04	3.54E-04	8.74E-04	0.00E+00			3.71E-02		**3.7E-02**
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl		6.1E-06	2.66E-04	1.84E-05	0.00E+00			negl		**2.7E-04**
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03		5.6E-04	2.66E-04	2.63E-04	0.00E+00			3.14E-03		**3.1E-03**
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02		7.1E-04	2.66E-04	5.59E-04	0.00E+00			6.75E-03		**6.8E-03**
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04		4.2E-05		3.98E-03	0.00E+00			7.09E-05		**4.0E-03**
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55		2.5E-04	7.97E-04	9.99E-04	0.00E+00			1.9E-01		**0.19**
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02		1.9E-04	5.31E-04	1.99E-03	0.00E+00			2.30E-02		**0.02**
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04					1.3E-04	2.66E-04	7.48E-05	0.00E+00					**2.7E-04**
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02		1.1E-03	2.66E-04	5.59E-02	0.00E+00			3.71E-03		**0.056**
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl		1.2E-05	1.33E-03	4.52E-04	0.00E+00			negl		**1.3E-03**
1.1.1-Trichloroethane			2.36E-04	2.36E-04							1.56E-04	0.00E+00					**1.6E-04**
1,3-Butadiene								5.47E-03								0.00E+00	**0.0E+00**
Acetaldehyde								1.07E-01								0.00E+00	**0.0E+00**
Acrolein								1.30E-02								0.00E+00	**0.0E+00**
Benzene	2.1E-03		2.14E-04	2.14E-04				1.31E-01	1.1E-03		1.42E-04	0.00E+00				0.00E+00	**1.1E-03**
Bis(2-ethylhexyl)phthalate							2.2E-03								7.43E-04		**7.4E-04**
Dichlorobenzene	1.2E-03						8.0E-07		6.1E-04						2.70E-07		**6.1E-04**
Ethylbenzene			6.36E-05	6.36E-05							4.21E-05	0.00E+00					**4.2E-05**
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				1.65E-01	3.8E-02	3.86E-02	2.18E-02	0.00E+00				0.00E+00	**0.039**
Hexane	1.8E+00								0.91								**0.910**
Phenol							2.4E-03								8.10E-04		**8.1E-04**
Toluene	3.4E-03		6.20E-03	6.20E-03				5.73E-02	1.7E-03		4.10E-03	0.00E+00				0.00E+00	**4.1E-03**
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	2.35E-02	negl		7.48E-04	0.00E+00			1.32E-02	0.00E+00	**1.3E-02**
Polycyclic Organic Matter		3.30E-03								2.09E-03							**2.1E-03**
Xylene			1.09E-04	1.09E-04				3.99E-02			7.21E-05	0.00E+00				0.00E+00	**7.2E-05**
								Total HAPs	**0.95**	**0.04**	**0.10**	**0.00**	**0**	**0**	**9.19**	**0.00**	**10.21**

Methodology

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

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

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

Abbreviations

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

Appendix A.2: Emissions Calculations
Dryer/Mixer
Limited Process Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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

Maximum Hourly Asphalt Production =	400	ton/hr
Annual Asphalt Production Limitation =	1,000,000	ton/yr
PM Dryer/Mixer Limitation =	0.132	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation =	0.107	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation =	0.177	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*	0.132	0.132	0.132	66.0	66.0	66.0	**66.0**
PM10*	0.107	0.107	0.107	53.5	53.5	53.5	**53.5**
PM2.5*	0.177	0.177	0.177	88.4	88.4	88.4	**88.4**
SO2**	0.003	0.011	0.058	1.7	5.5	29.0	**29.0**
NOx**	0.026	0.055	0.055	13.0	27.5	27.5	**27.5**
VOC**	0.032	0.032	0.032	16.0	16.0	16.0	**16.0**
CO***	0.130	0.130	0.130	65.0	65.0	65.0	**65.0**
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	**0.00E+00**
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	**3.15E-02**
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	**2.00E-02**
Acetaldehyde			1.30E-03			0.65	**0.65**
Acrolein			2.60E-05			1.30E-02	**1.30E-02**
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
HCl = Hydrogen Chloride
SO2 = Sulfur Dioxide
HAP = Hazardous Air Pollutant
PAH = Polyaromatic Hydrocarbon

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

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

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

Slag Usage Limitation =	100,000	ton/yr		
SO2 Slag Limitation =	0.740	lb/ton of slag processed	1.5	% sulfur

Criteria Pollutant	Emission Factor or Limitation (lb/ton)* Slag Processing	Limited Potential to Emit (tons/yr) Slag Processing
SO2	0.740	37.0

Methodology

* Testing results for Slag, obtained January 9, 2009 from Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from slag containing 1.10% sulfur content. 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%.

Limited Potential to Emit SO2 from Slag (tons/yr) = (Slag Usage Limitation (ton/yr)] * [Limited Emission Factor (lb/ton)] * [ton/2000 lbs]

Abbreviations

SO2 = Sulfur Dioxide

Appendix A.2: Emissions Calculations
Hot Oil Heater
Fuel Combustion with Maximum Capacity < 100 MMBtu/hr
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Location: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

Maximum Hot Oil Heater Fuel Input Rate =	3.00	MMBtu/hr		
Natural Gas Usage (Hot Oil Heater) =	26	MMCF/yr		
No. 2 Fuel Oil Usage(Hot Oil Heater) =	187,714	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	0.025	0.188	**0.19**
PM10/PM2.5	7.6	3.3	0.100	0.310	**0.31**
SO2	0.6	71.0	0.008	6.664	**6.66**
NOx	100	20.0	1.314	1.877	**1.88**
VOC	5.5	0.20	0.072	0.019	**0.07**
CO	84	5.0	1.104	0.469	**1.10**
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	2.6E-06	5.26E-05	**5.3E-05**
Beryllium	1.2E-05	4.2E-04	1.6E-07	3.94E-05	**3.9E-05**
Cadmium	1.1E-03	4.2E-04	1.4E-05	3.94E-05	**3.9E-05**
Chromium	1.4E-03	4.2E-04	1.8E-05	3.94E-05	**3.9E-05**
Cobalt	8.4E-05		1.1E-06		**1.1E-06**
Lead	5.0E-04	1.3E-03	6.6E-06	1.18E-04	**1.2E-04**
Manganese	3.8E-04	8.4E-04	5.0E-06	7.88E-05	**7.9E-05**
Mercury	2.6E-04	4.2E-04	3.4E-06	3.94E-05	**3.9E-05**
Nickel	2.1E-03	4.2E-04	2.8E-05	3.94E-05	**3.9E-05**
Selenium	2.4E-05	2.1E-03	3.2E-07	1.97E-04	**2.0E-04**
Benzene	2.1E-03		2.8E-05		**2.8E-05**
Dichlorobenzene	1.2E-03		1.6E-05		**1.6E-05**
Ethylbenzene					**0**
Formaldehyde	7.5E-02	6.10E-02	9.9E-04	5.73E-03	**0.006**
Hexane	1.8E+00		0.02		**0.024**
Phenol					**0**
Toluene	3.4E-03		4.5E-05		**4.5E-05**
Total PAH Haps	negl		negl		**0**
Polycyclic Organic Matter		3.30E-03		3.10E-04	**3.1E-04**
		Total HAPs =	**2.5E-02**	**6.7E-03**	**0.030**

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
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: Emission Calculations
Large Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (>600 HP)
Maximum Input Rate (>4.2 MMBtu/hr)

Company Name: **Rieth-Riley Construction Co., Inc.**
Address City IN Zip: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity (MMBtu/hr)	6.65
Maximum Hours Operated per Year	8760
Potential Throughput (MMBtu/yr)	58,254
Sulfur Content (S) of Fuel (% by weight)	0.5

	Pollutant						
	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.10	0.0573	0.0573	0.505 *(1.01S)*	3.2 **see below	0.09	0.85
Potential Emission in tons/yr	2.91	1.67	1.67	14.71	93.21	2.62	24.76

*No information was given regarding which method was used to determine the PM emission factor or whether condensable PM is included. The PM10 emission factor is filterable and condensable PM10 combined. The PM2.5 emissions were assumed to be equal to PM10.
**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

Hazardous Air Pollutants (HAPs)

	Pollutant						
	Benzene	Toluene	Xylene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04	7.89E-05	2.52E-05	7.88E-06	2.12E-04
Potential Emission in tons/yr	2.26E-02	8.18E-03	5.62E-03	2.30E-03	7.34E-04	2.30E-04	6.17E-03

***PAH = Polyaromatic Hydrocarbon (PAHs are considered HAPs, since they are considered Polycyclic Organic Matter)

Potential Emission of Total HAPs (tons/yr)	**4.58E-02**

Methodology
Emission Factors are from AP 42 (Supplement B 10/96) Tables 3.4-1 , 3.4-2, 3.4-3, and 3.4-4
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

Appendix A: Emission Calculations
Reciprocating Internal Combustion Engines - Diesel Fuel
Output Rating (<=600 HP)
Maximum Input Rate (<=4.2 MMBtu/hr)

Company Name: **Rieth-Riley Construction Co., Inc.**
Address City IN Zip: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

A. Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity (MMBtu/hr)	0.67
Maximum Hours Operated per Year	8760
Potential Throughput (MMBtu/yr)	5,869

	Pollutant						
	PM*	PM10*	PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.31	0.31	0.31	0.29	4.41	0.36	0.95
Potential Emission in tons/yr	0.91	0.91	0.91	0.85	12.94	1.06	2.79

*PM and PM2.5 emission factors are assumed to be equivalent to PM10 emission factors. No information was given regarding which method was used to determine the factor or the fraction of PM10 which is condensable.

Hazardous Air Pollutants (HAPs)

	Pollutant							
	Benzene	Toluene	Xylene	1,3-Butadiene	Formaldehyde	Acetaldehyde	Acrolein	Total PAH HAPs***
Emission Factor in lb/MMBtu	9.33E-04	4.09E-04	2.85E-04	3.91E-05	1.18E-03	7.67E-04	9.25E-05	1.68E-04
Potential Emission in tons/yr	2.74E-03	1.20E-03	8.36E-04	1.15E-04	3.46E-03	2.25E-03	2.71E-04	4.93E-04

Potential Emission of Total HAPs (tons/yr)	**1.14E-02**

Methodology
Emission Factors are from AP42 (Supplement B 10/96), Tables 3.3-1 and 3.3-2
Potential Throughput (MMBtu/yr) = [Heat Input Capacity (MMBtu/hr)] * [Maximum Hours Operated per Year]
Potential Emission (tons/yr) = [Potential Throughput (MMBtu/yr)] * [Emission Factor (lb/MMBtu)] / [2,000 lb/ton]

Appendix A.2: Emissions Calculations
Asphalt Load-Out and Yard Emissions
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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

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

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

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

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

Total VOCs	**1.95**	**0.5**	**2.5**
Total HAPs	**0.04**	**0.008**	**0.05**
		Worst Single HAP	**0.011 (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)
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: Emissions Calculations
Asphalt Load-Out and Yard Emissions (continued)
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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

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

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

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

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

Organic Volatile-Based Compounds (Table 11.1-16)

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile: Load-out and Onsite Yard (% by weight of TOC)	Limited Potential to Emit (tons/yr): Load-out	Onsite Yard	Total
VOC		VOC	---	TOC	94%	**1.95**	**0.52**	**2.47**
non-VOC/non-HAPS								
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	1.4E-01	3.6E-02	0.171
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	9.6E-04	2.5E-04	0.001
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.5E-02	3.9E-03	0.019
Total non-VOC/non-HAPS					7.30%	**0.152**	**0.040**	**0.19**
Volatile organic HAPs								
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	1.1E-03	2.9E-04	1.4E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	2.0E-04	5.3E-05	2.5E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	1.0E-03	2.7E-04	1.3E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	2.7E-04	7.2E-05	3.4E-04
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	4.4E-06	1.2E-06	5.5E-06
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	3.1E-04	8.3E-05	3.9E-04
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	2.3E-03	6.1E-04	2.9E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	5.8E-03	1.5E-03	0.007
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	1.8E-03	4.8E-04	0.002
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	3.1E-03	8.3E-04	0.004
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	3.7E-05	9.9E-06	4.7E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0	0	0.0E+00
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	1.5E-04	4.0E-05	1.9E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	1.6E-04	4.2E-05	2.0E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	4.4E-03	1.2E-03	0.006
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	2.7E-05	7.2E-06	3.4E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	8.5E-03	2.3E-03	0.011
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	1.7E-03	4.4E-04	2.1E-03
Total volatile organic HAPs					1.50%	**0.031**	**0.008**	**0.039**

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: Emissions Calculations
Material Storage Piles
Limited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

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	1.5	1.74	1.74	0.551	0.193
Stone	1.0	1.16	1.16	0.245	0.086
RAP	1.0	1.16	1.16	0.245	0.086
Gravel	1.0	1.16	1.16	0.245	0.086
Slag	1	1.16	1.16	0.245	0.086
			Totals	**1.53**	**0.54**

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.

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.2: Emissions Calculations
Material Processing, Handling, Crushing, Screening, and Conveying
Limited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

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

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)	Limited PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	1.08	0.51	0.08
Front-end loader dumping of materials into feeder bins	1.08	0.51	0.08
Conveyor dropping material into dryer/mixer or batch tower	1.08	0.51	0.08
Total (tons/yr)	**3.23**	**1.53**	**0.23**

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	2.57	1.14
Screening	0.025	0.0087	11.88	4.13
Conveying	0.003	0.0011	1.43	0.52
Limited Potential to Emit (tons/yr) =			**15.87**	**5.80**

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: Emissions Calculations
Unpaved Roads
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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 =	1,000,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	950,000	tons/yr
Maximum Asphalt Cement/Binder Throughput =	50,000	tons/yr
No. 2 Fuel Oil Limitation =	1,264,615	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	4.2E+04	1.7E+06	300	0.057	2409.7
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	4.2E+04	7.2E+05	300	0.057	2409.7
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	1.4E+03	6.7E+04	300	0.057	78.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.4E+03	1.7E+04	300	0.057	78.9
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	1.3E+02	5.9E+03	300	0.057	7.6
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.3E+02	1.6E+03	300	0.057	7.6
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	2.3E+05	4.3E+06	300	0.057	12851.7
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	2.3E+05	3.4E+06	300	0.057	12851.7
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	4.2E+04	1.7E+06	300	0.057	2367.4
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	4.2E+04	7.1E+05	300	0.057	2367.4
	Total				**6.2E+05**	**1.3E+07**			**3.5E+04**

Average Vehicle Weight Per Trip =	20.3	tons/trip
Average Miles Per Trip =	0.057	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)	7.34	1.87	0.19	4.83	1.23	0.12	2.41	0.62	0.06
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	7.34	1.87	0.19	4.83	1.23	0.12	2.41	0.62	0.06
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.240	0.061	0.01	0.158	0.040	4.0E-03	0.079	0.020	2.0E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.240	0.061	0.01	0.158	0.040	4.0E-03	0.079	0.020	2.0E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.023	0.006	5.9E-04	0.015	0.004	3.9E-04	0.008	0.002	1.9E-04
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.023	0.006	5.9E-04	0.015	0.004	3.9E-04	0.008	0.002	1.9E-04
Aggregate/RAP Loader Full	Front-end loader (3 CY)	39.16	9.98	1.00	25.75	6.56	0.66	12.88	3.28	0.33
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	39.16	9.98	1.00	25.75	6.56	0.66	12.88	3.28	0.33
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	7.21	1.84	0.18	4.74	1.21	0.12	2.37	0.60	0.06
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	7.21	1.84	0.18	4.74	1.21	0.12	2.37	0.60	0.06
	Totals	**107.97**	**27.52**	**2.75**	**70.99**	**18.09**	**1.81**	**35.50**	**9.05**	**0.90**

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.2: Emissions Calculations
Paved Roads
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

Paved Roads at Industrial Site

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

Annual Asphalt Production Limitation =	1,000,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	950,000	tons/yr
Maximum Asphalt Cement/Binder Throughput =	50,000	tons/yr
No. 2 Fuel Oil Limitation =	1,264,615	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	4.2E+04	1.7E+06	300	0.057	2409.7
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	4.2E+04	7.2E+05	300	0.057	2409.7
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	1.4E+03	6.7E+04	300	0.057	78.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.4E+03	1.7E+04	300	0.057	78.9
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	1.3E+02	5.9E+03	300	0.057	7.6
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.3E+02	1.6E+03	300	0.057	7.6
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	2.3E+05	4.3E+06	300	0.057	12851.7
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	2.3E+05	3.4E+06	300	0.057	12851.7
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	4.2E+04	1.7E+06	300	0.057	2367.4
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	4.2E+04	7.1E+05	300	0.057	2367.4
	Total				**6.2E+05**	**1.3E+07**			**3.5E+04**

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

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

	PM	PM10	PM2.5	
where k =	0.082	0.016	0.0024	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)
C =	0.00047	0.00047	0.00036	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
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 =	0.66	0.13	0.02	lb/mile
Mitigated Emission Factor, Eext =	0.60	0.12	0.02	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)	0.79	0.15	0.02	0.72	0.14	0.02	0.36	0.07	0.01
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.79	0.15	0.02	0.72	0.14	0.02	0.36	0.07	0.01
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.026	0.005	7.5E-04	0.024	0.005	6.8E-04	0.012	2.3E-03	3.4E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.026	0.005	7.5E-04	0.024	0.005	6.8E-04	0.012	2.3E-03	3.4E-04
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	2.5E-03	4.9E-04	7.2E-05	2.3E-03	4.4E-04	6.6E-05	1.1E-03	2.2E-04	3.3E-05
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	2.5E-03	4.9E-04	7.2E-05	2.3E-03	4.4E-04	6.6E-05	1.1E-03	2.2E-04	3.3E-05
Aggregate/RAP Loader Full	Front-end loader (3 CY)	4.23	0.82	0.12	3.86	0.75	0.11	1.93	0.38	0.06
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	4.23	0.82	0.12	3.86	0.75	0.11	1.93	0.38	0.06
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.78	0.15	0.02	0.71	0.14	0.02	0.36	0.07	0.01
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.78	0.15	0.02	0.71	0.14	0.02	0.36	0.07	0.01
	Totals	**11.65**	**2.27**	**0.33**	**10.65**	**2.07**	**0.31**	**5.33**	**1.04**	**0.15**

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.2: Emissions Calculations
Cold Mix Asphalt Production and Stockpiles
Limited Emissions

Company Name: Rieth-Riley Construction Co., Inc.
Source Address: 2325 Industrial Drive, Valparaiso, Indinna 46383
Permit Number: F127-27075-05241
Reviewer: Janet Mobley

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 = 2.72 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)	ADJUSTMENT FACTOR
Cut back asphalt rapid cure (assuming gasoline or naphtha solvent)	25.3%	95.0%	2.9	2.72	1.053
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	3.9	2.72	1.429
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	10.9	2.72	4.0
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	5.9	2.72	2.155
Other asphalt with solvent binder	25.9%	2.5%	108.8	2.72	40.0
			Worst Case Limited PTE of VOC =	**2.72**	

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) =	**0.71**	
Limited PTE of Single HAP (tons/yr) =	**0.24**	**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: Emissions Calculations
Gasoline Fuel Transfer and Dispensing Operation
Limited Emissions

Company Name: **Rieth-Riley Construction Co., Inc.**
Source Address: **2325 Industrial Drive, Valparaiso, Indinna 46383**
Permit Number: **F127-27075-05241**
Reviewer: **Janet Mobley**

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
=	0.0	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	0.00
Tank breathing and emptying	1.0	0.00
Vehicle refueling (displaced losses - controlled)	1.1	0.00
Spillage	0.7	0.00
Total		**0.00**

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) =	**0.00**	
Limited PTE of Single HAP (tons/yr) =	**0.00**	**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: Emission Calculations
VOC Emissions from Storage Tanks

Company Name: **Rieth-Riley Construction Company, Inc.**
Address: **2325 Industrial Drive, Valparaiso, Indiana 36383**
FESOP SPR: **127-27075-05241**
Reviewer: **Janet Mobley**

Tanks

[m3] = 3.785412 x **[10^3 gal]**	**[kPa] =** 6.894757 **[PSI]**

				Vapor Pressure			Potential to Emit VOC	
ID	**Capacity, 10^3 gal**	**Capacity, m^3**	**Product Stored**	**PSI**		**kPa**	**(lbs/yr)***	**(tons/yr)**
13A	35	132	Liquid Asphalt	1.9E-09	@300F	1.31E-08	36.3	1.82E-02
13B	20	75.7	Liquid Asphalt	1.9E-09	@300F	1.31E-08	20.7	1.04E-02
13C	15	56.8	Liquid Asphalt	1.9E-09	@300F	1.31E-08	15.6	7.80E-03
13D	30	114	Liquid Asphalt	1.9E-09	@300F	1.31E-08	31.2	1.56E-02
11A	10	37.9	Waste Oil	0.0012	@140F	0.0083	14.5	7.25E-03
11B	10	37.9	Waste Oil	0.0012	@140F	0.0083	14.5	7.25E-03
12A	0.35	1.32	Fuel Oil #2	0.0062	@59F	0.0427	0.42	2.10E-04
12B	1.2	4.54	Fuel Oil #2	0.0062	@59F	0.0427	1.80	9.00E-04
12C	1.2	4.54	Fuel Oil #2	0.0062	@59F	0.0427	1.80	9.00E-04
18	1	3.79	Liquid Asphalt	1.9E-09	@300F	1.31E-08	1.50	7.50E-04
						Total	**138**	**6.92E-02**

* The Potential to Emit VOC in lbs/yr was calculated using TANKS 4.09 for each of the tanks using No. 2 fuel oil as the worst case fluid.

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: Ed Clements
Rieth-Riley Construction Company, Inc
P.O. Box 477
Goshen, IN 46527

DATE: December 1, 2009

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

SUBJECT: Final Decision
FESOP - Renewal
127-27075-05241

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at jbrush@idem.IN.gov.

Final Applicant Cover letter.dot 11/30/07

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

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

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

December 1, 2009

TO: Porter 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: Rieth - Riley Construction Company, Inc
Permit Number: 127-27075-05241

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures
Final Library.dot 11/30/07

Mail Code 61-53

IDEM Staff	MIDENNEY 12/1/2009 Rieth-Riley Construction Company, Inc. 127-2707505241 (final)			AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
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3		Porter County Public Library 103 Jefferson St Valparaiso IN 46383 *(Library)*									
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5		Porter County Health Department 155 Indiana Ave, Suite 104 Valparaiso IN 46383-5502 *(Health Department)*									
6		Shawn Sobocinski 3229 E. Atlanta Court Portage IN 46368 *(Affected Party)*									
7		Mr. Ed Dybel 2440 Schrage Avenue Whiting IN 46394 *(Affected Party)*									
8		Ms. Carolyn Marsh Lake Michigan Calumet Advisory Council 1804 Oliver St Whiting IN 46394-1725 *(Affected Party)*									
9		Mr. Dee Morse National Park Service 12795 W Alameda Pky, P.O. Box 25287 Denver CO 80225-0287 *(Affected Party)*									
10		Valparaiso City Council and Mayors Office 166 Lincolnway Valparaiso IN 46383-5524 *(Local Official)*									
11		Mr. Joseph Virgil 128 Kinsale Avenue Valparaiso IN 46385 *(Affected Party)*									
12		Mark Coleman 9 Locust Place Ogden Dunes IN 46368 *(Affected Party)*									
13		Mr. Chris Hernandez Pipefitters Association, Local Union 597 8762 Louisiana St., Suite G Merrillville IN 46410 (Affected Party)									
14		Eric & Sharon Haussman 57 Shore Drive Ogden Dunes IN 46368 *(Affected Party)*									
15		Joseph Hero 11723 S Oakridge Drive St. John IN 46373 *(Affected Party)*									

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