



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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

TO: Interested Parties / Applicant
DATE: January 12, 2007
RE: J.H. Reynolds / 163-23182-03408
FROM: Nisha Sizemore
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, Room 1049, 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.dot 03/23/06



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Indianapolis, Indiana 46204-2251
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**NEW SOURCE REVIEW AND FEDERALLY
ENFORCEABLE STATE OPERATING PERMIT
RENEWAL
INDIANA DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
AND EVANSVILLE EPA**

**J.H. Rudolph & Company, Inc.
3300 S. Green River Road
Evansville, Indiana 47715**

(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.

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.

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

Operation Permit No.: F163-23182-03408	
Issued by: Original Signed By: Nisha Sizemore, Chief Permits Branch Office of Air Quality	Issuance Date: January 12, 2007 Expiration Date: January 12, 2012

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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) and Evansville EPA (EEPA). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

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

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

Authorized Individual:	Alvin Evans, Chief Operating Officer
Source Address:	3300 S. Green River Road, Evansville, IN 47715
Mailing Address:	P.O. Box 5226, Evansville, IN 47716
General Source Phone Number:	(812) 476-4921
SIC Code:	2951
County Location:	Vanderburgh
Source Location Status:	Nonattainment for PM 2.5 Attainment for all other criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD Minor Source, Section 112 of the Clean Air Act

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

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

- (a) One (1) six hundred fifty (650) tons per hour aggregate dryer, installed in June 1990, with a burner capacity of 116 million British thermal units per hour, exhausting through a baghouse at stack SV1. This dryer is fired by natural gas, #2 fuel oil, #4 fuel oil and #4 waste oil as backup fuel;
- (b) An alternate drying process, used to dry magnetite, with a maximum capacity of 50,000 tons per year, exhausting through a baghouse at stack SV1;
- (c) One (1) baghouse with a total filter area of 13,149 ft², exhausting at stack SV1;
- (d) One (1) recycled asphalt pavement (RAP) crusher, rated at 150 ton per hour, constructed in 1990;
- (e) One (1) 20,000 gallon liquid storage tank (ID # 12A) for PG 64-34, installed in 1996;
- (f) One (1) 30,000 gallon liquid asphalt storage tank (ID # 12B) for AC-10, installed in June 1990;
- (g) One (1) 30,000 gallon liquid asphalt storage tank (ID # 12C) for AC-20, installed in June 1990;
- (h) Two (2) 18,000 gallon tanks (ID # 16) for #2 fuel storage, installed in 1990; and
- (i) cold-mix (stockpile mix) asphalt manufacturing operations and storage piles.

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

The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

- (a) Natural gas-fired combustion sources with a heat input equal to or less than 10 million British thermal units per hour;
 - (i) One (1) hot oil heater, fired by natural gas and rated at 2.10 million British thermal units per hour, and exhausting to stack SV2, installed in June 1990;
- (b) Propane or liquefied petroleum gas, or butane-fired combustion sources with heat input equal to or less than 6 million British thermal units per hour;
- (c) Replacement or repair of electrostatic precipitators, bags in baghouses, and filters in other air filtration equipment;
- (d) A laboratory as defined in 326 IAC 2-7-1(21)(D);
- (e) paved roadways;
- (f) Two (2) storage silos, each with a maximum storage capacity of 200 tons, installed in May, 2002;
- (g) Three (3) storage silos, each with a maximum storage capacity of 300 tons, installed in June 1990;
- (h) Four (4) storage silos, each with a maximum storage capacity of 400 tons, installed in June 1990; and
- (i) One (1) 500 gallon gasoline storage tank, installed in 1990.

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

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

SECTION B GENERAL CONDITIONS

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

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

B.2 Revocation of Permits [326 IAC 2-1.1-9(5)]

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

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

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

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

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

- (a) This permit, F163-23182-03408, is issued for a fixed term of five (5) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-3-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ and EEPA, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

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

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

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

B.6 Enforceability [326 IAC 2-8-6]

- (a) 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 and EEPA, the United States Environmental Protection Agency (U.S. EPA) and by citizens in accordance with the Clean Air Act.

- (b) Unless otherwise stated, all terms and conditions in this permit that are local requirements, including any provisions designed to limit the source's potential to emit, are enforceable by Evansville EPA

B.7 Severability [326 IAC 2-8-4(4)]

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

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

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

B.9 Duty to Provide Information [326 IAC 2-8-4(5)(E)]

- (a) The Permittee shall furnish to IDEM, OAQ and EEPA, within a reasonable time, any information that IDEM, OAQ and EEPA 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 and EEPA copies of records required to be kept by this permit.
- (c) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

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

IDEM, OAQ and EEPA 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 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.12 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 Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall 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 and EEPA upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ and EEPA. IDEM, OAQ and EEPA may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or is the primary contributor to an exceedance of any limitation on emissions or potential to emit. The PMPs do not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) To the extent the Permittee is required by 40 CFR Part 60/63 to have an Operation Maintenance, and Monitoring (OMM) Plan for a unit, such Plan is deemed to satisfy the PMP requirements of 326 IAC 1-6-3 for that unit.

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

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

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

- (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
- (2) The permitted facility was at the time being properly operated;
- (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
- (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, and EEPA within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality,
Compliance Section), or
Telephone Number: 317-233-0178 (ask for Compliance Section)
Facsimile Number: 317-233-6865
Evansville EPA phone: (812) 435-6145; fax: (812) 435-6155

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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 and EEPA 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 and EEPA 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.
- (h) Any operations shall continue no longer than the minimum time required to prevent the situations identified in (g)(2)(B) of this condition.
- (h) The Permittee shall include all emergencies in the Quarterly Deviation and Compliance Monitoring Report.

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

- (a) All terms and conditions of permits established prior to F163-23182-03408 and issued pursuant to permitting programs approved into the state implementation plan have been either:
 - (1) incorporated as originally stated,

(2) revised, or

(3) deleted.

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

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

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

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

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

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

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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

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

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

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

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

(b) This permit shall be reopened and revised under any of the circumstances listed in IC 13-15-7-2 or if IDEM, OAQ, or EEPa 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, or EEPA 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, or EEPA at least thirty (30) days in advance of the date this permit is to be reopened, except that IDEM, OAQ, or EEPA may provide a shorter time period in the case of an emergency. [326 IAC 2-8-8(c)]

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

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

Request for renewal shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

- (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, and EEPA 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 and EEPA 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 and EEPA any additional information identified as being needed to process the application.

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

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

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

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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

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

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

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

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

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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

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

A modification, construction, or reconstruction is governed by the requirements of 326 IAC 2 and 326 IAC 2-8-11.1.

B.23 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2][IC13-30-3-1]

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, and EEPA or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a FESOP source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) As authorized by the Clean Air Act, IC 13-14-2-2, IC 13-17-3-2, and IC 13-30-3-1, inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;

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

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

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

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

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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

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

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

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

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

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

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

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

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

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

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

SECTION C

SOURCE OPERATION CONDITIONS

Entire Source

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

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

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

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

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

(a) Pursuant to 326 IAC 2-8:

- (1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one-hundred (100) tons per twelve (12) consecutive month period. This limitation shall also make the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) and 326 IAC 2-3 (Emission Offset) not applicable;
- (2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
- (3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

(b) The potential to emit particulate matter (PM) from the entire source shall be limited to less than two hundred and fifty (250) tons per twelve (12) consecutive month period.

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

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

C.3 Opacity [326 IAC 5-1]

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

(a) Opacity shall not exceed an average of thirty percent (30%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

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

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

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

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

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

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

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

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

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the plans submitted on March 21, 1996 and August 25, 2006. The combined plans are included as Attachment A.

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

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

C.9 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

- (a) Notification requirements apply to each owner or operator. If the combined amount of regulated asbestos containing material (RACM) to be stripped, removed or disturbed is at least 260 linear feet on pipes or 160 square feet on other facility components, or at least thirty-five (35) cubic feet on all facility components, then the notification requirements of 326 IAC 14-10-3 are mandatory. All demolition projects require notification whether or not asbestos is present.
- (b) The Permittee shall ensure that a written notification is sent on a form provided by the Commissioner at least ten (10) working days before asbestos stripping or removal work or before demolition begins, per 326 IAC 14-10-3, and shall update such notice as necessary, including, but not limited to the following:
 - (1) When the amount of affected asbestos containing material increases or decreases by at least twenty percent (20%); or
 - (2) If there is a change in the following:
 - (A) Asbestos removal or demolition start date;
 - (B) Removal or demolition contractor; or
 - (C) Waste disposal site.

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

All required notifications shall be submitted to:

Indiana Department of Environmental Management
Asbestos Section, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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

- (e) **Procedures for Asbestos Emission Control**
The Permittee shall comply with the applicable emission control procedures in 326 IAC 14-10-4 and 40 CFR 61.145(c). Per 326 IAC 14-10-1, emission control requirements are applicable for any removal or disturbance of RACM greater than three (3) linear feet on pipes or three (3) square feet on any other facility components or a total of at least 0.75 cubic feet on all facility components.
- (f) **Demolition and Renovation**
The Permittee shall thoroughly inspect the affected facility or part of the facility where the demolition or renovation will occur for the presence of asbestos pursuant to 40 CFR 61.145(a).
- (g) **Indiana Accredited Asbestos Inspector**
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos.

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

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

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

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

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

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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 and EEPA not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, and EEPA if the Permittee submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

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

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

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

C.12 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]

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

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

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

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

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

C.13 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

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

C.14 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)][326 IAC 2-8-5(1)]

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

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

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

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

- (a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.
- (b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

within ninety (90) days after the date of issuance of this permit.

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

- (c) If the ERP is disapproved by IDEM, OAQ and EEPA, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP.
- (d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.
- (e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.
- (f) Upon direct notification by IDEM, OAQ and EEPA that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate episode level.
[326 IAC 1-5-3]

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

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

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

- (a) Upon detecting an excursion or exceedance, the Permittee shall restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Corrective actions may include, but are not limited to, the following:
 - (1) initial inspection and evaluation;
 - (2) recording that operations returned to normal without operator action (such as through response by a computerized distribution control system); or
 - (3) any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.
- (c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:
 - (1) monitoring results;
 - (2) review of operation and maintenance procedures and records;
 - (3) inspection of the control device, associated capture system, and the process.
- (d) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (e) The Permittee shall maintain the following records:

- (1) monitoring data;
- (2) monitor performance data, if applicable; and
- (3) corrective actions taken.

C.18 Actions Related to Noncompliance Demonstrated by a Stack Test Federally Enforceable State Operating Permit

- (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 and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

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

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

C.19 General Record Keeping Requirements[326 IAC 2-8-4(3)] [326 IAC 2-8-5]

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

C.20 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

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

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

and

Evansville EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713

- (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, and EEPA on or before the date it is due.
- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (e) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

Stratospheric Ozone Protection

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

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

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

- (a) One (1) six hundred fifty (650) tons per hour aggregate dryer, installed in June 1990, with a burner capacity of 116 million British thermal units per hour, exhausting through a baghouse at stack SV1. This dryer is fired by natural gas, #2 fuel oil, #4 fuel oil and #4 waste oil as backup fuel;
- (b) An alternate drying process, used to dry magnetite, with a maximum capacity of 50,000 tons per year, exhausting through a baghouse at stack SV1;
- (c) One (1) baghouse with a total filter area of 13,149 ft², exhausting at stack SV1; and
- (d) One (1) recycled asphalt pavement (RAP) crusher, rated at 150 ton per hour, constructed in 1990.

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

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

D.1.1 Particulate Matter (PM) [326 IAC 6.5-1-2]

Pursuant to 326 IAC 6.5-1-2(a) (Nonattainment Area Particulate Limitations), particulate matter (PM) emissions from the aggregate mixing and drying operation and magnetite drying operation shall be limited to 0.03 grains per dry standard cubic foot (gr/dscf) for particulate matter. Compliance with this limit will also demonstrate compliance with the PM emission limit pursuant to 40 CFR 60.90, Subpart I.

D.1.2 Particulate Matter (PM) [326 IAC 6-3-2]

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the RAP crusher shall not exceed 55.44 pounds per hour when operating at a process weight rate of 150 tons per hour.

The pounds per hour limitation was calculated with the following equation:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40 \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

D.1.3 PSD Minor Limit [326 IAC 2-2]

- (a) Particulate matter emissions from the aggregate dryer and mixer shall not exceed 0.148 pound PM per ton of asphalt mix.
- (b) Particulate matter emissions from the magnetite drying operation shall not exceed 0.040 pound PM per ton of magnetite.

Compliance with the above limits, in addition to the limit in condition D.1.5, will limit total source wide PM emissions to less than 250 tons per year. Therefore, compliance with this limit will render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.4 Particulate Matter (PM₁₀) [326 IAC 2-8-4] [326 IAC 2-2]

Pursuant to 326 IAC 2-8-4, the following limits shall apply:

- (a) PM₁₀ emissions from the aggregate mixing and drying operation shall be limited to 0.083 pounds per ton of asphalt produced. This will limit the total potential to emit PM₁₀ from the aggregate dryer and mixer to less than 60.04 tons per year.
- (b) PM₁₀ emissions from the magnetite drying operation shall be limited to 0.04 pounds per ton of magnetite. This will limit the total potential to emit PM₁₀ from the magnetite drying operation to less than 1.0 tons per year.

Compliance with the above limits, in addition to the limit in condition D.1.5, will limit the total source wide potential to emit PM₁₀ to less than 100 tons per twelve (12) consecutive month period. Therefore, the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) are not applicable.

D.1.5 FESOP Limit [326 IAC 2-8]

Pursuant to 326 IAC 2-8-4, the following limits shall apply:

- (a) The annual throughput to the aggregate dryer shall be limited to 1,452,753 tons of asphalt per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) The annual throughput to the magnetite drying operation shall be limited to 50,000 tons of magnetite per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with the above limits, will limit the source's emissions of all regulated pollutants, except PM, to less than 100 tons per year. PM emissions are limited to less than 250 tons per year. This will also limit combined HAP emissions to less than 25 tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70), and 326 IAC 2-2 (PSD) are not applicable.

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

- (a) VOC emissions from the drum mix dryer shall not exceed 0.032 pound of VOC per ton of hot mix asphalt produced.
- (a) VOC emissions from the silo filling process shall not exceed 0.0122 pound of VOC per tons of hot mix asphalt produced.

Compliance with the above limits, in addition to the limit in condition D.1.5, will limit VOC emissions from the drum mix dryer and the silo filling process each to less than 25 tons per year. Compliance with this limit will render the requirements of 326 IAC 8-1-6 not applicable to these facilities.

D.1.7 Carbon monoxide (CO) [326 IAC 2-8]

Pursuant to 326 IAC 2-8-4, the following shall apply:

- (a) CO emissions from the drum mix dryer shall not exceed 0.13 pound of CO per ton of hot mix asphalt produced.
- (a) CO emissions from the silo filling process shall not exceed 0.019 pound of VOC per ton of hot mix asphalt produced.

Compliance with the above limits, in addition to the limit in condition D.1.5, will limits total source-wide CO emissions to less than 100 tons per year. Compliance with this limit will satisfy 326 IAC 2-8-4 and render the requirements of Part 70 (326 IAC 2-7) not applicable.

D.1.8 Sulfur Dioxide (SO₂) [326 IAC 7-1.1-1] [326 IAC 7-2-1]

Pursuant to 326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations), sulfur dioxide emissions from the 116 million British thermal units per hour burner for the aggregate dryer shall be limited to 0.5 pound per MMBtu heat input when using distillate oils and 1.6 pounds per MMBtu heat input when firing residual oils. This is equivalent to the following maximum allowable sulfur contents of the following fuels: No. 2 fuel oil (0.5%), No. 4 waste oil (1.5%) and No. 4 fuel oil (1.5%).

Pursuant to 326 IAC 7-1.1-2, this sulfur dioxide limit applies at all times including periods of startup, shutdown, and malfunction. Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a calendar month average, with compliance determined at the end of each month.

D.1.9 No. 4 Fuel Usage and Equivalents [326 IAC 2-8]

Pursuant to 326 IAC 2-8-4(1), the following limits shall apply:

- (a) The sulfur content of the No. 2 fuel oil used in the 116 MMBtu per hour burner for the aggregate dryer shall not exceed 0.5 % by weight. The sulfur content of the No. 4 fuel oil and waste oil used in the 116 MMBtu per hour burner for the aggregate dryer shall not exceed 1.0 % and 0.7% by weight, respectively.
- (b) The input of No. 4 fuel oil with a maximum sulfur content of 1.0% and No. 4 fuel oil equivalents to the 116 MMBtu per hour burner for the aggregate dryer shall be limited to 1,331,926 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (c) For purposes of determining compliance based on SO₂ emissions, the following shall apply:
 - (1) every million cubic feet (MMCF) of natural gas burned shall be equivalent to 4.0 gallons of No. 4 fuel oil based on SO₂ emissions, such that the total input of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified;
 - (2) every 1,000 gallons of No. 2 distillate oil burned in the aggregate dryer burner shall be equivalent to 512.3 gallons of No. 4 fuel oil based on SO₂ emissions and a maximum No. 2 distillate oil sulfur content of 0.5% such that the total gallons of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified; and
 - (3) every 1,000 gallons of waste oil (No. 4) burned in the aggregate dryer burner shall be equivalent to 686.0 gallons of No. 4 fuel oil based on SO₂ emissions and a maximum waste oil sulfur content of 0.7 % such that the total gallons of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified.

Compliance with the above limits shall render the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) not applicable.

D.1.10 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 this facility and any control devices.

Compliance Determination Requirements

D.1.11 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11][40 CFR 60.93][326 IAC 12]

- (a) No later than five (5) years from October 26, 2004, in order to demonstrate compliance with Conditions, D.1.1, D.1.3, D.1.4, and D.1.20 the Permittee shall perform PM and PM₁₀ testing for the aggregate dryer/mixer, and magnetite drying operation utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM₁₀ includes filterable and condensable particulate matter. Testing shall be conducted in accordance with Section C- Performance Testing.
- (b) Pursuant to 40 CFR 60.93, compliance with the PM standards in 40 CFR 60.92 and condition D.1.20 shall be determined by using Method 5 to determine particulate concentration. When determining the particulate concentration, the sampling time and sampling volume for each run shall be at least 60 minutes and 0.90 dry standard cubic meters (31.8 dry standard cubic feet).
- (c) Pursuant to 40 CFR 60.93, compliance with the opacity standards in 40 CFR 60.92 and condition D.1.20 shall be determined by utilizing 40 CFR Part 60 Appendix A, Method 9 to determine opacity. Testing shall be conducted in accordance with Section C- Performance Testing.
- (d) Within one-hundred and eighty (180) days after issuance of this permit, in order to demonstrate compliance with the opacity standards in 40 CFR 60.672 and condition D.1.22, the Permittee shall perform opacity testing for the RAP crusher utilizing 40 CFR Part 60 Appendix A, Method 9. This test 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.

D.1.12 Sulfur Dioxide Emissions and Sulfur Content

Compliance shall be determined utilizing one of the following options.

- (a) Pursuant to 326 IAC 3-7-4, the Permittee shall demonstrate that the sulfur dioxide emissions do not exceed five-tenths (0.5) pounds per million British thermal unit heat input when operating on No. 2 distillate oil and one and six-tenths (1.5) pounds per million British thermal unit heat input when operating on No. 4 fuel oil and waste oil (No. 4) 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.
- (b) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the aggregate dryer and drum mixer using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

- (c) In order to demonstrate compliance with Conditions D.1.8 and D.1.9 the Permittee shall demonstrate that weight percent sulfur dioxide in the fuels used does not exceed one half of a percent (0.5%) by weight when operating on No. 2 distillate fuel oil, one percent (1.0%) by weight when operating on No. 4 fuel oil, and seven tenths percent (0.7%) by weight when operating on No. 4 waste oil, using the methods described in (a) of this condition.

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

D.1.13 Particulate Matter (PM and PM₁₀) Control

- (a) In order to comply with Conditions D.1.1, D.1.3, D.1.4 and D.1.20 the baghouse for particulate control shall be in operation and control emissions from the aggregate dryer, drum mixer and the magnetite drying operation at all times that the aggregate dryer, drum mixer and magnetite drying operation are 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.

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

D.1.14 Visible Emissions Notations

- (a) Daily visible emission notations of the magnetite dryer, aggregate dryer, and burner baghouse stack exhaust and the crushing, conveying, material transfer points, and screening shall be performed during normal daylight operations when exhausting to the atmosphere. 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.1.15 Parametric Monitoring

The Permittee shall record the pressure drop across the baghouse used in conjunction with the aggregate dryer and mixer and magnetite drying process, once per day when the process is in operation and venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 2.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

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

D.1.16 Broken or Failed Bag Detection

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

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

D.1.17 Record Keeping Requirements

- (a) To document compliance with condition D.1.9, the Permittee shall maintain records in accordance with (1) through (6) below. Records maintained for (1) through (6) below shall be complete and sufficient to establish compliance with the SO₂ emission limit established in condition D.1.9.
 - (1) Calendar dates covered in the compliance determination period;
 - (2) Actual No. 4 fuel oil and No. 4 fuel oil equivalent usage per month since last compliance determination period and equivalent SO₂ and NO_x 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.

The Permittee shall retain records of all recording/monitoring data and support information for a period of five (5) years, or longer if specified elsewhere in this permit, from the date of the monitoring sample, measurement, or report. 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.

- (b) To document compliance with condition D.1.5, the Permittee shall maintain records in accordance with (1) through (3) below. Records maintained for (1) through (3) shall be taken monthly and shall be complete and sufficient to establish compliance with the annual throughput limits to the aggregate dryer and magnetite drying operation established in Condition D.1.5.
 - (1) Calendar dates covered in the compliance determination period;
 - (2) Asphalt mix throughput to the aggregate dryer per month since the last compliance determination period; and
 - (3) Magnetite throughput to the magnetite dryer per month since the last compliance determination period;
- (c) The Permittee shall maintain records sufficient to verify compliance with the procedures specified in Condition D.1.12. Records shall be maintained for a period of five (5) years and shall be made available upon request by IDEM, OAQ.
- (d) To document compliance with Condition D.1.14, the Permittee shall maintain daily records of visible emission notations from the magnetite dryer, aggregate dryer, and burner baghouse stack exhaust and the crushing, conveying, material transfer points, and screening or the reason why visible emission notations were not taken.
- (e) To document compliance with Condition D.1.15, the Permittee shall maintain daily records of the pressure drop during normal operation or the reason why a pressure drop reading was not taken.
- (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.1.5 and D.1.9 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

D.1.19 General Provisions Relating to NSPS [326 IAC 12] [40 CFR 60, Subpart A]

Pursuant to 40 CFR 60, Subpart I, the Permittee shall comply with the provisions of 40 CFR 60 Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12, for the aggregate dryer and burner in accordance with the schedule in 40 CFR 60, Subpart A.

D.1.20 NSPS, Requirements [40 CFR Part 60, Subpart I] [326 IAC 12]

Pursuant to CFR Part 60, Subpart I, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart I, which are incorporated by reference as 326 IAC 12 for the aggregate dryer and burner as specified as follows:

§ 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.

§ 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.

§ 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.

§ 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.

D.1.21 General Provisions Relating to NSPS [326 IAC 12] [40 CFR 60, Subpart A]

Pursuant to 40 CFR 60, Subpart OOO, the Permittee shall comply with the provisions of 40 CFR 60 Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12, for the crusher in accordance with the schedule in 40 CFR 60, Subpart A.

D.1.22 NSPS, Requirements [40 CFR Part 60, Subpart OOO] [326 IAC 12]

Pursuant to CFR Part 60, Subpart OOO, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart OOO, which are incorporated by reference as 326 IAC 12 for the crusher as specified as follows:

§ 60.670 Applicability and designation of affected facility.

(a)(1) Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also, crushers and grinding mills at hot mix asphalt facilities that reduce the size of nonmetallic minerals embedded in recycled asphalt pavement and subsequent affected facilities up to, but not including, the first storage silo or bin are subject to the provisions of this subpart.

(2) The provisions of this subpart do not apply to the following operations: All facilities located in underground mines; and stand-alone screening operations at plants without crushers or grinding mills.

(b) An affected facility that is subject to the provisions of subpart F or I or that follows in the plant process any facility subject to the provisions of subparts F or I of this part is not subject to the provisions of this subpart.

(d)(1) When an existing facility is replaced by a piece of equipment of equal or smaller size, as defined in §60.671, having the same function as the existing facility, the new facility is exempt from the provisions of §§60.672, 60.674, and 60.675 except as provided for in paragraph (d)(3) of this section.

(2) An owner or operator complying with paragraph (d)(1) of this section shall submit the information required in §60.676(a).

(3) An owner or operator replacing all existing facilities in a production line with new facilities does not qualify for the exemption described in paragraph (d)(1) of this section and must comply with the provisions of §§60.672, 60.674 and 60.675.

(e) An affected facility under paragraph (a) of this section that commences construction, reconstruction, or modification after August 31, 1983 is subject to the requirements of this part.

(f) Table 1 of this subpart specifies the provisions of subpart A of this part 60 that apply and those that do not apply to owners and operators of affected facilities subject to this subpart.

Subpart A reference	Applies to Subpart OOO	Comment
60.1, Applicability.....	Yes.....	
60.2, Definitions.....	Yes.....	
60.3, Units and abbreviations.....	Yes.....	
60.4, Address:		
(a).....	Yes.....	
(b).....	Yes.....	
60.5, Determination of construction or modification.	Yes.....	
60.6, Review of plans.....	Yes.....	
60.7, Notification and recordkeeping..	Yes.....	Except in (a)(2) report of anticipated date of initial startup is not required (§ 60.676(h)).
60.8, Performance tests.....	Yes.....	Except in (d), after 30 days notice for an initially scheduled performance test, any rescheduled performance test requires 7 days notice, not 30 days (§ 60.675(g)).
60.9, Availability of information.....	Yes.....	
60.10, State authority.....	Yes.....	
60.11, Compliance with standards and maintenance requirements.	Yes.....	Except in (b) under certain conditions (§§ 60.675 (c)(3) and (c)(4)), Method 9 observation may be reduced from 3 hours to 1 hour. Some affected facilities exempted from Method 9 tests (§ 60.675(h)).
60.12, Circumvention.....	Yes.....	
60.13, Monitoring	Yes.....	

requirements.....

- | | | |
|--|----------|--|
| 60.14, Modification..... | Yes..... | |
| 60.15, Reconstruction..... | Yes..... | |
| 60.16, Priority list..... | Yes..... | |
| 60.17, Incorporations by
reference.... | Yes..... | |
| 60.18, General control
device..... | No..... | Flares will not be used to comply with
the emission limits. |
| 60.19, General notification and
reporting requirements. | Yes..... | |

§ 60.671 Definitions.

All terms used in this subpart, but not specifically defined in this section, shall have the meaning given them in the Act and in subpart A of this part.

Bagging operation means the mechanical process by which bags are filled with nonmetallic minerals.

Belt conveyor means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

Bucket elevator means a conveying device of nonmetallic minerals consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.

Building means any frame structure with a roof.

Capacity means the cumulative rated capacity of all initial crushers that are part of the plant.

Capture system means the equipment (including enclosures, hoods, ducts, fans, dampers, etc.) used to capture and transport particulate matter generated by one or more process operations to a control device.

Control device means the air pollution control equipment used to reduce particulate matter emissions released to the atmosphere from one or more process operations at a nonmetallic mineral processing plant.

Conveying system means a device for transporting materials from one piece of equipment or location to another location within a plant. Conveying systems include but are not limited to the following: Feeders, belt conveyors, bucket elevators and pneumatic systems.

Crusher means a machine used to crush any nonmetallic minerals, and includes, but is not limited to, the following types: jaw, gyratory, cone, roll, rod mill, hammermill, and impactor.

Enclosed truck or railcar loading station means that portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.

Fixed plant means any nonmetallic mineral processing plant at which the processing equipment specified in §60.670(a) is attached by a cable, chain, turnbuckle, bolt or other means (except electrical connections) to any anchor, slab, or structure including bedrock.

Fugitive emission means particulate matter that is not collected by a capture system and is released to the atmosphere at the point of generation.

Grinding mill means a machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

Initial crusher means any crusher into which nonmetallic minerals can be fed without prior crushing in the plant.

Nonmetallic mineral means any of the following minerals or any mixture of which the majority is any of the following minerals:

- (a) Crushed and Broken Stone, including Limestone, Dolomite, Granite, Traprock, Sandstone, Quartz, Quartzite, Marl, Marble, Slate, Shale, Oil Shale, and Shell.
- (b) Sand and Gravel.
- (c) Clay including Kaolin, Fireclay, Bentonite, Fuller's Earth, Ball Clay, and Common Clay.
- (d) Rock Salt.
- (e) Gypsum.
- (f) Sodium Compounds, including Sodium Carbonate, Sodium Chloride, and Sodium Sulfate.
- (g) Pumice.
- (h) Gilsonite.
- (i) Talc and Pyrophyllite.
- (j) Boron, including Borax, Kernite, and Colemanite.
- (k) Barite.
- (l) Fluorospar.
- (m) Feldspar.
- (n) Diatomite.
- (o) Perlite.
- (p) Vermiculite.
- (q) Mica.
- (r) Kyanite, including Andalusite, Sillimanite, Topaz, and Dumortierite.

Nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located, including lime plants, power plants, steel mills, asphalt concrete plants, portland cement plants, or any other facility processing nonmetallic minerals except as provided in §60.670 (b) and (c).

Portable plant means any nonmetallic mineral processing plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there shall be no cable, chain, turnbuckle, bolt or other means (except electrical connections) by which any piece of equipment is attached or clamped to any anchor, slab, or structure, including bedrock that must be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.

Production line means all affected facilities (crushers, grinding mills, screening operations, bucket elevators, belt conveyors, bagging operations, storage bins, and enclosed truck and railcar loading stations) which are directly connected or are connected together by a conveying system.

Screening operation means a device for separating material according to size by passing undersize material through one or more mesh surfaces (screens) in series, and retaining oversize material on the mesh surfaces (screens).

Size means the rated capacity in tons per hour of a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station; the total surface area of the top screen of a screening operation; the width of a conveyor belt; and the rated capacity in tons of a storage bin.

Stack emission means the particulate matter that is released to the atmosphere from a capture system.

Storage bin means a facility for storage (including surge bins) or nonmetallic minerals prior to further processing or loading.

Transfer point means a point in a conveying operation where the nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile.

Truck dumping means the unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include but are not limited to: trucks, front end loaders, skip hoists, and railcars.

Vent means an opening through which there is mechanically induced air flow for the purpose of exhausting from a building air carrying particulate matter emissions from one or more affected facilities.

Wet mining operation means a mining or dredging operation designed and operated to extract any nonmetallic mineral regulated under this subpart from deposits existing at or below the water table, where the nonmetallic mineral is saturated with water.

Wet screening operation means a screening operation at a nonmetallic mineral processing plant which removes unwanted material or which separates marketable fines from the product by a washing process which is designed and operated at all times such that the product is saturated with water.

§ 60.672 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 cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any stack emissions which:

(1) Contain particulate matter in excess of 0.05 g/dscm (0.022 gr/dscf); and

(2) Exhibit greater than 7 percent opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing control device. Facilities using a wet scrubber must comply with the reporting provisions of §60.676 (c), (d), and (e).

(b) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under §60.11 of this part, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any fugitive emissions which exhibit greater than 10 percent opacity, except as provided in paragraphs (c), (d), and (e) of this section.

(c) On and after the sixtieth day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under §60.11 of this part, no owner or operator shall cause to be discharged into the atmosphere from any crusher, at which a capture system is not used, fugitive emissions which exhibit greater than 15 percent opacity.

(d) Truck dumping of nonmetallic minerals into any screening operation, feed hopper, or crusher is exempt from the requirements of this section.

§ 60.673 Reconstruction.

(a) The cost of replacement of ore-contact surfaces on processing equipment shall not be considered in calculating either the "fixed capital cost of the new components" or the "fixed capital cost that would be required to construct a comparable new facility" under §60.15. Ore-contact surfaces are crushing surfaces; screen meshes, bars, and plates; conveyor belts; and elevator buckets.

(b) Under §60.15, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components (except components specified in paragraph (a) of this section) which are or will be replaced pursuant to all continuous programs of component replacement commenced within any 2-year period following August 31, 1983.

§ 60.675 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). Acceptable alternative methods and procedures are given in paragraph (e) of this section.

(b) The owner or operator shall determine compliance with the particulate matter standards in §60.672(a) as follows:

(1) Method 5 or Method 17 shall be used to determine the particulate matter concentration. The sample volume shall be at least 1.70 dscm (60 dscf). For Method 5, if the gas stream being sampled is at ambient temperature, the sampling probe and filter may be operated without heaters. If the gas stream is above ambient temperature, the sampling probe and filter may be operated at a temperature high enough, but no higher than 121 °C (250 °F), to prevent water condensation on the filter.

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

(c)(1) In determining compliance with the particulate matter standards in §60.672 (b) and (c), the owner or operator shall use Method 9 and the procedures in §60.11, with the following additions:

(i) The minimum distance between the observer and the emission source shall be 4.57 meters (15 feet).

(ii) The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources (e.g., road dust). The required observer position relative to the sun (Method 9, Section 2.1) must be followed.

(iii) For affected facilities using wet dust suppression for particulate matter control, a visible mist is sometimes generated by the spray. The water mist must not be confused with particulate matter emissions and is not to be considered a visible emission. When a water mist of this nature is present, the observation of emissions is to be made at a point in the plume where the mist is no longer visible.

(2) In determining compliance with the opacity of stack emissions from any baghouse that controls emissions only from an individual enclosed storage bin under §60.672(f) of this subpart, using Method 9, the duration of the Method 9 observations shall be 1 hour (ten 6-minute averages).

(3) When determining compliance with the fugitive emissions standard for any affected facility described under §60.672(b) of this subpart, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6-minute averages) only if the following conditions apply:

(i) There are no individual readings greater than 10 percent opacity; and

(ii) There are no more than 3 readings of 10 percent for the 1-hour period.

(4) When determining compliance with the fugitive emissions standard for any crusher at which a capture system is not used as described under §60.672(c) of this subpart, the duration of the Method 9 observations may be reduced from 3 hours (thirty 6-minute averages) to 1 hour (ten 6-minute averages) only if the following conditions apply:

(i) There are no individual readings greater than 15 percent opacity; and

(ii) There are no more than 3 readings of 15 percent for the 1-hour period.

(f) To comply with §60.676(d), the owner or operator shall record the measurements as required in §60.676(c) using the monitoring devices in §60.674 (a) and (b) during each particulate matter run and shall determine the averages.

(g) If, after 30 days notice for an initially scheduled performance test, there is a delay (due to operational problems, etc.) in conducting any rescheduled performance test required in this section, the owner or operator of an affected facility shall submit a notice to the Administrator at least 7 days prior to any rescheduled performance test.

§ 60.676 Reporting and recordkeeping.

(a) Each owner or operator seeking to comply with §60.670(d) shall submit to the Administrator the following information about the existing facility being replaced and the replacement piece of equipment.

(1) For a crusher, grinding mill, bucket elevator, bagging operation, or enclosed truck or railcar loading station:

(i) The rated capacity in megagrams or tons per hour of the existing facility being replaced and

(ii) The rated capacity in tons per hour of the replacement equipment.

(2) For a screening operation:

- (i) The total surface area of the top screen of the existing screening operation being replaced and
- (ii) The total surface area of the top screen of the replacement screening operation.

(3) For a conveyor belt:

- (i) The width of the existing belt being replaced and
- (ii) The width of the replacement conveyor belt.

(4) For a storage bin:

- (i) The rated capacity in megagrams or tons of the existing storage bin being replaced and
- (ii) The rated capacity in megagrams or tons of replacement storage bins.

(f) The owner or operator of any affected facility shall submit written reports of the results of all performance tests conducted to demonstrate compliance with the standards set forth in §60.672 of this subpart, including reports of opacity observations made using Method 9 to demonstrate compliance with §60.672(b), (c), and (f), and reports of observations using Method 22 to demonstrate compliance with §60.672(e).

(g) The owner or operator of any screening operation, bucket elevator, or belt conveyor that processes saturated material and is subject to §60.672(h) and subsequently processes unsaturated materials, shall submit a report of this change within 30 days following such change. This screening operation, bucket elevator, or belt conveyor is then subject to the 10 percent opacity limit in §60.672(b) and the emission test requirements of §60.11 and this subpart. Likewise a screening operation, bucket elevator, or belt conveyor that processes unsaturated material but subsequently processes saturated material shall submit a report of this change within 30 days following such change. This screening operation, bucket elevator, or belt conveyor is then subject to the no visible emission limit in §60.672(h).

(h) The subpart A requirement under §60.7(a)(2) for notification of the anticipated date of initial startup of an affected facility shall be waived for owners or operators of affected facilities regulated under this subpart.

(i) A notification of the actual date of initial startup of each affected facility shall be submitted to the Administrator.

(1) For a combination of affected facilities in a production line that begin actual initial startup on the same day, a single notification of startup may be submitted by the owner or operator to the Administrator. The notification shall be postmarked within 15 days after such date and shall include a description of each affected facility, equipment manufacturer, and serial number of the equipment, if available.

(2) For portable aggregate processing plants, the notification of the actual date of initial startup shall include both the home office and the current address or location of the portable plant.

(j) The requirements of this section remain in force until and unless the Agency, in delegating enforcement authority to a State under section 111(c) of the Act, approves reporting requirements or an alternative means of compliance surveillance adopted by such States. In that event, affected facilities within the State will be relieved of the obligation to comply with the reporting requirements of this section, provided that they comply with requirements established by the State.

SECTION D.2 FACILITY OPERATION CONDITIONS – COLD MIX ASPHALT

Facility Description [326 IAC 2-8-4(10)]:

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

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

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

D.2.1 Volatile Organic Compounds (VOC) [326 IAC 8-5-2][326 IAC 2-8-4][326 IAC 2-2]

- (a) Pursuant to 326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving), the use of cutback asphalt or asphalt emulsion shall not contain more than seven percent (7%) oil distillate by volume of emulsion for any paving application except the following purposes:
- (a) Penetrating prime coating
 - (b) Stockpile storage
 - (c) Application during the months of November, December, January, February and March.
- (b) The VOC solvent used as diluent in the liquid binder used in cold mix asphalt production from the plant shall be limited such that no more than 56.62 tons of VOC emissions emitted per twelve (12) consecutive months. This shall be achieved by limiting the total VOC solvent of any one selected binder to not exceed the stated limit for that binder during the last twelve (12) months. When more than one binder is used, the formula below must be applied so that the total VOC emitted does not exceed 56.62 tons per twelve (12) consecutive month period.

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

- (1) Cut back asphalt rapid cure, containing a maximum of 25.3% of the liquid binder by weight of VOC solvent and 95% 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 25.9% of the liquid binder of VOC solvent and 2.5% by weight of the VOC solvent evaporating
- (c) The liquid binder used in cold mix asphalt production shall be limited as follows:
- (1) Cutback asphalt rapid cure liquid binder usage shall not exceed 59.60 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.

- (2) Cutback asphalt medium cure liquid binder usage shall not exceed 80.89 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (3) Cutback asphalt slow cure liquid binder usage shall not exceed 226.49 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (4) Emulsified asphalt with solvent liquid binder usage shall not exceed 122.03 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (5) Other asphalt with solvent liquid binder shall not exceed 2,264.93 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (6) The VOC solvent allotments in subpart (c)(1) through (c)(5) of this condition shall be adjusted when more than one type of binder is used per twelve (12) month consecutive period rolled on a monthly basis. 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 ratio listed in the table that follows.

$$\frac{\text{Tons of solvent contained in binder}}{\text{Adjustment ratio}} = \text{tons of VOC emitted}$$

Type of binder	tons VOC solvent	adjustment ratio	tons VOC emitted
cutback asphalt rapid cure		1	
cutback asphalt medium cure		1.36	
cutback asphalt slow cure		3.8	
emulsified asphalt		2.04	
other asphalt		38	

The equivalent total tons of VOC of the combined liquid binders shall be less than 56.62 tons per twelve (12) consecutive month period rolled on a monthly basis.

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

D.2.2 Record Keeping Requirements

To document compliance with Condition D.2.1(b) and (c), the Permittee shall maintain records in accordance with (a) through (d) below. Records maintained for (a) through (d) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC emission limits established in Condition D.2.1(b) and (c).

- (a) Calendar dates covered in the compliance determination period;
- (b) Asphalt binder usage per month since the last compliance determination period;
- (c) VOC solvent content by weight of the asphalt binder used each month; and
- (d) Amount of VOC solvent used in the production of cold mix asphalt, and the amount of VOC emitted each month.

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

D.2.3 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.2.1(b) and (c) shall be submitted to the address 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).

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
AND EVANSVILLE EPA**

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

Source Name: J.H. Rudolph & Company Inc.
Source Address: 3300 S. Green River Road, Evansville, IN 47715
Mailing Address: P.O. Box 5226, Evansville, IN 47716
FESOP No.: F163-23182-03408

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

Please check what document is being certified:

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

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

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH
100 North Senate Avenue
Indianapolis, Indiana 46204-2251
Phone: 317-233-0178
Fax: 317-233-6865**

AND

**EVANSVILLE EPA
C.K. Newsome Community Center
100 E. Walnut St., Suite 100
Evansville, IN 47713**

**FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)
EMERGENCY OCCURRENCE REPORT**

Source Name: J.H. Rudolph & Company Inc.
Source Address: 3300 S. Green River Road, Evansville, IN 47715
Mailing Address: P.O. Box 5226, Evansville, IN 47716
FESOP No.: F163-23182-03408

This form consists of 2 pages

Page 1 of 2

- | |
|---|
| <input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12) <ul style="list-style-type: none">• 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 DATA SECTION
AND EVANSVILLE EPA**

FESOP Quarterly Report

Source Name: J.H. Rudolph & Company Inc.
Source Address: 3300 S. Green River Road, Evansville, IN 47715
Mailing Address: P.O. Box 5226, Evansville, IN 47716
FESOP No.: F163-23182-03408
Facility: 650 ton/hr aggregate mixer
Parameter: Throughput
Limit: The annual throughput to the aggregate dryer shall be limited to 1,452,753 tons of asphalt per twelve (12) consecutive month period, with compliance determined at the end of each month.

YEAR: _____

Month	Column 1: Asphalt throughput (tons)	Column 2: Asphalt throughput (tons)	Column 1 + Column 2: Asphalt throughput (tons)
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

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

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

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: J.H. Rudolph & Company Inc.
 Source Address: 3300 S. Green River Road, Evansville, IN 47715
 Mailing Address: P.O. Box 5226, Evansville, IN 47716
 FESOP No.: F163-23182-03408
 Facility: Magnetite drying operation
 Parameter: Throughput
 Limit: The annual throughput to the magnetite drying operation shall be limited to 50,000 tons of magnetite per twelve (12) consecutive month period, with compliance determined at the end of each month.

YEAR: _____

Month	Column 1: Magnetite throughput (tons)	Column 2: Magnetite throughput (tons)	Column 1 + Column 2: Magnetite throughput (tons)
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

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

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

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: J.H. Rudolph & Company Inc.
 Source Address: 3300 S. Green River Road, Evansville, IN 47715
 Mailing Address: P.O. Box 5226, Evansville, IN 47716
 FESOP No.: F163-23182-03408
 Facility: 116 MMBtu per hour burner for the aggregate dryer
 Parameter: No. 4 fuel oil usage limit SO₂ and NO_x emissions
 Limit: The input of No. 4 fuel oil with a maximum sulfur content of 1.0% and No. 4 fuel oil equivalents to the 116 MMBtu per hour burner for the aggregate dryer shall be limited to 1,331,926 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month, where every million cubic feet (MMCF) of natural gas burned shall be equivalent to 4.0 gallons of No. 4 fuel oil, every 1,000 gallons of No. 2 distillate oil burned in the aggregate dryer burner shall be equivalent to 512.3 gallons of No. 4 fuel oil and every 1,000 gallons of waste oil (No. 4) burned in the aggregate dryer burner shall be equivalent to 686.0 gallons of No. 4 fuel oil. This will limit SO₂ and NO_x emissions to less than 100 tons per year.

YEAR: _____

Month	Column 1: No. 4 fuel oil usage plus equivalent of other fuels (gallons)	Column 2: No. 4 fuel oil usage plus equivalent of other fuels (gallons)	Column 1 + Column 2: No. 4 fuel oil usage plus equivalent of other fuels (gallons)
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

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

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

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: J.H. Rudolph & Company Inc.
Source Address: 3300 S. Green River Road, Evansville, IN 47715
Mailing Address: P.O. Box 5226, Evansville, IN 47716
FESOP No.: F163-23182-03408
Facility: Cold-mix asphalt storage piles
Parameter: VOC
Limit:

- (a) Cutback asphalt rapid cure liquid binder usage shall not exceed 59.35 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (b) Cutback asphalt medium cure liquid binder usage shall not exceed 80.55 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (c) Cutback asphalt slow cure liquid binder usage shall not exceed 225.53 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (d) Emulsified asphalt with solvent liquid binder usage shall not exceed 121.51 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (e) Other asphalt with solvent liquid binder shall not exceed 2255.30 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.

YEAR:

The following liquid binder solvent was the only liquid binder solvent used over the previous 12 month period: _____ Limit applicable: _____

(use of more than one binder requires the use of the "Multiple Liquid Binder Solvents" report form)

Month	Column 1 Solvent input This Month (tons)	Column 2 Solvent input Previous 11 Months (tons)	Column 1 + Column 2 Solvent input 12 Month Total (tons)
Month 1			
Month 2			
Month 3			

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

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

Attach a signed certification to complete this report.

**INDIA NA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE BRANCH
 AND EVANSVILLE EPA
 Multiple Liquid Binder Solvent Quarterly Report**

Source Name: J.H. Rudolph & Company, Inc.
Initial Source Address: 3300 S. Green River Road, Evansville, IN 47715
Mailing Address: P.O. Box 5226, Evansville, IN 47716
FESOP No.: F163-23182-03408
Facility: Cold-mix asphalt storage piles
Parameter: VOC
Limit:: 56.38 tons per year
Year:

Month	Type of Liquid binder	Solvent Usage This Month (tons)	Divisor	VOC emitted This Month (tons) for each solvent	VOC emitted This Month (tons)	VOC emitted Previous 11 Months (tons)	This month + Previous 11 months =VOC emitted 12 Month Total(tons)
Month 1	Cutback asphalt rapid cure		1				
	Cutback asphalt medium cure		1.36				
	Cutback asphalt slow cure		3.8				
	Emulsified asphalt		2.04				
	other asphalt		38				
Month 2	Cutback asphalt rapid cure		1				
	Cutback asphalt medium cure		1.36				
	Cutback asphalt slow cure		3.8				
	Emulsified asphalt		2.04				
	other asphalt		38				
Month 3	Cutback asphalt rapid cure		1				
	Cutback asphalt medium cure		1.36				
	Cutback asphalt slow cure		3.8				
	Emulsified asphalt		2.04				
	other asphalt		38				

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.

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

Attach a signed certification to complete this report.

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

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

Source Name: J.H. Rudolph & Company Inc.
Source Address: 3300 S. Green River Road, Evansville, IN 47715
Mailing Address: P.O. Box 5226, Evansville, IN 47716
FESOP No.: F163-23182-03408

Months: _____ to _____ Year: _____

Page 1 of 2

<p>This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. A deviation required to be reported pursuant to an applicable requirement that exists independent of the permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".</p>	
<input type="checkbox"/> NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
<input type="checkbox"/> THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
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:
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Probable Cause of Deviation:	
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Permit Requirement (specify permit condition #)	
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Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed By: _____

Title/Position: _____

Date: _____

Phone: _____

Attach a signed certification to complete this report.

Mail to: Permit Administration & Development Section
Office Of Air Quality
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

J.H. Rudolph & Company
3300 S. Green River Road
Evansville, Indiana 47715

Affidavit of Construction

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

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of _____ for _____.
(Title) (Company Name)
3. By virtue of my position with _____, I have personal
(Company Name)
knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of _____.
(Company Name)
4. I hereby certify that J. H. Rudolph & Company, 3300 S. Green River Rd, Evansville IN 47715, completed construction of the cold-mix (stockpile mix) asphalt manufacturing operations and storage piles in conformity with the requirements and intent of the Federally Enforceable Source Operating Permit application received by the Office of Air Quality on June 5, 2006 and as permitted pursuant to FESOP Permit No. 163-23182-03408, Plant ID No. 163-03408 issued on _____.

Further Affiant said not.
I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature

Date

STATE OF INDIANA)
)SS

COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of
Indiana on this _____ day of _____, 20 _____ .

My Commission expires:

Signature

Name (typed or printed)

Attachment A

J.H. Rudolph Company, Inc.

ASPHALT PLANT SITE FUGITIVE DUST CONTROL PLAN

- (a) Fugitive particulate matter emissions from plant roadways, parking lots and yards shall be controlled by one of the following methods:
 - 1) Application of water and/or water-dust control material solutions;
 - 2) Sweeping between watering;
 - 3) Limiting vehicular speed to 10 miles per hour.
- (b) Fugitive particulate matter emissions from conveying/handling operations shall be controlled by minimizing all drop distances.
- (c) Fugitive particulate matter emissions from storage piles shall be controlled by one of the following methods:
 - 1) minimizing drop distances; and
 - 2) maintaining moisture content of materials above 1.5%.
- (d) Fugitive particulate matter emissions from plant RAP crusher operations shall be controlled by minimizing all drop distances.

**Indiana Department of Environmental Management
Office of Air Quality
And Evansville Environmental Protection Agency**

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

Source Background and Description

Source Name:	J.H. Rudolph & Company, Inc.
Source Location:	3300 S. Green River Road, Evansville, IN 47715
County:	Vanderburgh
SIC Code:	2951
Operation Permit No.:	F163-23182-03408
Permit Reviewer:	Julia Handley/EVP

On September 11, 2006, the Office of Air Quality (OAQ) had a notice published in the Courier Press, Evansville, Indiana, stating that J.H. Rudolph & Company, Inc. had applied for a Federally Enforceable State Operating Permit (FESOP) to operate a stationary drum-mix asphalt plant. The notice also stated that OAQ proposed to issue a FESOP for this operation and provided information on how the public could review the proposed FESOP 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 FESOP should be issued as proposed.

On September 28, 2006, J.H. Rudolph & Company, Inc. submitted comments on the proposed permit. The summary of the comments and corresponding responses is as follows (additions in bold, deletions in ~~strikeout~~):

Comment 1:

The storage capacities of the silos listed in Condition A.3 – Insignificant Activities, item (g). Three of the storage silos each have a maximum capacity of 300 tons. The remaining four silos each have a maximum storage capacity of 400 tons.

Response to Comment 1:

The listed storage capacity of storage silos has been revised in section A.3 as follows:

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

The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

~~(g) Seven (7) storage silos, each with a maximum storage capacity of 200 tons, installed in June 1990; and~~

(g) Three (3) storage silos, each with a maximum storage capacity of 300 tons, installed in June 1990;

(h) Four (4) storage silos, each with a maximum storage capacity of 400 tons, installed in June 1990; and

~~(h)~~ **(i) One (1) 500 gallon gasoline storage tank, installed in 1990.**

On October 5, 2006, Berger & Berger LLP, on behalf of Plumber and Steamfitters Local 136, submitted comments on the proposed permit. The summary of the comments and corresponding responses is as follows (additions in bold, deletions in ~~strikeout~~):

Comment 2:

Rudolph's facility is a "new facility" subject to BACT for VOC under 326 IAC 8-1-6 because Rudolph constructed the facility after January, 1980. The controlled VOC emissions from aggregate dryer and burner are greater than twenty-five (25) tons per year (noting controlled emissions of 34.85 tons per year from aggregate dryer and burner). The Draft Permit should be revised to include BACT for VOCs for the aggregate dryer and burner and the cold mix VOC use and storage.

Response to Comment 2:

The aggregate dryer and burner is an existing permitted emission unit and not subject to 326 IAC 8-1-6. This facility was constructed in 1990, and is permitted for operation under FESOP No. F163-14132-03408 issued on April 10, 2002. At the time of initial permitting of the aggregate dryer, potential VOC emissions were less than 25 tons per year. Since that time, IDEM has revised the method that is used to calculate VOC emissions from the aggregate drum mixer, to utilize EPA AP-42 emission factors found in Chapter 11.1. IDEM believes that the use of these emission factors more accurately represents the actual emissions from the unit. Based on actual hot mix production rates and AP-42 emission factors found in Chapter 11.1, the actual VOC emissions from the aggregate mixer/burner have not exceeded 25 tons per year since initial construction of the source in 1990. As part of this FESOP Renewal, the source has limited the throughput of aggregate to the aggregate mixer to 1,452,753 tons per year. This will limit the potential to emit VOC from the aggregate mixer/burner to less than 25 tons per year. Since actual emissions from the aggregate mixer/burner have never exceeded 25 tons VOC per year and the aggregate throughput is limited such that potential VOC emissions from the mixer are less than 25 tons per year, the requirements of 326 IAC 8-1-6 are not applicable to this facility. Condition D.1.6 has been added.

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

(a) VOC emissions from the drum mix dryer shall not exceed 0.032 pound of VOC per ton of hot mix asphalt produced.

(a) VOC emissions from the silo filling process shall not exceed 0.0122 pound of VOC per tons of hot mix asphalt produced.

Compliance with the above limits, in addition to the limit in condition D.1.5, will limit VOC emissions from the drum mix dryer and the silo filling process each to less than 25 tons per year. Compliance with this limit will render the requirements of 326 IAC 8-1-6 not applicable to these facilities.

Comment 3:

Rudolph's facility is a "new facility" subject to BACT for VOC under 326 IAC 8-1-6 because Rudolph constructed the facility after January, 1980. The controlled VOC emissions from the cold-mix asphalt manufacturing operations and storage piles are greater than twenty-five (25) tons per year (noting limited emissions of 48.90 tons per year for cold mix VOC use and storage). The Draft Permit should be revised to include BACT for VOCs for the aggregate dryer and burner and the cold mix VOC use and storage.

Response to Comment 3:

IDEM has determined that the cold-mix (stockpile mix) asphalt manufacturing operations and storage piles are not subject to the requirements of 326 IAC 8-1-6 because these operations are regulated under 326 IAC 8-5-2. Therefore, no changes will be made to the permit as a result of this comment.

Comment 4:

IDEM cannot issue Rudolph a "synthetic minor source" permit for its recycled asphalt pavement crusher (the RAP Crusher). Rudolph illegally constructed that major stationary source, without the required preconstruction review permit. When it installed the Crusher in 1990, Rudolph did not have a permit to construct that source. The fact that the RAP Crusher was a major source when constructed is significant because when a facility constructs a major stationary source without a permit it loses the opportunity to submit to enforceable permit limits to make it a "synthetic minor source" for Title V purposes, that is, once in the major source programs, always in. Therefore, Rudolph is in violation of the Prevention of Significant Deterioration (PSD) and Title V programs, and is ineligible for a "synthetic minor source" permit.

Response to Comment 4:

The RAP crusher was constructed in 1990 at the time of initial construction of the plant. IDEM is aware that equipment has been constructed and operated prior to receipt of the proper permit. IDEM is reviewing this matter and will take appropriate action. The potential to emit of the RAP crusher plus the limited potential to emit of the rest of the plant is less than major source thresholds. PM and PM₁₀ are the only pollutants emitted by the RAP crusher. Specifically, the potential to emit of the RAP crusher is 3.55 tons PM per year and 1.58 tons PM₁₀ per year. The limited potential to emit of the rest of the plant, as document in FESOP No. 163-14132-03408, is 188.74 tons PM per year and 94.11 tons PM₁₀ per year. Combined, the emissions do not exceed the Prevention of Significant Deterioration (PSD) threshold of 250 tons PM per year or Title V major source threshold of 100 tons PM₁₀ per year. Also, the source's actual emissions have always been less that these thresholds. Therefore, J.H. Rudolph is not required to go through PSD and Title V permitting and is eligible for a FESOP.

Comment 5:

Rudolph is required to obtain a Part 70 operating permit because the source is subject to Sections 111 of the Clean Air Act. Indiana rules (326 IAC 2-7-2(a)(1) and (2)) provide that a Part 70 permit is required for both "(1) any major source as defined in section 1(22) of this rule" and (2) any source, including 'an area source, subject to a standard, a limitation, or other requirement under Section 111 of the CAA.'" The exemption for a "major source" that "has become nonmajor through the issuance of a federally enforceable state operating permit under 326 IAC 2-8, in 326 IAC 2-7-2(b)(5), upon which Rudolph relies to avoid the Part 70 requirements, applies only to those sources subject to Part 70 only through the definition of "major source" in 326 IAC 2-7- 1(22). Rudolph is a Part 70 source because it is subject to 40 CFR Part 60, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing, and 40 CFR Part 60, Subpart I, Standards of Performance for Hot Mix Asphalt Facilities, under Section 111 of the clean Air Act. The exemptions in 326 IAC 2-7-2(b)(5) for sources with a FESOP does not apply to sources made subject to Part 70 through Section 111 of the Clean Air Act. Therefore, Rudolph must obtain a Part 70 permit for the facility.

Response to Comment 5:

326 IAC 2-7-2(b) allows several exemptions from the requirements to have a Part 70 permit. There is no provision limiting the use of 236 IAC 2-7-2(b)(5) to only those sources subject to Part 70 pursuant to 326 IAC 2-7-2(a)(1). 326 IAC 2-7-2(b)(5) allows any source, otherwise subject to the Part 70 requirements, to obtain a FESOP. J. H. Rudolph does rely on 326 IAC 2-7-2(b)(5) to be exempt from Part 70 requirements because it has been issued a FESOP under 326 IAC 2-8 and, therefore, is a nonmajor source. Although J. H. Rudolph would qualify for a Part 70 source based on 326 IAC 2-7-2(a)(2) because it is subject to NSPS Subparts I and OOO under Section 111 of the clean air act, it is also exempted from obtaining a Part 70 permit by 326 IAC 2-7-2(b)(1). 326 IAC 2-7-2(b)(1) exempts all sources listed in 326 IAC 2-7-2(a) that are not major and are not an affected source or solid waste incineration unit required to have a Part 70 permit by section 129(e) of the CAA or 326 IAC 20. By taking limits on under 326 IAC 2-8, J. H. Rudolph is not required to have a Part 70 permit by 326 IAC 2-7-2(b)(5). Therefore, by 326 IAC 2-7-2(b)(1) and (5) J. H. Rudolph is not required to have a Part 70 permit.

Comment 6:

The emissions of PM₁₀ exceed 100 tons per year because PM₁₀ emissions from paved roadways are not properly calculated. The TSD indicates that the project would emit 99.90 tons per year of PM₁₀, just shy of the 100 tons per year major source threshold level (as shown on page 5 of the TSD). The TSD estimated that 3.85 tons per year of PM₁₀ would be emitted from truck travel over paved roads within the facility. These are not insignificant emissions because if an appropriate calculation is made, as described below, the PM₁₀ emissions from paved roads exceed the insignificant source threshold of 5 pounds per hour or 25 pounds per day. The PM₁₀ emissions for paved roads were calculated using an equation from AP-42 Section 13.2.1, based on a silt content of 8.2 g/m² (see page 3 of Appendix A) That silt content level is inappropriate for the source. AP-42 Table 13.21.1-4 notes a silt range of 76-193 g/m², and a mean of 120 g/m². In the absence of site specific data, the upper range silt loading data should be used, and will result in uncontrolled PM 10 emissions over 60 tons per year or 29.5 tons per year controlled. If these revised totals are added to the emissions from other sources at the facility (TSD at 5), the potential to emit of PM₁₀ increases from 99.90 tons per year to over 125.55 tons per year or 112 tons per year . In any event, the PM₁₀ PTE exceeds the major source threshold of 100 tons per year, requiring a Part 70 permit.

Response to Comment 6:

The emission calculations for travel over paved roads found on page 3 of appendix A to the TSD were calculated based on the equation found in AP-42, chapter 13.2.1, using a silt loading of 8.2 g/m². AP-42 Table 13.2.1-4 indicates that 8.2 g/m² is applicable to Quarry operations. Revised calculations utilizing a silt loading factor of 120 g /m², which is representative of the asphalt batching industry, per AP-42 Table 13.2.1-4, have been included in Attachment A to this document (see page 3 of 13). Based on this revision, the uncontrolled potential to emit from onsite paved roadways is 207.61 tons of PM per year and 40.51 tons per PM₁₀ per year. The emissions from paved roads are controlled via the fugitive dust control plan, which will limit the potential to emit from paved roadways to 103.81 tons PM per year and 20.25 tons PM₁₀ per year. The paved roadways are an insignificant activity because they are specifically listed under 326 IAC 2-7-1(21). However, paved roadway emissions are counted toward Title V and PSD applicability because there are New Source Performance Standards applicable to this source that were in effect on August 7, 1980.

Comment 7:

The Permit does not contain restrictions that limit emissions to those that were assumed in the TSD. Nor does the Permit require that the emissions from each emission source be summed and compared to the major source thresholds. The Permit must be revised to restrict emissions of each regulated pollutant from each emission point, to require that emissions from each source be regularly measured, and to require that the measurements of emissions from each emission point be summed and compared to major source thresholds. The Permit contains no enforceable limits for at least the following:

- PM₁₀ emissions from the RAP Crusher
- PM/PM₁₀ from the hot oil heater
- PM/PM₁₀ emission from paved roads
- PM/PM₁₀ emissions from storage
- SO₂ from the hot oil heater

Response to Comment 7:

All conditions included in a FESOP are federally enforceable. More specifically, the conditions found in FESOP F163-23182-03408 will limit PM and PM₁₀ emission from this source below applicable thresholds. Condition D.1.3 – PSD Minor Limit restricts PM emissions from the aggregate dryer and magnetite dryer so that source wide emissions are limited to less than 250 tons per year. Condition D.1.4 - Particulate Matter limits PM₁₀ emissions from the aggregate dryer and magnetite dryer so that source wide emissions are limited to less than 100 tons per year. Condition D.1.5 – FESOP Limit, restricts the throughput of aggregate to the aggregate dryer and magnetite dryer. This limit is federally enforceable and requires recordkeeping and reporting to be submitted quarterly by the source. The PM and PM₁₀ limits contained in conditions D.1.3 and D.1.4 are based on emissions from the silo-filling operation based on the throughput limit found in condition D.1.5 and the potential to emit of each pollutant from the paved roadways after practically enforceable controls (the fugitive dust plan) and the unrestricted potential to emit of the hot oil heater, conveying and handling operations, and load out operation. The limited potential to emit from the mixer/dryer, the magnetite drying operation and silo-filling operation plus the practically enforceable potential to emit from the roadways and the unrestricted potential to emit from the hot oil heater, conveying and handling operations, and load out operation is less than 250 tons per year of PM and less than 100 tons per year of PM₁₀. Therefore, the limitations included in this FESOP are sufficient to limit source emissions below the applicable thresholds of 326 IAC 2-2 and 326 IAC 2-7. Therefore, no changes will be made to the emission limitations in this permit based on this comment.

Similarly, condition D.1.7, renumbered D.1.9, limits source-wide SO₂ emissions to less than 100 tons per year. The fuel limitation will limit the potential to emit of SO₂ of the 116 MMBtu/hr aggregate burner to less than 99.8 tons per year. The limited potential emissions from the aggregate burner combined with the potential emissions of the hot oil heater results in source-wide SO₂ emissions less than 100 tons per year. Therefore, the existing limitations included in this FESOP are sufficient to limit source emissions below the applicable thresholds of 326 IAC 2-2 and 326 IAC 2-7. Therefore no changes will be made to the emission limitations in this permit.

Comment 8:

The draft Permit has failed to specify continuous direct monitoring where feasible (e.g., emissions from dryer and burners); it has failed to require sufficient direct periodic monitoring where feasible; and it has failed to specify indirect monitoring where feasible (surrogate parameters, e.g., operating conditions to monitor unit performance). The Draft Permit should be revised to strengthen all monitoring provisions.

Response to Comment 8:

IDEM has determined that no additional compliance monitoring is required as part of this FESOP. Pursuant to 326 IAC 2-8-4(3), each FESOP is required to contain conditions which assure that all reasonable information is provided to evaluate continuous compliance with applicable requirements. The requirements take into consideration available technologies, safety, cost, and other relevant factors.

Conditions D.1.11 and D.1.12, renumbered D.1.13 and D.1.14, require that particulate controls be in operation to control emissions from the aggregate dryer and magnetite drying process at all times that these processes are in operation. IDEM has determined that once per day monitoring of the control device (or of visible emission notations) is sufficient to ensure proper operation of the control device. IDEM has also determined that monitoring these parameters once per day is sufficient to satisfy the requirements of the 326 IAC 2-8-4 and 326 IAC 2-8-5.

Conditions D.1.13 and D.1.14 (renumbered D.1.15 and D.1.16, minimize excess emissions, to the extent feasible, caused by events such as a control device failure. A bag failure may qualify as an "emergency" as defined in condition B.14 for purposes of an affirmative defense against a violation of the specific permit condition. However, once the bag failure is observed, continuing to operate the equipment and venting uncontrolled particulate matter to the atmosphere may not be considered an attempt by the permittee to take all reasonable steps to minimize levels of emissions that exceed an emission standard or other requirement in the permit. Therefore, the OAQ believes that the requirement to shutdown the affected compartments is a reasonable action to ensure compliance with the particulate matter limitations. Also, applicability of the emergency provisions of 326 IAC 2-8-12 will be determined on a fact specific basis if necessary. No revisions were made to the permit as a result of this comment.

Comment 9:

Use of the AP-42 emission factor is inappropriate because: 1) this is an existing source for which actual data on emission rates is available, and 2) the AP-42 factor is an unreliable source of data for this particular application.

Even if AP-42 emission factors were appropriate to establish PTE for the RAP Crusher, use of AP-42 is unreliable to estimate emissions from recycled asphalt crushing. The AP-42 factor relied on is for Crushed Stone Processing. The RAP Crusher doesn't crush stone, but rather crushes recycled asphalt. Thus, the AP-42 emission factor does not correctly estimate emissions from the RAP Crusher.

The emission factor used to calculate VOC emissions from the drum mixer is rated C for natural gas and No. 2 fuel oil fired dryers. AP-42 notes that the emission factors for VOC "represent normal plant operations without scrutiny of the burner design, operation, and maintenance" (AP-42, Section 11.1 2.4). The amount of VOC emitted from load-out and silo filing, controlled by a total tons throughput of asphalt, is calculated by reference to AP-42, Section 11.1, Tables 11.1-1 4 through 11.1 -16 and are also rated C. AP-42 factors do not account for site specific conditions, and rather represent only averages. Therefore, IDEM should revise the Permit to include permit limits based on more reliable site specific test data.

According to the TSD, the amount of nitrogen oxides emitted per gallon of liquid petroleum was calculated based on AP-42, Section 1.5, Table 1.5-1. The LPG combustion emission factors found in that table are rated E. IDEM has not explained its reliance on this emission factor, and has not included any permit limits to address the variables associated with NO_x emissions from LPG combustion. Considering that the Permit Condition limits only fuel consumption, not actual NO_x emissions, the Permit does not actually ensure that NO_x emissions are less than 100 tons per year.

Response to Comment 9:

When calculating potential emissions from sources, it is IDEM's policy to use EPA published emissions factors from AP-42 or FIRE Version 6.23, since these are estimates of emissions approved by the US EPA. They are developed using procedures documented by the US EPA based on available data of acceptable quality for a source category. Each AP-42 emission factor is rated by the EPA to provide indications of the robustness or appropriateness of each factor. IDEM requires that alternate emission factors must be established through stack testing, based on another emission factor source that is accepted by US EPA or in some cases another state environmental agency. When an existing source wants to use alternate emission factors, the OAQ's preference is to verify them through site specific stack testing prior to issuing the source a permit using those alternate emission factors. The only actual emission data available from the source is in the form of stack tests for PM and PM-10 for the aggregate drying & burner combustion processes. When compared to the available actual emission rate data for this source, the use of AP-42 emission factors results in worst case emissions. Therefore, since EPA published AP-42 emission factors are available for the processes at this asphalt plant that result in worst case emissions, IDEM has determined that the use of AP-42 emission factors is appropriate and no changes to the calculations will be made.

In December 2000, the EPA published a document EPA-454/R-00-019 entitled Hot Mix Asphalt Plants Emission Assessment Report. In this report the EPA used controlled tertiary emission factor from AP-42 Section 11.19.2 to calculate potential emissions from RAP crushing. Similarly, AP-42, Chapter 11.19.2, Table 11.19.2-2 PM and PM₁₀ emission factors for tertiary crushing were used to calculate potential emission calculations from the RAP crusher for this FESOP. Therefore, IDEM has determined that no change to the RAP emission calculations will be made.

The VOC emission factors associated with the drum mixing process, load-out, and silo filling are all rated "C" therefore IDEM has determined that no testing of these facilities is necessary. The uncontrolled NO_x emission factor for the combustion of LPG in the 116 MMBtu/hr aggregate burner has an "E" rating in AP-42, (as found in AP-42, chapter 1.5, Table 1.5-1). Therefore, testing would be required. However, the source has asked that LPG be removed as a backup fuel for the 116 MMBtu/hr aggregate burner. Therefore, no additional testing will be required and the following changes will be made to the permit. Revised calculations can be found in Appendix A to this TSD Addendum. The following changes have been made to the permit as a result of this comment:

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

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

- (a) One (1) six hundred fifty (650) tons per hour aggregate dryer, installed in June 1990, with a burner capacity of 116 million British thermal units per hour, exhausting through a baghouse at stack SV1. This dryer is fired by natural gas, ~~including butane~~, #2 fuel oil, #4 fuel oil and #4 waste oil as backup fuel;

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-8-4(10)]:

- (a) One (1) six hundred fifty (650) tons per hour aggregate dryer, installed in June 1990, with a burner capacity of 116 million British thermal units per hour, exhausting through a baghouse at stack SV1. This dryer is fired by natural gas, including butane, #2 fuel oil, #4 fuel oil and #4 waste oil as backup fuel;
- (b) An alternate drying process, used to dry magnetite, with a maximum capacity of 50,000 tons per year, exhausting through a baghouse at stack SV1;
- (c) One (1) baghouse with a total filter area of 13,149 ft², exhausting at stack SV1; and
- (d) One (1) recycled asphalt pavement (RAP) crusher, rated at 150 ton per hour, constructed in 1990.

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

D.1.79 No. 4 Fuel Usage and Equivalent [326 IAC 2-8]

- (c) For purposes of determining compliance based on SO₂ emissions, the following shall apply:
 - (1) every million cubic feet (MMCF) of natural gas burned shall be equivalent to 4.0 gallons of No. 4 fuel oil based on SO₂ emissions, such that the total input of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified;
 - (2) every 1,000 gallons of liquefied petroleum gas (butane) burned in the aggregate dryer burner shall be equivalent to 0.006 gallons of No. 4 fuel oil based on SO₂ emissions such that the total gallons of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified;
 - (3)(2) every 1,000 gallons of No. 2 distillate oil burned in the aggregate dryer burner shall be equivalent to 512.3 gallons of No. 4 fuel oil based on SO₂ emissions and a maximum No. 2 distillate oil sulfur content of 0.5% such that the total gallons of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified; and
 - (4)(3) every 1,000 gallons of waste oil (No. 4) burned in the aggregate dryer burner shall be equivalent to 686.0 gallons of No. 4 fuel oil based on SO₂ emissions and a maximum waste oil sulfur content of 0.7 % such that the total gallons of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified.

D.1.8 ~~LPG and Equivalent Usage, Nitrogen Oxide (NO_x) [326 IAC 2-8-4][326 IAC 2-2]~~

~~Pursuant to 326 IAC 2-8-4(1), the following limits shall apply:~~

- ~~(a) The input of Liquefied Petroleum Gas (LPG) and LPG equivalents to the 116 MMBtu per hour burner for the aggregate dryer shall be limited to 9,426,686 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.~~

~~Therefore, the NO_x emissions are limited to less than 100 tons per year. This limit will render the requirements of 326 IAC 2-7 (Part 70), and 326 IAC 2-2 (PSD) not applicable.~~

- ~~(b) For purposes of determining compliance based on NO_x emissions, the following shall apply:~~
- ~~(1) every million cubic feet (MMCF) of natural gas burned in the aggregate dryer burner shall be equivalent to 9,047 gallons of LPG based on NO_x emissions such that the total gallons of LPG and LPG equivalent input does not exceed the limit specified;~~
 - ~~(2) every 1,000 gallons of No. 2 fuel oil burned in the aggregate dryer burner shall be equivalent to 1,143 gallons of LPG based on NO_x emissions such that the total gallons of LPG and LPG equivalent input does not exceed the limit specified;~~
 - ~~(3) every 1,000 gallons of No. 4 fuel oil burned in the aggregate dryer burner shall be equivalent to 2,238 gallons of LPG based on NO_x emissions such that the total gallons of LPG and LPG equivalent input does not exceed the limit specified; and~~
 - ~~(4) every 1,000 gallons of waste oil (No. 4) burned in the aggregate dryer burner shall be equivalent to 905 gallons of LPG based on NO_x emissions such that the total gallons of LPG and LPG equivalent input does not exceed the limit specified.~~

~~Compliance with the above limits shall render the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) not applicable.~~

D.1.1617 Record Keeping Requirements

- (a) To document compliance with ~~Conditions condition D.1.7 and D.1.8~~ **D.1.9**, the Permittee shall maintain records in accordance with (1) through ~~(7)~~ **(6)** below. Records maintained for (1) through ~~(7)~~**(6)** below shall be complete and sufficient to establish compliance with the SO₂ and NO_x emission ~~limits~~ **limit** established in ~~Conditions condition D.1.7 and D.1.8~~ **D.1.9**.

- (1) Calendar dates covered in the compliance determination period;
- (2) Actual No. 4 fuel oil and No. 4 fuel oil equivalent usage per month since last compliance determination period and equivalent SO₂ and NO_x emissions;
- ~~(3) Actual LPG and LPG equivalent usage per month since last compliance determination period and equivalent NO_x emissions;~~
- ~~(4)~~**(3)** A certification, signed by the owner or operator, that the records of the fuel supplier certifications represent all of the fuel combusted during the period; and

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

- ~~(5)~~**(4)** Fuel supplier certifications;
- ~~(6)~~**(5)** The name of the fuel supplier; and
- ~~(7)~~**(6)** A statement from the fuel supplier that certifies the sulfur content of the fuel oil.

- (c) The Permittee shall maintain records sufficient to verify compliance with the procedures specified in Condition D.1.44**12**. Records shall be maintained for a period of five (5) years and shall be made available upon request by IDEM, OAQ.
- (d) To document compliance with Condition D.1.43**14**, the Permittee shall maintain daily records of visible emission notations from the magnetite dryer, aggregate dryer, and burner baghouse stack exhaust and the crushing, conveying, material transfer points, and screening **or the reason why visible emission notations were not taken.**
- (e) To document compliance with Condition D.1.44**15**, the Permittee shall maintain daily records of the pressure drop during normal operation ~~when venting to the atmosphere~~ **or the reason why a pressure drop reading was not taken.**

D.1.4718**** Reporting Requirements

A quarterly summary of the information to document compliance with Conditions D.1.5 **and D.1.7 D.1.9 and D.1.8** shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).

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

FESOP Quarterly Report

Source Name: J.H. Rudolph & Company Inc.
 Source Address: 3300 S. Green River Road, Evansville, IN 47715
 Mailing Address: P.O. Box 5226, Evansville, IN 47716
 FESOP No.: F163-23182-03408
 Facility: 116 MMBtu per hour burner for the aggregate dryer
 Parameter: No. 4 fuel oil usage limit SO₂ and NO_x emissions
 Limit: The input of No. 4 fuel oil with a maximum sulfur content of 1.0% and No. 4 fuel oil equivalents to the 116 MMBtu per hour burner for the aggregate dryer shall be limited to 1,331,926 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month, where every million cubic feet (MMCF) of natural gas burned shall be equivalent to 4.0 gallons of No. 4 fuel oil, ~~every 1,000 gallons of liquefied petroleum gas (butane) burned in the aggregate dryer burner shall be equivalent to 0.006 gallons of No. 4 fuel oil,~~ every 1,000 gallons of No. 2 distillate oil burned in the aggregate dryer burner shall be equivalent to 512.3 gallons of No. 4 fuel oil and every 1,000 gallons of waste oil (No. 4) burned in the aggregate dryer burner shall be equivalent to 686.0 gallons of No. 4 fuel oil. This will limit SO₂ and NO_x emissions to less than 100 tons per year.

YEAR: _____

Month	Column 1: No. 4 fuel oil usage plus equivalent of other fuels (gallons)	Column 2: No. 4 fuel oil usage plus equivalent of other fuels (gallons)	Column 1 + Column 2: No. 4 fuel oil usage plus equivalent of other fuels (gallons)
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

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

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

Attach a signed certification to complete this report.

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

FESOP Quarterly Report

Source Name: _____ J.H. Rudolph & Company Inc.
 Source Address: _____ 3300 S. Green River Road, Evansville, IN 47715 _____
 Mailing Address: _____ P.O. Box 5226, Evansville, IN 47716
 FESOP No.: _____ F163-23182-03408
 Facility: _____ 116 MMBtu per hour burner for the aggregate dryer
 Parameter: _____ LPG and equivalent usage limit NO_x emissions
 Limit: _____ The input of LPG and LPG equivalents to the 116 MMBtu per hour burner for the aggregate dryer shall be limited to 9,513,760 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month, where every million cubic feet (MMCF) of natural gas burned in the aggregate dryer burner shall be equivalent to 9,047 gallons of LPG, every 1,000 gallons of No. 2 fuel oil burned in the aggregate dryer burner shall be equivalent to 1,143 gallons of LPG, every 1,000 gallons of No. 4 fuel oil burned in the aggregate dryer burner shall be equivalent to 2,238 gallons of LPG, and every 1,000 gallons of waste oil (No. 4) burned in the aggregate dryer burner shall be equivalent to 905 gallons of LPG. This will limit NO_x emissions to less than 100 tons per year.

YEAR: _____

Month	Column 1: LPG usage plus equivalent of other fuels (gallons)	Column 2: LPG usage plus equivalent of other fuels (gallons)	Column 1 + Column 2: LPG usage plus equivalent of other fuels (gallons)
	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.

Comment 10:

Concerning SO₂ limitations and potential emissions, the Draft Permit limits the aggregate dryer to 99.89 tons per year SO₂ but does not limit potential SO₂ emissions from the hot oil heater. Potential emissions from the hot oil heater were calculated using AP-42 Section 1.4.2. AP-42 notes that SO₂ emissions from natural gas fired boilers are low when pipeline quality natural gas is used, but that higher levels of SO₂ emissions can be expected from unprocessed natural gas. The draft permit does not limit the fuel source for the hot oil burner to pipeline quality natural gas. The AP-42 emission factor on which SO₂ emissions from the hot oil burner was based also assumes that "sulfur content in natural gas of 2,000 grains/10⁶ scf." The draft permit does not require Rudolph to use a fuel with 2,000 grains/10⁶ scf, or to keep records of fuel used. Thus, the permit does not limit SO₂ emissions from the hot oil burner to 0.01. An increase of only 0.09 tons per year would exceed the major source threshold. Therefore, IDEM must revise the permit to include either an emission limit or limits on the type of natural gas used in the hot oil burner. Without such a limit, the permit does not ensure that SO₂ emissions are less than 100 tons per year.

Response to Comment 10:

The natural gas combusted at this source is provided by Proliance Energy LLC, which is an affiliate of Vectren Energy. The natural gas is processed and pipeline quality, as documented by Vectren Energy, and provided via an existing pipeline to the plant. There is no means for the source to receive natural gas with sulfur content greater than 2,000 grains/10⁶ scf without the installation of new pipelines. Therefore IDEM has determined that the sulfur content of the natural gas can be assumed to meet pipeline quality and no revisions will be made to the calculations based on this comment. The limited potential to emit of SO₂ from the aggregate burner, based on the fuel usage, plus the uncontrolled potential to emit SO₂ from the hot oil heater is less than 100 tons per year of SO₂. This limit is federally enforceable and requires recordkeeping and reports to be submitted quarterly by the source. Therefore, no changes to the permit will be made based on this comment.

Comment 11:

The emission calculations shown in Appendix A, page 2 do not properly calculate NO_x emissions from the hot oil heater. The emission factor contained in AP-42 Table 1.4.1 for NO_x is 100 lb/10⁶ cf (or Mmcf). The TSD uses the following equation to calculate potential emissions:

$$\frac{2.1 \text{ MMBtu/hr} * 8760 * \text{Ef(lb/Mmcf)}}{1000 \text{ Btu/cf} * 2000 \text{ lb/ton}} = \text{tons per year}$$

Substituting 100 for "Ef(lb/Mmcf)" yields total NO_x emissions of 0.9198 tons per year instead of the 0.01 tons per year that is shown. If emissions from the hot oil burner are 0.92 tons per year, total NO_x emissions from the facility exceed 100 tons per year because the NO_x emissions from the dryer are 99.90, and 99.90 plus 0.92 is 100.82.

Response to Comment 11:

Revised potential emission and controlled emission calculations for NO_x emissions from the hot oil heater can be found on pages 2 and 12 of Attachment A to this addendum. The revised potential and controlled NO_x emissions from the heater are 0.92 tons per year. Source wide NO_x emissions will be limited to less than 100 tons per year by restricting the fuel usage in the aggregate burner based on SO₂ emissions. After application of the existing fuel usage limit in the FESOP to limit SO₂ emissions, the worst-case NO_x emissions from the dryer are 96.54 tons per year. The NO_x emissions from the hot oil heater plus the limited potential to emit of NO_x from the 166 MMBtu aggregate burner (see Response to Comment 9 and Revision 4 to the permit) combined result in source wide limited NO_x emissions of 97.46 tons per year. Therefore the source wide potential to emit of the source is less than 100 tons per year, satisfying the requirements of 326 IAC 2-8.

Upon further review IDEM, OAQ has made the following changes to the FESOP (additions in bold, deletions in ~~strikeout~~):

Revision 1:

The Table of Contents was revised according to the proposed changes and subsequent conditions were renumbered if conditions were either added or deleted without replication herein.

Revision 2:

Condition C.9 – Asbestos Abatement Projects has been revised to remove the following statement, “The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.” All conditions and requirements in a FESOP are federally enforceable.

C.9 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

- (g) Indiana Accredited Asbestos Inspector
The Permittee shall comply with 326 IAC 14-10-1(a) that requires the owner or operator, prior to a renovation/demolition, to use an Indiana Accredited Asbestos Inspector to thoroughly inspect the affected portion of the facility for the presence of asbestos. ~~The requirement to use an Indiana Accredited Asbestos inspector is not federally enforceable.~~

Revision 3:

Condition B.25 – Annual Fee Payment has been revised to clarify the agency to which Annual Fees should be paid. The annual fee payments should be made to IDEM, OAQ not the EEPA. The revised Condition B.25 is shown below.

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

- (a) The Permittee shall pay annual fees to IDEM, OAQ, ~~and EEPA~~ 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, ~~or EEPA~~ the applicable fee is due April 1 of each year.

Revision 4:

Additional emission calculations for CO and NO_x emissions from the drum mix dryer were included in the emission calculations which are included as Appendix A of this TSD addendum. Emission factors for the drum mix dryer from US EPA’s AP-42, Section 11.1, Table 11.1-7 were used. Potential emissions of CO and NO_x from the dryer were then determined to be equal to the worst case emissions using either the fuel combustion emission factors or the drum mix dryer emission factors.

Based on these calculations, potential unrestricted CO emissions from the dryer based on the drum dryer emission factors are now 370.11 tons per year. Therefore, a limit on CO emissions has been added to the FESOP to limit CO emissions to less than 100 tons per year to comply with 326 IAC 2-8 (FESOP) and render the requirements of 326 IAC 2-2 (PSD) not applicable.

The unrestricted NO_x emissions from fuel combustion in the dryer burner are 173.04 tons per year and the unrestricted NO_x emissions from the dryer based on the drum dryer emission factor are 156.59 tons per year. Therefore, potential unrestricted NO_x emissions from the dryer remain at 173.04 tons per year from fuel combustion which is the worst case and will be restricted to less than 100 tons per year by restricting the fuel usage in the aggregate burner based on SO₂ emissions. No additional limits for NO_x emissions are required. After application of the existing fuel usage limit in the FESOP to limit SO₂ emissions, the worst-case NO_x emissions from the dryer are 96.54 tons per year based on the drum dryer emission factor.

A new condition D.1.7 has been added to the FESOP and conditions D.1.3, D.1.4, D.1.5, and D.2.1 and respective quarterly reporting forms have been revised.

D.1.3 PSD Minor Limit [326 IAC 2-2]

- (a) Particulate matter emissions from the aggregate dryer and mixer shall not exceed ~~0.135~~ **0.148** pound PM per ton of asphalt mix ~~based on an annual limited throughput of 2,000,000 tons of asphalt mix per year.~~
- (b) Particulate matter emissions from the magnetite drying operation shall not exceed 0.040 pound PM per ton of magnetite ~~based on a maximum annual capacity of 50,000 tons of magnetite per year.~~

Compliance with the above limits, in addition to the limit in condition D.1.5, will limit total source wide PM emissions to less than 250 tons per year. Therefore, compliance with this limit will render 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.4 Particulate Matter (PM₁₀) [326 IAC 2-8-4] [326 IAC 2-2]

Pursuant to 326 IAC 2-8-4, the following limits shall apply:

- (a) PM₁₀ emissions from the aggregate mixing and drying operation shall be limited to ~~0.065~~ **0.083** pounds per ton of asphalt produced ~~based on a limited annual throughput of 2,000,000 tons of asphalt mix per year.~~ This will limit the total potential to emit PM₁₀ from the aggregate dryer and mixer to less than ~~64.68~~ **60.04** tons per year.
- (b) PM₁₀ emissions from the magnetite drying operation shall be limited to 0.04 pounds per ton of magnetite dried ~~based maximum annual capacity of 50,000 tons of magnetite per year.~~ This will limit the total potential to emit PM₁₀ from the magnetite drying operation to less than 1.0 tons per year.

Compliance with the above limits, in addition to the limit in condition D.1.5, will limit the total source wide potential to emit PM₁₀ to less than 100 tons per twelve (12) consecutive month period. Therefore, the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) are not applicable.

D.1.5 FESOP Limit [326 IAC 2-8]

Pursuant to 326 IAC 2-8-4, the following limits shall apply:

- (a) The annual throughput to the aggregate dryer shall be limited to ~~2,000,000~~ **1,452,753** tons of asphalt per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) The annual throughput to the magnetite drying operation shall be limited to 50,000 tons of magnetite per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with the above limits, will limit the source's emissions of all regulated pollutants, except PM, to less than 100 tons per year. PM emissions are limited to less than 250 tons per year. This will also limit combined HAP emissions to less than 25 tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70), and 326 IAC 2-2 (PSD) are not applicable.

D.1.7 Carbon monoxide (CO) [326 IAC 2-8]

Pursuant to 326 IAC 2-8-4, the following shall apply:

- (a) **CO emissions from the drum mix dryer shall not exceed 0.13 pound of CO per ton of hot mix asphalt produced.**
- (a) **CO emissions from the silo filling process shall not exceed 0.019 pound of VOC per ton of hot mix asphalt produced.**

Compliance with the above limits, in addition to the limit in condition D.1.5, will limit total source-wide CO emissions to less than 100 tons per year. Compliance with this limit will satisfy 326 IAC 2-8-4 and render the requirements of Part 70 (326 IAC 2-7) not applicable.

D.1.4011 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11][40 CFR 60.93][326 IAC 12]

- (a) No later than five (5) years from October 26, 2004, in order to demonstrate compliance with Conditions, D.1.1, D.1.3, D.1.4, and ~~D.1.19~~ **D.1.20** the Permittee shall perform PM and PM₁₀ testing for the aggregate dryer/mixer, and magnetite drying operation utilizing methods as approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. PM₁₀ includes filterable and condensable particulate matter. Testing shall be conducted in accordance with Section C- Performance Testing.
- (b) Pursuant to 40 CFR 60.93, compliance with the PM standards in 40 CFR 60.92 and condition ~~D.1.19~~ **D.1.20** shall be determined by using Method 5 to determine particulate concentration. When determining the particulate concentration, the sampling time and sampling volume for each run shall be at least 60 minutes and 0.90 dry standard cubic meters (31.8 dry standard cubic feet).
- ~~(b)~~(c) Pursuant to 40 CFR 60.93, compliance with the opacity standards in 40 CFR 60.92 and condition ~~D.1.19~~ **D.1.20** shall be determined by utilizing 40 CFR Part 60 Appendix A, Method 9 to determine opacity. Testing shall be conducted in accordance with Section C- Performance Testing.
- ~~(e)~~(d) Within one-hundred and eighty (180) days after issuance of this permit, in order to demonstrate compliance with the opacity standards in 40 CFR 60.672 and condition ~~D.1.24~~ **D.1.22**, the Permittee shall perform opacity testing for the RAP crusher utilizing 40 CFR Part 60 Appendix A, Method 9. This test 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.

D.1.1412 Sulfur Dioxide Emissions and Sulfur Content

Compliance shall be determined utilizing one of the following options.

- (c) In order to demonstrate compliance with Conditions ~~D.1.6~~ **D.1.8** and ~~D.1.7~~ **D.1.9** the Permittee shall demonstrate that weight percent sulfur dioxide in the fuels used does not exceed one half of a percent (0.5%) by weight when operating on No. 2 distillate fuel oil, one percent (1.0%) by weight when operating on No. 4 fuel oil, and seven tenths percent (0.7%) by weight when operating on No. 4 waste oil, using the methods described in (a) of this condition.

A determination of noncompliance pursuant to any of the methods specified in (a) or (b) above shall

D.1.1213 Particulate Matter (PM and PM₁₀) Control

- (a) In order to comply with Conditions D.1.1, D.1.3, D.1.4 and ~~D.1.19~~ **D.1.20** the baghouse for particulate control shall be in operation and control emissions from the aggregate dryer, drum mixer and the magnetite drying operation at all times that the aggregate dryer, drum mixer and magnetite drying operation are in operation.

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

FESOP Quarterly Report

Source Name: J.H. Rudolph & Company Inc.
 Source Address: 3300 S. Green River Road, Evansville, IN 47715
 Mailing Address: P.O. Box 5226, Evansville, IN 47716
 FESOP No.: F163-23182-03408
 Facility: 650 ton/hr aggregate mixer
 Parameter: Throughput
 Limit: The annual throughput to the aggregate dryer shall be limited to ~~2,000,000~~
1,452,753 tons of asphalt per twelve (12) consecutive month period, with
 compliance determined at the end of each month.

YEAR: _____

Month	Column 1: Asphalt throughput (tons)	Column 2: Asphalt throughput (tons)	Column 1 + Column 2: Asphalt throughput (tons)
	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: _____

D.2.1 Volatile Organic Compounds (VOC) [326 IAC 8-5-2][326 IAC 2-8-4][326 IAC 2-2]

- (a) Pursuant to 326 IAC 8-5-2 (Miscellaneous Operations: Asphalt Paving), the use of cutback asphalt or asphalt emulsion shall not contain more than seven percent (7%) oil distillate by volume of emulsion for any paving application except the following purposes:
 - (a) Penetrating prime coating
 - (b) Stockpile storage
 - (c) Application during the months of November, December, January, February and March.
- (b) The VOC solvent used as diluent in the liquid binder used in cold mix asphalt production from the plant shall be limited such that no more than ~~48.9~~ **56.62** tons of VOC emissions emitted per twelve (12) consecutive months. This shall be achieved by limiting the total VOC solvent of any one selected binder to not exceed the stated limit for that binder during the last twelve (12) months. When more than one binder is used, the formula below must be applied so that the total VOC emitted does not exceed ~~48.9~~ **56.62** tons per twelve (12) consecutive month period.

- (c) The liquid binder used in cold mix asphalt production shall be limited as follows:
 - (a) Cutback asphalt rapid cure liquid binder usage shall not exceed ~~51.47~~ **59.60** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
 - (b) Cutback asphalt medium cure liquid binder usage shall not exceed ~~69.86~~ **80.89** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
 - (c) Cutback asphalt slow cure liquid binder usage shall not exceed ~~195.60~~ **226.49** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
 - (d) Emulsified asphalt with solvent liquid binder usage shall not exceed ~~105.39~~ **122.03** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
 - (e) Other asphalt with solvent liquid binder shall not exceed ~~1,955.97~~ **2,264.93** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
 - (f) The VOC solvent allotments in subpart ~~(b)~~**(c)**(1) through ~~(b)~~**(c)**(5) of this condition shall be adjusted when more than one type of binder is used per twelve (12) month consecutive period rolled on a monthly basis. 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 ratio listed in the table that follows.

$$\frac{\text{Tons of solvent contained in binder}}{\text{Adjustment ratio}} = \text{tons of VOC emitted}$$

Type of binder	tons VOC solvent	adjustment ratio	tons VOC emitted
cutback asphalt rapid cure		1	
cutback asphalt medium cure		1.36	
cutback asphalt slow cure		3.8	
emulsified asphalt		2.04	
other asphalt		38	

The equivalent total tons of VOC of the combined liquid binders shall be less than ~~48.9~~ **56.62** tons per twelve (12) consecutive month period rolled on a monthly basis.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF AIR QUALITY COMPLIANCE DATA SECTION AND EVANSVILLE EPA

FESOP Quarterly Report

Source Name: J.H. Rudolph & Company Inc.
 Source Address: 3300 S. Green River Road, Evansville, IN 47715
 Mailing Address: P.O. Box 5226, Evansville, IN 47716
 FESOP No.: F163-23182-03408
 Facility: Cold-mix asphalt storage piles
 Parameter: VOC
 Limit:

1. Cutback asphalt rapid cure liquid binder usage shall not exceed ~~51.47~~ **59.60** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
2. Cutback asphalt medium cure liquid binder usage shall not exceed ~~69.86~~ **80.89** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
3. Cutback asphalt slow cure liquid binder usage shall not exceed ~~195.60~~ **226.49** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
4. Emulsified asphalt with solvent liquid binder usage shall not exceed ~~105.39~~ **122.03** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
5. Other asphalt with solvent liquid binder shall not exceed ~~1,955.97~~ **2264.93** tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.

YEAR:

The following liquid binder solvent was the only liquid binder solvent used over the previous 12 month period: _____ Limit applicable: _____

(use of more than one binder requires the use of the "Multiple Liquid Binder Solvents" report form)

Month	Column 1 Solvent usage input This Month (tons)	Column 2 Solvent usage input Previous 11 Months (tons)	Column 1 + Column 2 Solvent usage input 12 Month Total (tons)
Month 1			
Month 2			
Month 3			

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

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

Attach a signed certification to complete this report.

**INDIA NA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF AIR QUALITY
 COMPLIANCE BRANCH
 AND EVANSVILLE EPA
 Multiple Liquid Binder Solvent Quarterly Report**

Source Name: J.H. Rudolph & Company, Inc.
 Initial Source Address: 3300 S. Green River Road, Evansville, IN 47715
 Mailing Address: P.O. Box 5226, Evansville, IN 47716
 FESOP No.: F163-23182-03408
 Facility: Cold-mix asphalt storage piles
 Parameter: VOC
 Limit: ~~48.9~~ **56.62** tons per year
 Year:

Month	Type of Liquid binder	Solvent Usage input This Month (tons)	Divisor	VOC emitted This Month (tons) for each solvent	VOC emitted This Month (tons)	VOC emitted Previous 11 Months (tons)	This month + Previous 11 months =VOC emitted 12 Month Total(tons)
Month 1	Cutback asphalt rapid cure		1				
	Cutback asphalt medium cure		1.36				
	Cutback asphalt slow cure		3.8				
	Emulsified asphalt		2.04				
	other asphalt		38				
Month 2	Cutback asphalt rapid cure		1				
	Cutback asphalt medium cure		1.36				
	Cutback asphalt slow cure		3.8				
	Emulsified asphalt		2.04				
	other asphalt		38				
Month 3	Cutback asphalt rapid cure		1				
	Cutback asphalt medium cure		1.36				
	Cutback asphalt slow cure		3.8				
	Emulsified asphalt		2.04				
	other asphalt		38				

- No deviation occurred in this quarter.
- Deviation/s occurred in this quarter.

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

Attach a signed certification to complete this report.

Revision 5:

OAQ prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the permit or technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision. The Potential to Emit After Issuance table is revised in this addendum as follows:

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. Since the source has constructed a new emission unit, the source's potential to emit is based on the new emission unit (aggregate dryer burner) and the other existing emission units included in the original FESOP.

Process/emission unit	Potential To Emit (tons/year)							
	PM	PM-10	SO ₂	VOC	CO	NO _x	Ind. HAPs	Combined HAPs
aggregate dryer and burner ⁽¹⁾	248.78 ⁽²⁾ 107.68 ⁽²⁾	81.07 ⁽³⁾ 60.04 ⁽³⁾	99.89	34.85 23.24	42.68 94.43	99.89 96.54	3.18 ⁽⁶⁾ 2.25 ⁽⁵⁾	9.02 6.15
magnetite drying	1.00 ⁽⁴⁾	1.00 ⁽³⁾	--	--	--	--	--	--
crusher	3.55	1.58	--	--	--	--	--	--
hot oil heater	0.02	0.07	0.01	0.05	0.77	0.04 0.92	Negl.	Negl.
conveying / handling ⁽⁴⁾	5.23 31.47	44.06 14.89	--	--	--	--	--	--
paved roads	49.76 103.81	3.85 20.25	--	--	--	--	--	--
storage	0.46	0.16	--	--	--	--	--	--
load-out & silo filling ⁽⁴⁾	4.14 1.49	4.14 1.49	--	46.10 11.13	2.53 3.84	--	0.08 ⁽⁶⁾ 0.06 ⁽⁶⁾	0.29 0.27
Silo Filling	0.43	0.43	--	8.85	0.86	--	0.06 ⁽⁷⁾	0.15
cold mix VOC use & storage	--	--	--	48.90 56.62	--	--	--	--
Total Emissions	249.90	99.90	99.90	99.90	47.84 99.9	99.90 97.46	<10	<25

- (1) Limited PTE based upon annual throughput limit and fuel usage limitation to comply with 326 IAC 2-8 (FESOP).
- (2) Maximum allowable PM emissions for 326 IAC 2-2 (PSD) avoidance.
- (3) Maximum allowable PM₁₀ emissions in order to comply with 326 IAC 2-8 (FESOP).
- (4) Maximum allowable PM emissions in order to comply with 326 IAC 2-8 (FESOP).
- (5) Largest single HAP from aggregate dryer and burner is Formaldehyde with a PTE of ~~3.18~~ **2.25** tons per year.
- (6) Largest single HAP from load-out and silo filling is ~~Formaldehyde~~ **Xylene** with a PTE of ~~0.08~~ **0.06** tons per year.
- (7) **Largest single HAP from silo filling is Formaldehyde with a PTE of 0.06 tons per year.**

Company Name:
Plant Location:
County:
Permit Reviewer:

J.H. Rudolph & Company, Inc.
3300 S. Green River Road, Evansville
Vanderburgh
Julia Handley/EVP

**** aggregate dryer burner****

The following calculations determine the amount of emissions created by natural gas combustion, from the aggregate dryer burner, based on 8,760 hours of operation and US EPA's AP-42, 5th Edition, Section 1.4 - Natural Gas Combustion, Tables 1.4-1 and 1.4-2.

Criteria Pollutant:	$\frac{116 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr}}{1000 \text{ Btu/cf} \times 2,000 \text{ lb/ton}}$	* Ef (lb/MMcf) = (ton/yr)
P M:	1.9 lb/MMcf =	0.97 ton/yr
P M-10:	7.6 lb/MMcf =	3.86 ton/yr
S O 2:	0.6 lb/MMcf =	0.30 ton/yr
N O x:	190.0 lb/MMcf =	96.54 ton/yr
V O C:	5.5 lb/MMcf =	2.79 ton/yr
C O:	84.0 lb/MMcf =	42.68 ton/yr

The following calculations determine the amount of emissions created by the combustion of # 2 distillate fuel oil @ 0.5 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-2, and 1.3-3.

Criteria Pollutant:	$\frac{116 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr}}{139,000 \text{ Btu/gal} \times 2,000 \text{ lb/ton}}$	* Ef (lb/1,000 gal) = (ton/yr)
P M:	2.0 lb/1000 gal =	7.31 ton/yr
P M-10:	3.3 lb/1000 gal =	12.06 ton/yr
S O 2:	76.8 lb/1000 gal =	280.88 ton/yr
N O x:	24.0 lb/1000 gal =	87.73 ton/yr
V O C:	0.20 lb/1000 gal =	0.73 ton/yr
C O:	5.0 lb/1000 gal =	18.28 ton/yr

The following calculations determine the amount of emissions created by the combustion of # 4 fuel oil @ 1.00 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-2, and 1.3-3.

Criteria Pollutant:	$\frac{116 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr}}{138,000 \text{ Btu/gal} \times 2,000 \text{ lb/ton}}$	* Ef (lb/1,000 gal) = (ton/yr)
P M:	7.0 lb/1000 gal =	25.77 ton/yr
P M-10:	8.5 lb/1000 gal =	31.29 ton/yr
S O 2:	150.0 lb/1000 gal =	552.26 ton/yr
N O x:	47.0 lb/1000 gal =	173.04 ton/yr
V O C:	0.20 lb/1000 gal =	0.74 ton/yr
C O:	5.0 lb/1000 gal =	18.41 ton/yr

The following calculations determine the amount of emissions created by the combustion of re-refined waste oil

@ 0.70 % sulfur,
@ 0.50 % ash, and
@ 0.001 %Cl, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.11 - Waste Oil Combustion, Tables 1.11-1, 1.11-2, , 1.11-3, and 1.11-4.

Criteria Pollutant:	116 MMBtu/hr * 8,760 hr/yr	* Ef (lb/1,000 gal) = (ton/yr)
	140,000 Btu/gal * 2,000 lb/ton	
P M:	32.0 lb/1000 gal =	116.13 ton/yr
P M-10:	25.5 lb/1000 gal =	92.54 ton/yr
S O 2:	102.9 lb/1000 gal =	373.44 ton/yr
N O x:	19.0 lb/1000 gal =	68.95 ton/yr
V O C:	1.00 lb/1000 gal =	3.63 ton/yr
C O:	5.0 lb/1000 gal =	18.15 ton/yr
HCl:	0.1 lb/1000 gal =	0.24 ton/yr

The maximum potential emissions from the aggregate dryer burner due to fuel combustion are the following:

Criteria Pollutant:		Worst Case Fuel
P M:	116.13 ton/yr	Re-refined Waste Oil
P M-10:	92.54 ton/yr	Re-refined Waste Oil
S O 2:	552.26 ton/yr	Fuel Oil No. 4
N O x:	173.04 ton/yr	Fuel Oil No. 4
V O C:	3.63 ton/yr	Re-refined Waste Oil
C O:	42.68 ton/yr	Natural Gas
HCl:	0.24 ton/yr	Re-refined Waste Oil

****hot oil heater****

The following calculations determine the amount of emissions created by natural gas combustion, from hot oil heating, based on 8,760 hours of operation and US EPA's AP-42, 5th Edition, Section 1.4 - Natural Gas Combustion, Tables 1.4-1, 1.4-2, and 1.4-3.

Criteria Pollutant:	2.1 MMBtu/hr * 8,760 hr/yr	* Ef (lb/MMcf) = (ton/yr)
	1000 Btu/cf * 2,000 lb/ton	
P M:	1.9 lb/MMcf =	0.02 ton/yr
P M-10:	7.6 lb/MMcf =	0.07 ton/yr
S O 2:	0.6 lb/MMcf =	0.01 ton/yr
N O x:	100.0 lb/MMcf =	0.92 ton/yr
V O C:	5.5 lb/MMcf =	0.05 ton/yr
C O:	84.0 lb/MMcf =	0.77 ton/yr

**** aggregate drying: drum-mix plant ****

The following calculations determine the amount of worst case emissions created by aggregate drying before controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Tables 11.1-5 and 11.1-10 for a drum mix dryer which has the capability of combusting either fuel oil, natural gas, or re-refined waste oil:

Pollutant:	Ef	lb/ton x	650	ton/hr x	8,760 hr/yr
			2,000	lb/ton	
Criteria Pollutant:					
P M:	28	lb/ton =		79,716.00 ton/yr	
P M-10:	6.5	lb/ton =		18,505.50 ton/yr	
VOC:	0.032	lb/ton =		91.10 ton/yr	
HCl:	0.00021	lb/ton =		0.60 ton/yr	
CO:	0.13	lb/ton =		370.11 ton/yr	
NOx:	0.055	lb/ton =		156.59 ton/yr	

**** magnetite drying: drum-mix plant ****

The following calculations determine the amount of worst case emissions created by magnetite drying before controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.24 - Metallic Minerals Processing, Table 11.24-2 for drying of high-moisture ore:

Pollutant:	Ef	lb/ton x	5.707	ton/hr x	8,760 hr/yr
			2,000	lb/ton	
Criteria Pollutant:					
P M:	19.7	lb/ton =		492.43 ton/yr	
P M-10:	12	lb/ton =		299.96 ton/yr	

**** portable crusher ****

The following calculation determines the amount of PM10 emissions created by the RAP crusher, based on a maximum throughput of 150 tons/hr, 8760 hours of operation and AP-42, Table 11.19.2-2.

Pollutant:	Ef	lb/ton x	150	ton/hr x	8,760 hr/yr
PM:		0.0054 lb/ton =		3.55	ton/yr
PM-10		0.0024 lb/ton =		1.58	ton/yr

**** conveying / handling ****

The following calculations determine the amount of emissions created by material handling, based on 8,760 hours of use and AP-42, Section 13.2.4, Equation 1. The emission factor for calculating PM emissions is calculated as follows:

PM-10 Emissions:

$$E = k \cdot (0.0032) \cdot \left(\frac{U}{5} \right)^{1.3} \cdot \left(\frac{M}{2} \right)^{1.4}$$

= 5.23E-03 lb PM-10/ton
1.11E-02 lb PM/ton

where k = 0.35 (particle size multiplier for <10um)
0.74 (particle size multiplier for <30um)

U = 12 mph mean wind speed
M = 1.5 material moisture content (%)

$$\frac{650 \text{ ton/hr} \cdot 8,760 \text{ hrs/yr} \cdot \text{Ef (lb/ton of material)}}{2,000 \text{ lb/ton}} = \text{(ton/yr)}$$

Total PM 10 Emissions: 14.89 tons/yr
Total PM Emissions: 31.47 tons/yr

**** paved roads ****

The following calculations determine the amount of emissions created by vehicle traffic on paved roads, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 13.2.1.

$$9 \text{ trip/hr} \times 0.28 \text{ miles/roundtrip} \times 8,760 \text{ hr/yr} = 22,391 \text{ mile/yr}$$

$$E_f = [k \cdot (sL/2)^{0.65} \cdot (W/3)^{1.5} - C] \cdot [1 - P/(4N)]$$

= 3.62 lb PM-10/mile
= 18.54 lb PM/mile

where k = 0.016 (particle size multiplier for PM-10) (k=0.082 for PM-30 or TSP)

sL = 120 road surface silt loading (g/m²)

W = 20.0 tons average weight of all vehicles traveling the road

C = 0.00047 emission factor for 1980's vehicle exhaust, brake wear and tire wear for PM and PM10

P = 120 wet days per year

N = 365 days per year

$$\text{PM-10: } \frac{3.62 \text{ lb/mi} \times 22,391 \text{ mi/yr}}{2000 \text{ lb/ton}} = 40.51 \text{ tons/yr}$$

$$\text{PM: } \frac{18.54 \text{ lb/mi} \times 22,391 \text{ mi/yr}}{2000 \text{ lb/ton}} = 207.61 \text{ tons/yr}$$

Total PM Emissions From Paved Roads = 207.61 tons/yr
Total PM-10 Emissions From Paved Roads = 40.51 tons/yr

**** storage ****

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.

Material	Silt Content (wt %)	Pile Size (acres)	Storage Capacity (tons)	PM Emissions tons/yr	PM-10 Emissions tons/yr
Sand	1.1	0.49	15,000	0.11	0.04
Stone	1.1	1.160	30,000	0.27	0.09
RAP	0.8	0.470	15,000	0.079	0.03
Total				0.46	0.16

Sample Calculation:

$$\text{Emissions (storage)} = \frac{E_f \cdot (\text{Pile Size in acres}) \cdot (365 \text{ day/yr})}{(2,000 \text{ lb/ton})}$$

$$E_f = 1.7 \cdot (s/1.5)^{1.5} \cdot (365-p)/235 \cdot (f/15)$$

= 1.27 lb/acre/day

where s = 1.1 % silt

p = 125 days of rain greater than or equal to 0.01 inches

f = 15 % of wind greater than or equal to 12 mph

**** load-out ****

The following calculations determine the amount of emissions created by plant load-out, based on 8,760 hours of use and USEPA's AP-42, Section 11.1, Tables 11.1-14 through 11.1-16.

$$\begin{aligned} \text{PM/PM10 Ef} &= 0.000181 + 0.00141(-V)e((0.0251)(T+460)-20.43) \\ &= 5.22\text{E-}04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

PM/PM10 = 1.49 tons/yr
Total PAH HAPs = 0.09 tons/yr (5.93% of Organic PM emissions per AP-42)*
Phenol = 0.02 tons/yr (1.18% of Organic PM emissions per AP-42)*

$$\begin{aligned} \text{TOC Ef} &= 0.0172(-V)e((0.0251)(T+460)-20.43) \\ &= 4.16\text{E-}03 \text{ lb TOC per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

VOC = 11.13 tons/yr (94% of TOC emissions per AP-42)
Worst Case Single HAP (Xylenes) = 0.06 tons/yr (0.49% of TOC emissions per AP-42)
Total Volatile HAPs = 0.18 tons/yr (1.5% of TOC emissions per AP-42)

$$\begin{aligned} \text{CO Ef} &= 0.00558(-V)e((0.0251)(T+460)-20.43) \\ &= 1.35\text{E-}03 \text{ lb CO per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

CO = 3.84 tons/yr

**** silo filling ****

The following calculations determine the amount of emissions created by silo filling, based on 8,760 hours of use and USEPA's AP-42, Section 11.1, Tables 11.1-14 through 11.1-16.

$$\begin{aligned} \text{PM/PM10 Ef} &= 0.000332 + 0.00105(-V)e((0.0251)(T+460)-20.43) \\ &= 5.86\text{E-}04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

PM/PM10 = 1.67 tons/yr
Total PAH HAPs = 0.11 tons/yr (11.40% of Organic PM emissions per AP-42)*

$$\begin{aligned} \text{TOC Ef} &= 0.0504(-V)e((0.0251)(T+460)-20.43) \\ &= 1.22\text{E-}02 \text{ lb TOC per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

VOC = 34.70 tons/yr (100% of TOC emissions per AP-42)
Worst Case Single HAP (Formaldehyde) = 0.24 tons/yr (0.69% of TOC emissions per AP-42)
Total Volatile HAPs = 0.45 tons/yr (1.3% of TOC emissions per AP-42)

$$\begin{aligned} \text{CO Ef} &= 0.00488(-V)e((0.0251)(T+460)-20.43) \\ &= 1.18\text{E-}03 \text{ lb CO per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

CO = 3.36 tons/yr

* Organic PM emissions are calculated using the equation from Table 11.1-14.

$$\begin{aligned} \text{Organic PM Ef} &= 0.00141(-V)e((0.0251)(T+460)-20.43) \\ &= 3.41\text{E-}04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

****cold mix VOC storage emissions****

I. Emulsified Asphalt with Solvent.

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing emulsified asphalt of which 46.4% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.0696 weight percent of Solvent in stockpile***
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **3,963.02 tons/yr**

* Weight percent flash-off is based on use of emulsified asphalt containing a maximum of 15% of the liquid binder by weight of VOC solvent and 46.4% by weight of VOC solvent evaporating.

II. Cut back asphalt rapid cure

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing cut back asphalt rapid cure of which 95% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.24035 weight percent flash-off of cold mix**
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **13,685.53 tons/yr**

* Weight percent flash-off is based on use of gelled asphalt containing a maximum of 25.3% of the liquid binder by weight of VOC solvent and 95% by weight of VOC solvent evaporating.

III. Cut back asphalt medium cure

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing cut back asphalt medium cure of which 70% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.2002 weight percent flash-off of cold mix**
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **11,399.39 tons/yr**

* Weight percent flash-off is based on use of gelled asphalt containing a maximum of 28.6% of the liquid binder by weight of VOC solvent and 70% by weight of VOC solvent evaporating.

IV. Cut back asphalt slow cure

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing cut back asphalt slow cure of which 25% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.05 weight percent flash-off of cold mix**
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **2,847.00 tons/yr**

* Weight percent flash-off is based on use of gelled asphalt containing a maximum of 20% of the liquid binder by weight of VOC solvent and 25% by weight of VOC solvent evaporating.

V. Other asphalt with solvent binder

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing cut back asphalt slow cure of which 2.5% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.006475 weight percent flash-off of cold mix**
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **368.69 tons/yr**

* Weight percent flash-off is based on use of gelled asphalt containing a maximum of 25.9% of the liquid binder by weight of VOC solvent and 2.5% by weight of VOC solvent evaporating.

Worst Case from Cold Mix VOC Storage = 13,685.53 tons/yr

Criteria Pollutants:		** summary of source emissions before controls **	
	P M:	80,570.84	ton/yr
	P M-10:	18,958.36	ton/yr
	S O 2:	552.27	ton/yr
	N O x:	173.96	ton/yr
	V O C:	13,822.51	ton/yr
	C O:	378.08	ton/yr
	HCl:	0.8	ton/yr

** source emissions after controls **

In order to qualify for the FESOP program, this source must limit SO2 and NOx emissions to 99.9 tons per year. Consequently, NOx and SO2 emissions from the aggregate dryer must be limited as follows:

NOx limited emissions=	99.9 tons per year -	0.92	= tons per year from the hot oil heater	98.98	tons per year
SO2 limited emissions=	99.9 tons per year -	0.01	= tons per year from the hot oil heater	99.89	tons per year

* Emissions of PM and PM-10 from aggregate drying operations are controlled with a 99.924 % control efficiency.

The following calculations determine the amount of emissions created by natural gas combustion, from the aggregate dryer, based on a maximum fuel usage of 1,016.16 MMcf

Criteria Pollutant:	<u>1,016.16</u> MMcf/yr	* Ef (lb/MMcf) = (ton/yr)
	2,000 lb/ton	
P M:	1.9 lb/MMcf =	7.34E-04 ton/yr *
P M-10:	7.6 lb/MMcf =	2.93E-03 ton/yr *
S O 2:	0.6 lb/MMcf =	0.30 ton/yr
N O x:	190.0 lb/MMcf =	96.54 ton/yr
V O C:	5.5 lb/MMcf =	2.79 ton/yr
C O:	84.0 lb/MMcf =	42.68 ton/yr

The following calculations determine the amount of emissions created by the combustion of No. 2 distillate fuel oil @ 0.5 % sulfur, from the aggregate dryer burner, based on a fuel usage limitation of 2,600,012 gal/yr:

Criteria Pollutant:	<u>2,600</u> Kgal/yr:	* Ef (lb/1,000 gal) = (ton/yr)
	2,000 lb/ton	
P M:	2.0 lb/1000 gal =	1.98E-03 ton/yr
P M-10:	3.3 lb/1000 gal =	3.26E-03 ton/yr
S O 2:	76.8 lb/1000 gal =	99.89 ton/yr
N O x:	24.0 lb/1000 gal =	31.20 ton/yr
V O C:	0.20 lb/1000 gal =	0.26 ton/yr
C O:	5.0 lb/1000 gal =	6.50 ton/yr

The following calculations determine the amount of emissions created by the combustion of No. 4 fuel oil @ 1.00 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and based on a fuel usage limitation of 1,331,926 gal/yr:

Criteria Pollutant:	<u>1,332</u> Kgal/yr:	* Ef (lb/1,000 gal) = (ton/yr)
	2,000 lb/ton	
P M:	7.0 lb/1000 gal =	3.54E-03 ton/yr
P M-10:	8.5 lb/1000 gal =	4.30E-03 ton/yr
S O 2:	150.0 lb/1000 gal =	99.89 ton/yr
N O x:	47.0 lb/1000 gal =	31.30 ton/yr
V O C:	0.20 lb/1000 gal =	0.13 ton/yr
C O:	5.0 lb/1000 gal =	3.33 ton/yr

The following calculations determine the amount of emissions created by the combustion of re-refined waste oil

- @ 0.70 % sulfur,
- @ 0.50 % ash, and
- @ 0.001 %Cl, from the aggregate dryer burner, based on 8,760 hours of use and based on a fuel usage limitation of 1,941,584 gal/yr:

Criteria Pollutant:	<u>1,942</u> Kgal/yr:	* Ef (lb/1,000 gal) = (ton/yr)
	2,000 lb/ton	
P M:	32.0 lb/1000 gal =	2.36E-02 ton/yr
P M-10:	25.5 lb/1000 gal =	1.88E-02 ton/yr
S O 2:	102.9 lb/1000 gal =	99.89 ton/yr
N O x:	19.0 lb/1000 gal =	18.45 ton/yr
V O C:	1.00 lb/1000 gal =	0.97 ton/yr
C O:	5.0 lb/1000 gal =	4.85 ton/yr
HCl:	0.1 lb/1000 gal =	0.06 ton/yr

Criteria Pollutant:		Worst Case Fuel
P M:	2.36E-02 ton/yr *	Re-refined Waste Oil
P M-10:	1.88E-02 ton/yr *	Re-refined Waste Oil
S O 2:	99.89 ton/yr	Re-refined Waste Oil/No. 4 & No. 2 fuel oils
N O x:	96.54 ton/yr	Natural Gas
V O C:	2.79 ton/yr	Natural Gas
C O:	42.68 ton/yr	Natural Gas
HCl:	0.06 ton/yr	Re-refined Waste Oil

**** Fuel Usage Limitations ****

Fuel: Natural Gas

A fuel usage limitation for natural gas is not needed because the potential to emit of each criteria pollutant is less than 100 tons per year.

Fuel: #2 distillate oil

$$\begin{array}{rcl} \frac{99.89 \text{ tons SO}_2/\text{year limited}}{280.88 \text{ tons SO}_2/\text{year potential}} & \times & \frac{7310.50 \text{ Kgals}}{\text{year potential}} \\ & & = \frac{2600.012 \text{ Kgals}}{\text{year limited}} \end{array}$$

Fuel: #4 fuel oil

$$\begin{array}{rcl} \frac{99.89 \text{ tons SO}_2/\text{year limited}}{552.26 \text{ tons SO}_2/\text{year potential}} & \times & \frac{7363.48 \text{ Kgals}}{\text{year potential}} \\ & & = \frac{1331.926 \text{ Kgals}}{\text{year limited}} \end{array}$$

Fuel: Re-refined waste oil

$$\begin{array}{rcl} \frac{99.89 \text{ tons SO}_2/\text{year limited}}{373.44 \text{ tons SO}_2/\text{year potential}} & \times & \frac{7258.29 \text{ Kgals}}{\text{year potential}} \\ & & = \frac{1941.584 \text{ Kgals}}{\text{year limited}} \end{array}$$

**** Fuel Equivalence Limitations ****

Fuel: Natural Gas

Fuel equivalence limit for natural gas based on SO2 emissions from #4 fuel oil:

$$\begin{array}{rcl} \frac{552.26 \text{ #4 F.O. potential emissions (ton/yr)}}{7363.48 \text{ #4 F.O. potential usage (kgal/yr)}} & / & \frac{0.30 \text{ n.g. potential emissions (ton/yr)}}{1016.16 \text{ n.g. potential usage (MMCF/yr)}} \\ & & = \frac{250.000 \text{ MMCF n.g. burned}}{\text{Kgal #4 F.O. burned}} \text{ or } \frac{0.0040 \text{ Kgal #4 F.O. burned}}{\text{MMCF n.g. burned}} \end{array}$$

Fuel: #2 distillate oil

Fuel equivalence limit for #2 fuel oil based on SO2 emissions from #4 fuel oil:

$$\begin{array}{rcl} \frac{552.26 \text{ #4 F.O. potential emissions (ton/yr)}}{7363.48 \text{ #4 F.O. potential usage (kgal/yr)}} & / & \frac{280.88 \text{ #2 F.O. potential emis. (ton/yr)}}{7310.50 \text{ #2 F.O. potential usage (Kgal/yr)}} \\ & & = \frac{1.9521 \text{ Kgal #2 F.O. burned}}{\text{Kgal #4 F.O. burned}} \text{ or } \frac{0.5123 \text{ Kgal #4 F.O. burned}}{\text{Kgal #2 F.O. burned}} \end{array}$$

Fuel: Re-refined waste oil

Fuel equivalence limit for re-refined waste oil based on SO2 emissions from #4 fuel oil:

$$\begin{array}{rcl} \frac{552.26 \text{ #4 F.O. potential emissions (ton/yr)}}{7363.48 \text{ #4 F.O. potential usage (kgal/yr)}} & / & \frac{373.44 \text{ W.O. potential emis. (ton/yr)}}{7258.29 \text{ W.O. potential usage (Kgal/yr)}} \\ & & = \frac{1.4577 \text{ Kgal W.O. burned}}{\text{Kgal #4 F.O. burned}} \text{ or } \frac{0.6860 \text{ Kgal #4 F.O. burned}}{\text{Kgal W.O. burned}} \end{array}$$

CO emissions shall be limited by limiting the throughput to the aggregate mixer as follows:
 CO limited emissions= 99.9 tons per year - 3.892 =tpy from all other sources 96.01 tons per year
 Consequently, the annual throughput shall be limited as follows:
 Annual throughput limit = 1,452,753 tons asphalt/year
 This will limit VOC emissions from the drum mixer/aggregate burner to less than 24.9 tons per year, making the requirements of 326 IAC 8-1-6 are not applicable.

* Emissions of PM and PM-10 from drying operations are controlled with a 99.924 % control efficiency.

**** aggregate drying: drum-mix plant - Limited Throughput****

The following calculations determine the amount of worst case emissions created by aggregate drying after controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Tables 11.1-5 and 11.1-10 for a drum mix dryer which has the capability of combusting either fuel oil, natural gas, or re-refined waste oil:

Pollutant:	Ef	lb/ton x	1,452,753.40 2,000	ton/yr lb/ton
Criteria Pollutant:				
P M:		28	lb/ton =	15.46 ton/yr
P M-10:		6.5	lb/ton =	3.59 ton/yr
VOC:		0.032	lb/ton =	23.24 ton/yr
HCl:		0.00021	lb/ton =	0.15 ton/yr
CO:		0.13	lb/ton =	94.43 ton/yr
NOx:		0.055	lb/ton =	39.95 ton/yr

**** silo filling ****

The following calculations determine the amount of emissions created by silo filling, based on 8,760 hours of use and USEPA's AP-42, Section 11.1, Tables 11.1-14 through 11.1-16.

$$\begin{aligned} \text{PM/PM10 Ef} &= 0.000332 + 0.00105(-V)e((0.0251)(T+460)-20.43) \\ &= 5.86E-04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

PM/PM10 = 0.43 tons/yr
Total PAH HAPs = 0.03 tons/yr (11.40% of Organic PM emissions per AP-42)*

$$\begin{aligned} \text{TOC Ef} &= 0.0504(-V)e((0.0251)(T+460)-20.43) \\ &= 1.22E-02 \text{ lb TOC per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

VOC = 8.85 tons/yr (100% of TOC emissions per AP-42)
Worst Case Single HAP (Formaldehyde) = 0.06 tons/yr (0.69% of TOC emissions per AP-42)
Total Volatile HAPs = 0.12 tons/yr (1.3% of TOC emissions per AP-42)

$$\begin{aligned} \text{CO Ef} &= 0.00488(-V)e((0.0251)(T+460)-20.43) \\ &= 1.18E-03 \text{ lb CO per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

CO = 0.86 tons/yr

* Organic PM emissions are calculated using the equation from Table 11.1-14.

$$\begin{aligned} \text{Organic PM Ef} &= 0.00141(-V)e((0.0251)(T+460)-20.43) \\ &= 3.41E-04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where V} &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt (HMA)} \end{aligned}$$

****cold mix VOC storage limitations****

The following calculations determine the amount of VOC emissions created by the application of liquid binder for cold mix stockpiles, based on the source's use of cut back asphalt with solvent as the liquid binder type. Cut back asphalt with solvent is defined with the following properties:

Emulsified asphalt:

Maximum weight % of VOC solvent in binder 15.0%
Weight % VOC solvent in binder that evaporates: 46.4%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

Cut back asphalt rapid cure:

Maximum weight % of VOC solvent in binder 25.3%
Weight % VOC solvent in binder that evaporates: 95.0%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

Cut back asphalt medium cure:

Maximum weight % of VOC solvent in binder 28.6%
Weight % VOC solvent in binder that evaporates: 70.0%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

Cut back asphalt slow cure:

Maximum weight % of VOC solvent in binder 20.0%
Weight % VOC solvent in binder that evaporates: 25.0%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

Other asphalt with solvent binder:

Maximum weight % of VOC solvent in binder 25.9%
Weight % VOC solvent in binder that evaporates: 2.5%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

In order to qualify for the FESOP program, and make the requirements of 326 IAC 8-1-6 not applicable, VOC solvent usage as diluent in the liquid binder used in the production of cold mix asphalt from the plant shall be limited as follows:

(99.90 tons VOC/yr - 43.28 tons VOC/yr from other sources after controls = **56.62 tons of VOC emitted per year**)

This is equivalent to limiting the usage of cut back asphalt with solvent liquid binder to less than the following:

- 122.03 tons of VOC solvent per 12 consecutive month period for emulsified asphalt.
- 59.60 tons of VOC solvent per 12 consecutive month period for rapid cure cut back asphalt.
- 80.89 tons of VOC solvent per 12 consecutive month period for medium cure cut back asphalt.
- 226.49 tons of VOC solvent per 12 consecutive month period for slow cure cut back asphalt.
- 2264.93 tons of VOC solvent per 12 consecutive month period for other asphalt with solvent binder.

**** source emissions after controls ****

dryer burner combustion & aggregate drying:		nonfugitive		
P M:	1.5E+01 ton/yr x			15.48 ton/yr
P M-10:	3.6E+00 ton/yr x			3.61 ton/yr
S O 2:	99.89 ton/yr x			99.89 ton/yr
N O x:	96.54 ton/yr x			96.54 ton/yr
V O C:	23.24 ton/yr x			23.24 ton/yr
C O:	94.43 ton/yr x			94.43 ton/yr
hot oil heater:		nonfugitive		
P M:	0.02 ton/yr x	100.00%	emitted after controls =	0.02 ton/yr
P M-10:	0.07 ton/yr x	100.00%	emitted after controls =	0.07 ton/yr
S O 2:	0.01 ton/yr x	100.00%	emitted after controls =	0.01 ton/yr
N O x:	0.92 ton/yr x	100.00%	emitted after controls =	0.92 ton/yr
V O C:	0.05 ton/yr x	100.00%	emitted after controls =	0.05 ton/yr
C O:	0.77 ton/yr x	100.00%	emitted after controls =	0.77 ton/yr
magnetite drying		nonfugitive		
P M:	492.43 ton/yr x	0.80%		3.94 ton/yr
P M-10:	1.58 ton/yr x	0.80%		0.01 ton/yr
crusher		fugitive		
P M:	3.55 ton/yr x	100%	emitted after controls =	3.55 ton/yr
P M-10:	1.58 ton/yr x	100%	emitted after controls =	1.58 ton/yr
conveying/handling:		fugitive		
P M:	31.47 ton/yr x	50%	emitted after controls =	15.74 ton/yr
P M-10:	14.89 ton/yr x	50%	emitted after controls =	7.44 ton/yr
paved roads:		fugitive		
P M:	207.61 ton/yr x	50%	emitted after controls =	103.81 ton/yr
P M-10:	40.51 ton/yr x	50%	emitted after controls =	20.25 ton/yr
storage piles:		fugitive		
P M:	0.46 ton/yr x	50%	emitted after controls =	0.23 ton/yr
P M-10:	0.16 ton/yr x	50%	emitted after controls =	0.08 ton/yr
load-out		fugitive		
P M:	1.49 ton/yr x	100%	emitted after controls =	1.49 ton/yr
P M-10:	1.49 ton/yr x	100%	emitted after controls =	1.49 ton/yr
V O C:	11.13 ton/yr x	100%	emitted after controls =	11.13 ton/yr
C O:	3.84 ton/yr x	100%	emitted after controls =	3.84 ton/yr
Silo filling		fugitive		
P M:	0.43 ton/yr x	100%	emitted after controls =	0.43 ton/yr
P M-10:	0.43 ton/yr x	100%	emitted after controls =	0.43 ton/yr
V O C:	8.85 ton/yr x	100%	emitted after controls =	8.85 ton/yr
C O:	0.86 ton/yr x	100%	emitted after controls =	0.86 ton/yr
Cold mix storage:		fugitive		
V O C:	56.62 ton/yr x			56.62 ton/yr

** summary of source emissions after limitation and controls **			
Criteria Pollutant:	Non-Fugitive	Fugitive	Total
PM:	19.44 ton/yr	125.23 ton/yr	144.67 ton/yr
PM-10:	3.69 ton/yr	33.24 ton/yr	36.93 ton/yr
S O 2:	99.90 ton/yr	0.00 ton/yr	99.90 ton/yr
N O x:	97.46 ton/yr	0.00 ton/yr	97.46 ton/yr
V O C:	23.29 ton/yr	76.61 ton/yr	99.90 ton/yr
C O:	95.20 ton/yr	4.70 ton/yr	99.90 ton/yr
HCl:	0.06 ton/yr	0.00 ton/yr	0.06 ton/yr

Hazardous Air Pollutants (HAPs)

**** aggregate dryer burner****

The following calculations determine the amount of HAP emissions created by the combustion of distillate fuel oil before & after controls @ 0.49 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Table 1.3-10.

Hazardous Air Pollutants (HAPs):

		116 MMBtu/hr * 8760 hr/yr 2,000 lb/ton	* Ef (lb/10 ¹² Btu) = (ton/yr)
		Potential To Emit	Limited Emissions
Arsenic:	4 lb/10 ¹² Btu =	2.03E-03 ton/yr	1.54E-06 ton/yr
Beryllium:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Cadmium:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Chromium:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Lead:	9 lb/10 ¹² Btu =	4.57E-03 ton/yr	3.48E-06 ton/yr
Manganese:	6 lb/10 ¹² Btu =	3.05E-03 ton/yr	2.32E-06 ton/yr
Mercury:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Nickel:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Selenium:	15 lb/10 ¹² Btu =	7.62E-03 ton/yr	5.79E-06 ton/yr
Total HAPs =		2.49E-02 ton/yr	1.89E-05 ton/yr

The following calculations determine the amount of HAP emissions created by the combustion of waste oil before & after controls @ 0.70 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.11-1, 1.11-4.

Hazardous Air Pollutants (HAPs):

		116 MMBtu/hr * 8,760 hr/yr 140,000 Btu/gal * 2,000 lb/ton	* Ef (lb/1,000 gal) = (ton/yr)
		Potential To Emit	Limited Emissions
Arsenic:	1.10E-01 lb/1000 gal =	0.40 ton/yr	3.03E-04 ton/yr
Cadmium:	9.30E-03 lb/1000 gal =	3.38E-02 ton/yr	2.57E-05 ton/yr
Chromium:	2.00E-02 lb/1000 gal =	7.26E-02 ton/yr	5.52E-05 ton/yr
Cobalt:	2.10E-04 lb/1000 gal =	7.62E-04 ton/yr	5.79E-07 ton/yr
Lead:	1.87E-01 lb/1000 gal =	0.68 ton/yr	5.16E-04 ton/yr
Manganese:	6.80E-02 lb/1000 gal =	0.25 ton/yr	1.88E-04 ton/yr
Nickel:	1.10E-02 lb/1000 gal =	3.99E-02 ton/yr	3.03E-05 ton/yr
Total HAPs =		1.47 ton/yr	1.12E-03 ton/yr

**** aggregate drying: drum-mixer ****

The following calculations determine the amount of HAP emissions created by aggregate drying before & after controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Table 11.1-10 for a drum mix dryer which can be fired with either fuel oil or natural gas. The HAP emission factors represent the worst case emissions (fuel oil combustion).

Uncontrolled:

Ef	lb/ton x	650	ton/hr x	8760 hr/yr
		2000	lb/ton	

Controlled:

Ef	lb/ton x	1,452,753.40	ton/yr	
		2000	lb/ton	

Hazardous Air Pollutants (HAPs):

		Potential To Emit	Limited Emissions
Acetaldehyde	3.20E-04 lb/ton =	0.91 ton/yr	0.23 ton/yr
Acrolein	2.60E-05 lb/ton =	0.07 ton/yr	0.02 ton/yr
Benzene	3.90E-04 lb/ton =	1.11 ton/yr	0.28 ton/yr
Ethyl benzene	2.40E-04 lb/ton =	0.68 ton/yr	0.17 ton/yr
Formaldehyde	3.10E-03 lb/ton =	8.83 ton/yr	2.25 ton/yr
Hexane	9.20E-04 lb/ton =	2.62 ton/yr	0.67 ton/yr
2,2,4 Trimethylpentane	4.00E-05 lb/ton =	0.11 ton/yr	0.03 ton/yr
Methyl chloroform	4.8E-05 lb/ton =	0.14 ton/yr	0.03 ton/yr
Propionaldehyde	1.30E-04 lb/ton =	0.37 ton/yr	0.09 ton/yr
Quinone	1.60E-04 lb/ton =	0.46 ton/yr	0.12 ton/yr
Toluene	2.90E-03 lb/ton =	8.26 ton/yr	2.11 ton/yr
Total PAH HAPs:	1.100E-04 lb/ton =	0.31 ton/yr	0.08 ton/yr
Xylene:	2.00E-04 lb/ton =	0.57 ton/yr	0.15 ton/yr
Total HAPs =		24.44 ton/yr	6.24 ton/yr

**** summary of source HAP emissions ****

potential to emit		limited emissions	
Hazardous Air Pollutants (HAPs):		Hazardous Air Pollutants (HAPs):	
Acetaldehyde	0.911 ton/yr	Acetaldehyde	0.23 ton/yr
Acrolein	0.074 ton/yr	Acrolein	0.02 ton/yr
Arsenic:	0.399 ton/yr	Arsenic:	0.00 ton/yr
Benzene:	1.110 ton/yr	Benzene:	0.28 ton/yr
Beryllium:	0.002 ton/yr	Beryllium:	0.00 ton/yr
Cadmium:	0.034 ton/yr	Cadmium:	0.00 ton/yr
Chromium:	0.073 ton/yr	Chromium:	0.00 ton/yr
Cobalt:	0.001 ton/yr	Cobalt:	0.00 ton/yr
Ethyl benzene:	0.683 ton/yr	Ethyl benzene:	0.17 ton/yr
Formaldehyde:	9.065 ton/yr	Formaldehyde:	2.25 ton/yr
HCl	0.837 ton/yr	HCl	0.06 ton/yr
Hexane	2.619 ton/yr	Hexane	0.67 ton/yr
Lead:	0.679 ton/yr	Lead:	0.00 ton/yr
Manganese:	0.247 ton/yr	Manganese:	0.00 ton/yr
Methyl chloroform:	0.137 ton/yr	Methyl chloroform:	0.03 ton/yr
Mercury:	0.002 ton/yr	Mercury:	0.00 ton/yr
Nickel:	0.040 ton/yr	Nickel:	0.00 ton/yr
Propionaldehyde	0.370 ton/yr	Propionaldehyde	0.09 ton/yr
Phenol	0.018 ton/yr	Phenol	0.02 ton/yr
Quinone	0.456 ton/yr	Quinone	0.12 ton/yr
Selenium:	0.008 ton/yr	Selenium:	0.00 ton/yr
2,2,4 Trimethylpentane:	0.114 ton/yr	2,2,4 Trimethylpentane:	0.03 ton/yr
Toluene:	8.256 ton/yr	Toluene:	2.11 ton/yr
Total PAH HAPs:	0.512 ton/yr	Total PAH HAPs:	0.28 ton/yr
Xylene:	0.627 ton/yr	Xylene:	0.20 ton/yr
Total:	27.27 ton/yr	Total:	6.57 ton/yr

**** miscellaneous ****

326 IAC 7 Compliance Calculations:

The following calculations determine the maximum sulfur content of distillate # 2 fuel oil allowable by 326 IAC 7:

$$\begin{aligned}
 &0.5 \text{ lb/MMBtu} \times 139,000 \text{ Btu/gal} = 69.5 \text{ lb/1000gal} \\
 &69.5 \text{ lb/1000gal} / 142 \text{ lb/1000 gal} = 0.5 \% \\
 &\text{Sulfur content must be less than or equal to } 0.5\% \text{ to comply with 326 IAC 7.}
 \end{aligned}$$

The following calculations determine the maximum sulfur content of # 4 fuel oil allowable by 326 IAC 7:

$$\begin{aligned}
 &1.6 \text{ lb/MMBtu} \times 138,000 \text{ Btu/gal} = 220.8 \text{ lb/1000gal} \\
 &220.8 \text{ lb/1000gal} / 150 \text{ lb/1000 gal} = 1.5 \% \\
 &\text{Sulfur content must be less than or equal to } 1.5\% \text{ to comply with 326 IAC 7.}
 \end{aligned}$$

The following calculations determine the maximum sulfur content of re-refined waste oil allowable by 326 IAC 7:

$$\begin{aligned}
 &1.6 \text{ lb/MMBtu} \times 140,000 \text{ Btu/gal} = 224 \text{ lb/1000gal} \\
 &224 \text{ lb/1000gal} / 150 \text{ lb/1000 gal} = 1.5 \% \\
 &\text{Sulfur content must be less than or equal to } 1.5\% \text{ to comply with 326 IAC 7.}
 \end{aligned}$$

326 IAC 6-3-2 Compliance Calculations:

The following calculations determine compliance with 326 IAC 6-3-2 for the aggregate drying process with a process weight rates in excess of 30 tons per hour:

$$\text{limit} = 55 * (650^{0.11}) - 40 = 72.15 \text{ lb/hr or } 316.00 \text{ ton/yr}$$

The following calculations determine compliance with 326 IAC 6-3-2 for the magnetite drying process with a process weight rates less then 30 tons per hour:

$$\text{limit} = 4.1 * (5.707^{0.67}) = 13.17 \text{ lb/hr or } 2.31 \text{ lb/ton or } 57.68 \text{ ton/yr}$$

Since the emission limits pursuant to 326 IAC 6.5-1-2 and 40 CFR 60 Subpart I are more stringent than this limit, the limit pursuant to 326 IAC 6-3-2 does not apply. The emission limits pursuant to 326 IAC 6.5-1-2 and Subpart I shall also render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset) not applicable.

The following calculations determine compliance with 326 IAC 6-3-2 for the RAP crushing process with a process weight rates in excess of 30 tons per hour:

$$\text{limit} = 55 * (150^{0.11}) - 40 = 55.44 \text{ lb/hr or } 242.83 \text{ ton/yr}$$

PM-10 Emission Limit for Aggregate Dryer:

(99.90 tons PM-10/yr -	39.86	tons PM-10/yr from other sources)			
=					(Will be able to comply)
	60.04 tons PM-10/yr	=	13.71 lbs/hr		
Controlled PM-10 emissions from the aggregate dryer are			3.61 lbs/hr <	13.71	lbs/hr
Based on a asphalt mix throughput max of 1,465,940 tons/yr, this emission limit is equivalent to				0.083	lb PM10 per ton
of asphalt mix.					

PM-10 Emission Limit for Magnetite Drying process:

PM-10 emissions from the Magnetite Drying process shall not exceed 1 ton per year.					(Will be able to comply)
	1.00 tons PM-10/yr	=	0.23 lbs/hr		
Controlled PM-10 emissions from the aggregate dryer are			0.00 lbs/hr <	0.23	lbs/hr
Based on a magnetite drying maximum capacity of 50,000 tons/yr, this emission limit is equivalent to				0.040	lb PM10 per ton
of magnetite.					

PM Emission Limit for Aggregate Mixer and Dryer:

(249.90 tons PM/yr -	142.22	tons PM/yr from other sources)			
=					(Will be able to comply)
	107.68 tons PM/yr	=	24.58 lbs/hr		
Controlled PM emissions from the aggregate dryer are			15.48 lbs/hr <	24.58	lbs/hr
Based on a asphalt mix throughput max of 1,465,940 tons/yr, this emission limit is equivalent to				0.148	lb PM per ton
of asphalt mix.					

PM Emission Limit for Magnetite Drying process:

PM emissions from the Magnetite Drying process shall not exceed 1 ton per year.					(Will be able to comply)
	1.00 tons PM/yr	=	0.23 lbs/hr		
Controlled PM emissions from the magnetite dryer are			0.90 lbs/hr <	0.23	lbs/hr
Based on a magnetite drying maximum capacity of 50,000 tons/yr, this emission limit is equivalent to				0.040	lb PM per ton
of magnetite.					

40 CFR Part 60.90, Subpart I (Standards of Performance for Hot Mix Asphalt Plants) and 326 IAC 6.5-1-2 Compliance Calculations:

The following calculations determine compliance with NSPS 40 CFR Part 60.90, Subpart I, which limits stack emissions from asphalt plants to 0.04 gr/dscf and 326 IAC 6.5-1-2 which limits emissions from asphalt plants to 0.03 gr/dscf : (Will be able to comply)

Aggregate Dryer and Mixer Baghouse:					
	15.48 ton/yr *		2000 lb/ton *		
	525,600 min/yr *		37,004 dscf/min	7000 gr/lb =	0.011 gr/dscf

Allowable particulate emissions under NSPS equate to	55.57 tons per year.	12.69 lbs/hr
Allowable particulate emissions under 326 IAC 6.5-1-2 equate to	41.68 tons per year.	9.52 lbs/hr

Note:

$$\text{SCFM} = 48,988 \text{ acfm} * (460 + 68) / (460 + 239)$$

$$= 37,004 \text{ scfm}$$

Assumes exhaust gas temperature of 239F, and exhaust gas flow of 48,988 acfm.

**Indiana Department of Environmental Management
Office of Air Quality
And Evansville Environmental Protection Agency**

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

Source Background and Description

Source Name:	J.H. Rudolph & Company, Inc.
Source Location:	3300 S. Green River Road, Evansville, IN 47715
County:	Vanderburgh
SIC Code:	2951
Operation Permit No.:	F163-14132-03408
Operation Permit Issuance Date:	April 10, 2002
Permit Renewal No.:	F163-23182-03408
Permit Reviewer:	Julia Handley/EVP

The Office of Air Quality (OAQ) has reviewed a FESOP renewal application from J.H. Rudolph & Company, Inc relating to the operation of a stationary drum-mix asphalt plant and the addition of cold-mix (stockpile mix) asphalt manufacturing operations and storage piles.

Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) One (1) six hundred fifty (650) tons per hour aggregate dryer, installed in June 1990, with a burner capacity of 116 million British thermal units per hour, exhausting through a baghouse at stack SV1. This dryer is fired by natural gas, including butane, #2 fuel oil, #4 fuel oil and #4 waste oil as backup fuel;
- (b) An alternate drying process, used to dry magnetite, with a maximum capacity of 50,000 tons per year, exhausting through a baghouse at stack SV1;
- (c) One (1) baghouse with a total filter area of 13,149 ft², exhausting at stack SV1;
- (d) One (1) 20,000 gallon liquid storage tank (ID # 12A) for PG 64-34, installed in 1996;
- (e) One (1) 30,000 gallon liquid asphalt storage tank (ID # 12B) for AC-10, installed in June 1990;
- (f) One (1) 30,000 gallon liquid asphalt storage tank (ID # 12C) for AC-20, installed in June 1990; and
- (g) Two (2) 18,000 gallon tanks (ID # 16) for #2 fuel storage, installed in 1990.

Unpermitted Emission Units and Pollution Control Equipment

The source also consists of the following unpermitted emission unit:

- (a) One (1) recycled asphalt pavement (RAP) crusher, rated at 150 tons per hour, constructed in 1990.

New Emission Units Receiving Advanced Source Modification Approval

The application includes information relating to the prior approval for the construction and operation of the following equipment pursuant to 326 IAC 2-8-4(11):

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

Insignificant Activities

The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

- (a) Natural gas-fired combustion sources with a heat input equal to or less than 10 million British thermal units per hour;
 - i. One (1) hot oil heater, fired by natural gas and rated at 2.10 million British thermal units per hour, and exhausting to stack SV2, installed in June 1990;
- (b) Propane or liquefied petroleum gas, or butane-fired combustion sources with heat input equal to or less than 6 million British thermal units per hour;
- (c) Replacement or repair of electrostatic precipitators, bags in baghouses, and filters in other air filtration equipment;
- (d) A laboratory as defined in 326 IAC 2-7-1(21)(D);
- (e) Paved roadways;
- (f) Two (2) storage silos, each with a maximum storage capacity of 200 tons, installed in May, 2002;
- (g) Seven (7) storage silos, each with a maximum storage capacity of 200 tons, installed in June 1990; and
- (h) One (1) 500 gallon gasoline storage tank, installed in 1990.

Existing Approvals

The source has been operating under the previous FESOP 163-14132-03408 issued on April 10, 2002, and the following amendments and revisions:

- (a) First Administrative Amendment 163-15939-03408 issued on May 22, 2002;
- (b) Second Administrative Amendment 163-16647-03408 issued on June 9, 2003;
- (c) Third Administrative Amendment 163-18898-03408 issued on July 27, 2004; and

- (d) First Significant Permit Revision 163-19126-03408 issued on September 27, 2004.

All conditions from previous approvals were incorporated into this FESOP except the following:

- (a) FESOP 163-14132-03408 issued on April 10, 2002

D.3.1 Record Keeping Requirements [326 IAC 12] [40 CFR 60.110b, Subpart Kb]

Pursuant to the New Source Performance Standard (NSPS), 326 IAC12 and 40 CFR Part 60.116 Subpart Kb, the Permittee shall maintain permanent accessible records at the source for the life of each volatile liquid storage tank as follows:

- (a) the dimension of each storage vessel (tanks # 12A, # 12B, # 12C and # 16);
- (b) an analysis showing the capacity of each storage vessel (tanks # 12A, # 12B, # 12C and # 16); and
- (c) the true vapor pressure of the VOC stored, indicating that the maximum true vapor pressure of each VOC stored is less than 15.0 kPa (tanks # 12A, # 12B and # 12C only).

Reason not incorporated: 40 CFR 60.110b, Subpart Kb was amended October 15, 2003 and the exemption threshold limit for storage tanks was raised from 40 cubic meters to 75 cubic meters. In addition, the amendment exempted storage tanks greater than 75 m³ (19,813 gallons) but less than 151 m³ (39,890 gallons) and maximum true vapor pressures of less than 15.0 kPa from this New Source Performance Standard. Accordingly, storage tank #16 is not subject to this rule since it has a storage capacity of less than 75 cubic meters. Tanks # 12A, # 12B, # 12C are not subject to the NSPS since they have capacities of greater than 75 m³ (19,813 gallons) but less than 151 m³ (39,890 gallons) and maximum true vapor pressures of less than 15.0 kPa.

- (b) FESOP 163-14132-03408 issued on April 10, 2002

D.3.2 Cutback or Emulsified Asphalt [326 IAC 8-5-2] [326 IAC 2-8]

Any change or modification which causes the source to start producing any cutback or emulsified asphalt shall obtain prior approval from IDEM, OAQ and shall be subject to the requirements of 326 IAC 8-5-2 and 326 IAC 2-8.

Reason not incorporated: At the source's request, the use of cutback and/or emulsified asphalt is being incorporated into this FESOP renewal.

Enforcement Issue

- (a) IDEM is aware that equipment has been constructed and operated prior to receipt of the proper permit. The subject equipment is listed in this Technical Support Document under the condition entitled "Unpermitted Emission Units and Pollution Control Equipment".
- (b) IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

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 administratively complete FESOP renewal application for the purposes of this review was received on June 5, 2006. Additional information was received on July 14, 2006 and August 11, 2006.

There was no notice of completeness letter mailed to the source.

Emission Calculations

See Appendix A of this document for detailed emission calculations (pages 1 through 15)

Unrestricted Potential Emissions

This table reflects the unrestricted potential emissions of the source, excluding the emission limits that were contained in the previous FESOP.

HAPs	Unrestricted Potential Emissions (tons/yr)
Acetaldehyde	Less than 10
Acrolein	Less than 10
Arsenic	Less than 10
Benzene	Less than 10
Beryllium	Less than 10
Cadmium	Less than 10
Chromium	Less than 10
Cobalt	Less than 10
Ethyl benzene	Less than 10
Formaldehyde	Less than 10
HCl	Less than 10
Hexane	Less than 10
Lead	Less than 10
Manganese	Less than 10
Methyl chloroform	Less than 10
Mercury	Less than 10
Nickel	Less than 10
Propionaldehyde	Less than 10
Quinone	Less than 10
Selenium	Less than 10
2,2,4 Trimethylpentane	Less than 10
Toluene	Less than 10
Total PAH	Less than 10
Xylene	Less than 10
Total	Greater than 25

Pollutant	Unrestricted Potential Emissions (tons/yr)
PM	Greater than 250
PM-10	Greater than 100
SO ₂	Greater than 250
VOC	Greater than 100
CO	Less than 100
NO _x	Less than 250, Greater than 100

- (a) The unrestricted potential emissions of PM₁₀, SO₂, VOC and NO_x are equal to or greater than 100 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7. The source will be issued a FESOP because the source will limit its emissions below the Title V levels.
- (b) The unrestricted potential emissions of a combination of HAPs is equal to or greater than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-7. The source will be issued a FESOP because the source will limit its emissions below the Title V levels.
- (c) Fugitive Emissions
 This type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2. Since there are applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are counted toward determination of PSD and Emission Offset applicability.

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. Since the source has not constructed any new emission units, the source's potential to emit is based on the emission units included in the original FESOP.

Process/emission unit	Potential To Emit (tons/year)							
	PM	PM-10	SO ₂	VOC	CO	NO _x	Ind. HAPs	Combined HAPs
aggregate dryer and burner ⁽¹⁾	218.78 ⁽²⁾	81.07 ⁽³⁾	99.89	34.85	42.68	99.89	3.18 ⁽⁵⁾	9.02
magnetite drying	1.00 ⁽⁴⁾	1.00 ⁽³⁾	--	--	--	--	--	--
crusher	3.55	1.58	--	--	--	--	--	--
hot oil heater	0.02	0.07	0.01	0.05	0.77	0.01	Negl.	Negl.
conveying / handling ⁽¹⁾	5.23	11.06	--	--	--	--	--	--
unpaved roads	19.76	3.85	--	--	--	--	--	--
storage	0.46	0.16	--	--	--	--	--	--
load-out & silo filling ⁽¹⁾	1.11	1.11	--	16.10	2.53	--	0.08 ⁽⁶⁾	0.29
cold mix VOC use & storage	--	--	--	48.90	--	--	--	--
Total Emissions	249.90	99.90	99.90	99.90	47.84	99.90	<10	<25

- (1) Limited PTE based upon annual throughput limit and fuel usage limitation to comply with 326 IAC 2-8 (FESOP).
- (2) Maximum allowable PM emissions for 326 IAC 2-2 (PSD) avoidance.
- (3) Maximum allowable PM10 emissions in order to comply with 326 IAC 2-8 (FESOP).
- (4) Maximum allowable PM emissions in order to comply with 326 IAC 2-8 (FESOP).
- (5) Largest single HAP from aggregate dryer and burner is Formaldehyde with a PTE of 3.18 tons per year.
- (6) Largest single HAP from load-out and silo filling is Formaldehyde with a PTE of 0.08 tons per year.

County Attainment Status

The source is located in Vanderburgh County.

Pollutant	Status
PM2.5	nonattainment
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
8-hour Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NO_x) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NO_x emissions are considered when evaluating the rule applicability relating to ozone. Vanderburgh County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (b) On August 7, 2006, a temporary emergency rule took effect revoking the one-hour ozone standard in Indiana. The Indiana Air Pollution Control Board has approved a permanent rule revision to incorporate this change into 326 IAC 1-4-1. A permanent revision to 326 IAC 1-4-1 will take effect prior to the expiration of the emergency rule.
- (c) U.S.EPA in Federal Register Notice 70 FR 943 dated January 5, 2005 has designated Vanderburgh 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 non-attainment areas without sufficient data. However, in order to ensure that sources are not potentially liable for violation of the Clean Air Act, the OAQ is following the U.S. EPA's guidance to regulate PM10 emissions as surrogate for PM2.5 emissions pursuant to the Non-attainment New Source Review requirements. See the State Rule Applicability for the source section.
- (d) Vanderburgh County has been classified as attainment or unclassifiable in Indiana for all other pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

Source Status

Existing Source FESOP Definition (emissions after controls, based on 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	156.55
PM-10	41.19
SO ₂	99.00
VOC	20.51
CO	44.13
NO _x	99.00
Single HAP	6.833
Combination HAPs	17.16

- (a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories.
- (b) This existing source is not a major stationary source because no nonattainment regulated pollutant is emitted at a rate of 100 tons per year or greater, and it is not in one of the 28 listed source categories.

Federal Rule Applicability

- (a) This stationary drum hot mix asphalt plant constructed in 1990 is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.90, Subpart I) 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 comply with this rule by using a baghouse to limit particulate matter emissions to less than 0.04 gr/dscf.

The aggregate dryer and aggregate drum mix plant are 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.

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

- (b) The one (1) 150 ton per hour crusher is subject to the New Source Performance Standard 326 IAC 12, 40 CFR 60.670 through 60.676, Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants) because it reduces the size of nonmetallic minerals embedded in recycled asphalt pavement at a hot mix asphalt plant prior to the first storage silo or bin.

This rule requires the particulate emissions from:

- (1) the crushing operations to be limited to fifteen percent (15%) opacity or less, and

- (2) the screening and conveying operations to be limited to ten percent (10%) opacity or less.

The aggregate dryer and aggregate drum mix plant are subject to the following portions of 40 CFR 60, Subpart OOO.

- (1) 40 CFR 60.670(a)
- (2) 40 CFR 60.670(b)
- (3) 40 CFR 60.670(d)
- (4) 40 CFR 60.670(e).
- (5) 40 CFR 60.670(f).
- (6) 40 CFR 60.671.
- (7) 40 CFR 60.672(a).
- (8) 40 CFR 60.672(b).
- (9) 40 CFR 60.672(c).
- (10) 40 CFR 60.672(d).
- (11) 40 CFR 60.673.
- (12) 40 CFR 60.675(a).
- (13) 40 CFR 60.675(b)
- (14) 40 CFR 60.675(c).
- (15) 40 CFR 60.675(f).
- (16) 40 CFR 60.675(g).
- (17) 40 CFR 60.676(a)
- (18) 40 CFR 60.676(f)
- (19) 40 CFR 60.676(g)
- (20) 40 CFR 60.676(h)
- (21) 40 CFR 60.676(i)
- (22) 40 CFR 60.676(j)

The provisions of 40 CFR 60 Subpart A – General Provisions, which are incorporated as 326 IAC 12-1-1, apply to the facility described in this section except when otherwise specified in 40 CFR 60 Subpart OOO.

- (c) The two (2) 18,000 gallon #2 fuel storage tanks (ID # 16) and the one (1) 500 gallon storage tank are not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) “Standards of Performance for Volatile Organic Liquid Storage Vessels”. The storage tanks each have capacities less than 75 cubic meters (m³) (19,813 gallons), therefore, pursuant to 40 CFR 60.110b(a), they are not subject to this rule.
- (d) Storage Tanks (ID # 12A, 12B and 12C) are not subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.110, Subpart Kb) “Standards of Performance for Volatile Organic Liquid Storage Vessels”. The storage tanks each have capacities of greater than 75 m³ (19,813 gallons) but less than 151 m³ (39,890 gallons) and maximum true vapor pressures of less than 15.0 kPa. Therefore, pursuant to 40 CFR 60.110b(b), these tanks are exempt from this rule.
- (e) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 61) applicable to this source.

- (f) The requirements of 40 CFR Part 64, Compliance Assurance Monitoring, are not applicable to this source. Generally, such requirements apply to a Part 70 source that involves a pollutant-specific emissions unit (PSEU), as defined in 40 CFR 64.1, which meets the following criteria:
- (1) The unit is subject to an emission limitation or standard for an applicable regulated air pollutant;
 - (2) The unit uses a control device as defined in 40 CFR 64.1 to comply with that emission limitation or standard; and
 - (3) The unit has a potential to emit before controls equal to or greater than the applicable Part 70 major source threshold for the regulated pollutant.

As a FESOP source, this source has accepted federally enforceable limits such that the requirements of 326 IAC 2-7 (Part 70) do not apply. Therefore, the requirements of 40 CFR 64, Compliance Assurance Monitoring, are not applicable

State Rule Applicability – Entire Source

326 IAC 2-1.1-5 (Nonattainment NSR)

Vanderburgh County has been designated as non-attainment for PM 2.5 in 70 FR 943 dated January 5, 2005. According to the April 5, 2005 EPA memo titled “Implementation of New Source Review Requirements in PM2.5 Nonattainment Areas” authored by Steve Page, Director of OAQPS, until EPA promulgates the PM 2.5 major NSR regulations, states should assume that a major stationary source’s PM10 emissions represent PM2.5 emissions. IDEM will use the PM10 nonattainment major NSR program as a surrogate to address the requirements of nonattainment major NSR for the PM2.5 NAAQS. A major source in a nonattainment area as a source that emits or has the potential to emit 100 tpy of any regulated pollutant. J.H. Rudolph & Company Inc. has a limited potential to emit of PM10 below 100 tpy. Therefore, assuming that PM10 emissions represent PM2.5 emissions, Nonattainment NSR does not apply.

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

Pursuant to 326 IAC 2-2, this source, constructed in 1990, after the applicability date of August 1977, is not one of the 28 listed source categories. As shown in the Potential to Emit After Issuance table, on page 5 of 16 of this TSD, the allowable emissions of all regulated pollutants, except PM, are less than 100 tons per year after application of all federally enforceable emission limits. PM emissions are limited to less than 250 tons per year. Particulate matter emissions from the aggregate dryer and mixer shall not exceed 0.219 pound PM per ton of asphalt mix based on an annual limited throughput of 2,000,000 tons of asphalt mix per year. This is equivalent to 218.78 tons of PM per year from the aggregate drying process. Particulate matter emissions from the magnetite drying process shall not exceed 0.04 pound PM per ton of asphalt mix based on a maximum capacity of 50,000 tons of magnetite processed per year. This is equivalent to 1 ton PM per year from the magnetite drying process. The source wide PM emissions will be limited to less than 250 tons per year. VOC, SO₂, NO_x and PM-10 emissions shall be limited to less than 100 tpy as described under the FESOP section below. Therefore, the requirements of 326 IAC 2-7 (Part 70), and 326 IAC 2-2 (PSD) are not applicable.

326 IAC 2-6 (Emission Reporting)

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

326 IAC 2-8 (FESOP)

This source is subject to 326 IAC 2-8-4 (FESOP). Pursuant to this rule, the following limits shall apply:

- (a) The annual throughput to the aggregate dryer shall be limited to 2,000,000 tons of asphalt per twelve (12) consecutive month period, with compliance determined at the end of each month. This limit is required to limit the source's emissions of all regulated pollutants, except PM, to less than 100 tons per year. PM emissions are limited to less than 250 tons per year. This will also limit the total HAP emissions to less than 25 tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70), and 326 IAC 2-2 (PSD) are not applicable.
- (b) The annual throughput to the magnetite drying process shall be limited to 50,000 tons of magnetite processed per twelve (12) consecutive month period, with compliance determined at the end of each month. This limit is required to limit the source's emissions of all regulated pollutants, except PM, to less than 100 tons per year. PM emissions are limited to less than 250 tons per year. This will also limit the total HAP emissions to less than 25 tons per year. Therefore, the requirements of 326 IAC 2-7 (Part 70), and 326 IAC 2-2 (PSD) are not applicable.
- (c) The input of No. 4 fuel oil with a maximum sulfur content of 1.0% and No. 4 fuel oil equivalents to the 116 MMBtu per hour burner for the aggregate dryer shall be limited to 1,331,926 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

For purposes of determining compliance based on SO₂ emissions (See calculations within Appendix A pages Nos. 7 and 8 of 15), the following shall apply:

- (1) every million cubic feet (MMCF) of natural gas burned shall be equivalent to 4.0 gallons of No. 4 fuel oil based on SO₂ emissions, such that the total input of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified;
- (2) every 1,000 gallons of liquefied petroleum gas (butane) burned in the aggregate dryer burner shall be equivalent to 0.006 gallons of No. 4 fuel oil based on SO₂ emissions such that the total gallons of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified;
- (3) every 1,000 gallons of No. 2 distillate oil burned in the aggregate dryer burner shall be equivalent to 512.3 gallons of No. 4 fuel oil based on SO₂ emissions and a maximum No. 2 distillate oil sulfur content of 0.5% such that the total gallons of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified; and
- (4) every 1,000 gallons of waste oil (No. 4) burned in the aggregate dryer burner shall be equivalent to 686.0 gallons of No. 4 fuel oil based on SO₂ emissions and a maximum waste oil sulfur content of 0.7 % such that the total gallons of No. 4 fuel oil and No. 4 fuel oil equivalent input does not exceed the limit specified.

These usage limits are required to limit the source's potential SO₂ and NO_x emissions to less than 100 tons per year. The limit will render the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) not applicable.

- (d) The following sulfur content limits shall apply:
- (1) the sulfur content of No. 4 fuel oil shall not exceed 1.0% by weight; and
 - (2) the sulfur content of waste oil (No. 4) shall not exceed 0.7% by weight.

These usage limits are required to limit the source's potential to emit sulfur dioxide (SO₂) to less than 100 tons per twelve (12) consecutive month period. Therefore, the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) will not apply.

- (e) The input of Liquefied Petroleum Gas (LPG) and LPG equivalents to the 116 MMBtu per hour burner for the aggregate dryer shall be limited to 9,513,760 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

For purposes of determining compliance based on NO_x emissions (See calculations within Appendix A page Nos. 7 and 8 of 15), the following shall apply:

- (1) every million cubic feet (MMCF) of natural gas burned in the aggregate dryer burner shall be equivalent to 9,047 gallons of LPG based on NO_x emissions such that the total gallons of LPG and LPG equivalent input does not exceed the limit specified;
- (2) every 1,000 gallons of No. 2 fuel oil burned in the aggregate dryer burner shall be equivalent to 1,143 gallons of LPG based on NO_x emissions such that the total gallons of LPG and LPG equivalent input does not exceed the limit specified;
- (3) every 1,000 gallons of No. 4 fuel oil burned in the aggregate dryer burner shall be equivalent to 2,238 gallons of LPG based on NO_x emissions such that the total gallons of LPG and LPG equivalent input does not exceed the limit specified;
- (4) every 1,000 gallons of waste oil (No. 4) burned in the aggregate dryer burner shall be equivalent to 905 gallons of LPG based on NO_x emissions such that the total gallons of LPG and LPG equivalent input does not exceed the limit specified;

These usage limits are required to limit the source's potential NO_x emissions to less than 100 tons per year. The limit will render the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) not applicable.

- (f) The VOC solvent used as diluent in the liquid binder used in cold mix asphalt production from the plant shall be limited such that no more than 48.9 tons of VOC emissions emitted per twelve (12) consecutive months. This shall be achieved by limiting the total VOC solvent of any one selected binder to not exceed the stated limit for that binder during the last twelve (12) months. When more than one binder is used, the formula below must be applied so that the total VOC emitted does not exceed 48.9 tons per twelve (12) consecutive month period.

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

- (1) Cut back asphalt rapid cure, containing a maximum of 25.3% of the liquid binder by weight of VOC solvent and 95% 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 25.9% of the liquid binder of VOC solvent and 2.5% by weight of the VOC solvent evaporating

The liquid binder used in cold mix asphalt production shall be limited as follows:

- (1) Cutback asphalt rapid cure liquid binder usage shall not exceed 51.47 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (2) Cutback asphalt medium cure liquid binder usage shall not exceed 69.86 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (3) Cutback asphalt slow cure liquid binder usage shall not exceed 195.60 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (4) Emulsified asphalt with solvent liquid binder usage shall not exceed 105.39 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (5) Other asphalt with solvent liquid binder shall not exceed 1,955.97 tons of VOC solvent per twelve (12) consecutive month period rolled on a monthly basis.
- (6) The VOC solvent allotments in subpart (b)(1) through (b)(5) of this condition shall be adjusted when more than one type of binder is used per twelve (12) month consecutive period rolled on a monthly basis. 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 ratio listed in the table that follows.

$$\frac{\text{Tons of solvent contained in binder}}{\text{Adjustment ratio}} = \text{tons of VOC emitted}$$

Type of binder	tons VOC solvent	adjustment ratio	tons VOC emitted
cutback asphalt rapid cure		1	
cutback asphalt medium cure		1.36	
cutback asphalt slow cure		3.8	
emulsified asphalt		2.04	
other asphalt		38	

The equivalent total tons of VOC of the combined liquid binders shall be less than 48.9 tons per twelve (12) consecutive month period with compliance determined at the end of each month. Therefore, the requirements of 326 IAC 2-7 (Part 70) and 327 IAC 2-2 (PSD) do not apply.

- (g) PM-10 emissions from the aggregate mixing and drying operation shall be limited to 0.081 pounds per ton of asphalt produced based on a limited annual throughput of 2,000,000 tons per year. The source will comply with the PM-10 emission limit by utilizing a baghouse for controlling PM-10 emissions from the aggregate dryer to less than 0.081 pounds per ton of asphalt produced. Operation of the baghouse is required at all times and shall ensure compliance with this limit. Compliance with this limit shall limit the source's potential to emit of PM-10 to less than 100 tons per twelve (12) consecutive month period. Therefore, the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) are not applicable.
- (h) PM-10 emissions from the magnetite drying shall be limited to 0.04 pounds per ton of magnetite, based on a maximum capacity of 50,000 tons of magnetite per year. The source will comply with the PM-10 emission limit by utilizing a baghouse for controlling PM-10 emissions from the magnetite drying process. Operation of the baghouse is required at all times and shall ensure compliance with this limit. Compliance with this limit shall limit the source's potential to emit of PM-10 to less than 100 tons per twelve (12) consecutive month period. Therefore, the requirements of 326 IAC 2-7 (Part 70) and 326 IAC 2-2 (PSD) are not applicable.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2(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 the permit:

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

326 IAC 2-4.1-1 (New Source Toxics Control)

Pursuant to 326 IAC 2-4.1-1 (New Source Toxics Control), any new process or production unit, which in and of itself emits or has the PTE 10 tons per year of any HAP or 25 tons per year of the combination of HAPs, and is constructed or reconstructed after July 27, 1997, must be controlled using technologies consistent with Maximum Achievable Control Technology (MACT). This source has limited single HAP and total HAP emissions of less than 10 and 25 tons per year, respectively, therefore, this rule does not apply.

326 IAC 6-4 (Fugitive Dust Emissions)

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).

326 IAC 6-5 (Fugitive Particulate Matter Emissions Limitations)

This source is subject to 326 IAC 6-5, for fugitive particulate matter emissions. Pursuant to the rule, fugitive particulate matter emissions shall be controlled according to the dust control plans submitted on March 21, 1996 and August 25, 2006. The source shall continue to comply with all the dust abatement measures of the dust control plan which consists of the following:

- (a) Fugitive particulate matter emissions from plant roadways, parking lots and yards shall be controlled by one of the following methods:
 - (1) Application of water and/or water-dust control material solutions.
 - (2) Sweeping between watering.
 - (3) Limiting vehicular speed to 10 miles per hour.
- (b) Fugitive particulate matter emissions from conveying/handling operations shall be controlled by minimizing all drop distances.
- (c) Fugitive particulate matter emissions from storage piles shall be controlled by one of the following methods:
 - (1) Minimizing drop distances.
 - (3) Maintaining moisture content of materials above 1.5%.
- (d) Fugitive particulate matter emissions from plant RAP crusher shall be controlled by minimizing all drop distances

State Rule Applicability - Individual Facilities

326 IAC 7-2-1 (Sulfur Dioxide Reporting Requirements)

Pursuant to this rule, the source shall submit reports of calendar month average sulfur content, heat content, fuel consumption, and sulfur dioxide emission rate (pounds SO₂ per MMBtu), to the OAQ upon request.

326 IAC 7-1.1 (Sulfur Dioxide Emissions Limitations)

The 116 million British thermal units per hour burner for the aggregate drum mix dryer is subject to 326 IAC 7-1.1 because it has potential SO₂ emissions of greater than 25 tons per year (limited potential emissions are 99.89 tons per year). Pursuant to this rule, sulfur dioxide emissions from the dryer burner shall be limited to 0.5 pounds per MMBtu when using distillate oils, and shall be limited to 1.6 pounds per million BTU heat input for residual oil combustion. This is equivalent to the following maximum allowable sulfur contents of the following fuels: No. 2 fuel oil (0.5%), #4 waste oil (1.5%) and #4 fuel oil (1.5%), (see Appendix A: Emission Calculations, page 14 of 15). All fuels used by the aggregate dryer are in compliance with the aforementioned sulfur content limits, therefore the aggregate dryer is in compliance with this rule.

326 IAC 6.5-1-2 (Particulate Emissions Limitations)

The requirements of this rule apply to stationary asphalt plants constructed after June 11, 1973 and located in Vanderburgh County. Pursuant to 6.5-1-2(a), the particulate matter emissions from the aggregate mixing and drying operation are limited to 0.03 gr/dscf. This source is located in Vanderburgh County which is one of the specifically listed counties in 326 IAC 6.5-1-1(a). This limitation is more stringent than the additional applicable requirement of 0.04 grains per dry standard cubic foot pursuant to 326 IAC 12 (New Source Performance Standards) and 40 CFR 60.90 (Subpart I - Standards of Performance for Hot Mix Asphalt Facilities). Therefore, compliance with 326 IAC 6.5-1-2(a) will satisfy the grain loading limit of 0.04 gr/dscf pursuant to 326 IAC 12 and 40 CFR 60.90 to 60.93, Subpart I. The source will comply with this rule by using a baghouse to limit particulate matter emissions to less than 0.03 gr/dscf (see Appendix A, page 15 of 15, for detailed calculations).

The requirements of this rule apply to the magnetite drying operation. Pursuant to 326 IAC, 6.5-1-2(g), mineral aggregate operations that are enclosed shall limit particulate matter emissions to 0.03 gr/dscf. The magnetite drying process is enclosed and this source is located in Vanderburgh County which is one of the specifically listed counties in 326 IAC 6.5-1-1(a). The source will comply with this rule by using a baghouse to limit particulate matter emissions to less than 0.03 gr/dscf (see Appendix A, page 15 of 15, for detailed calculations).

The RAP crusher is not subject to the PM limit of 6.5-1-2. 326 IAC 6.5-1-2 (g) sets a PM limit for total enclosed mineral aggregate operations. The RAP crusher is not enclosed. Therefore, the rap crusher is not subject to the PM limit in 326 IAC 6.5-1-2 (g). 326 IAC 6.5-1-2 (g) does require all mineral aggregate operations to meet 326 IAC 5, 326 IAC 6-4, and 326 IAC 2. The RAP crusher can comply with IAC 5, 326 IAC 6-4, and 326 IAC 2, as described in these the "State Rule Applicability – Entire Source" section of this TSD.

326 IAC 6-3-2 (Process Operations)

The aggregate mixing and drying operation and magnetite drying operations are not subject to the requirements of 326 IAC 6-3-2. This rule does not apply if the limitation established in the rule is not consistent with applicable limitations in 40 CFR 60.90 (Subpart I - Standards of Performance for Hot Mix Asphalt Facilities) and 326 6.5-1-2. Since the applicable PM limits established by 326 6.5-1-2 and 40 CFR 60, Subpart I, are more stringent than the PM limits that would be established by 326 IAC 6-3-2, the limits pursuant to 326 IAC 6-3-2 do not apply (see Appendix A pages 15 of 15, for details).

The RAP crushing operation is subject to the requirements of 326 IAC 6-3-2. The particulate from the RAP crushing operation shall not exceed 55.44 pounds per hour when operating at a process weight of 150 tons per hour based on the following:

Interpolation and extrapolation of the data for the process weight rate in excess of sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$$E = 55.0 P^{0.11} - 40 \quad \text{where } E = \text{rate of emission in pounds per hour and} \\ P = \text{process weight rate in tons per hour}$$

326 IAC 8-7 (Specific VOC Reduction Requirements for Lake, Porter, Clark and Floyd Counties)

The requirements of this rule apply to stationary sources located in Lake, Porter, Clark and Floyd Counties that emit or have the potential to emit VOCs at levels equal to or greater than 25 tons per year in Lake and Porter Counties; 100 tons per year in Clark and Floyd Counties; and to any coating facility that emits or has the potential to emit 10 tons per year or greater in Lake, Porter, Clark or Floyd County. This source is located in Vanderburgh County. Therefore, this rule is not applicable to this source.

326 IAC 12-1 (New Source Performance Standards)

The hot mix asphalt plant is required to comply with the requirements of 40 CFR 60.90, Subpart I, Standards of Performance for Hot Mix Asphalt Facilities, as described in the "Federal Rule Applicability" section of this TSD. The RAP crusher is subject to 40 CFR 60.670, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants, as described in the "Federal Rule Applicability" section of this TSD.

326 IAC 8-5-2 (Asphalt paving rules)

This rule applies to any paving application constructed after January 1, 1980 located anywhere in the state. Pursuant to this rule, the source shall not 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 in the following purposes:

- (a) penetrating prime coating

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

This source uses stockpile mix containing 7% (wt) emulsified asphalt binder, which contains 1% (wt) fuel oil, for a net fuel oil content in the stockpile mix of 0.07% (wt), which equates to less than 7% (by vol). The operation is thus in compliance with 326 IAC 8-5-2.

326 IAC 10-1 (Nitrogen Oxides Control in Clark and Floyd Counties)

This source is located in Vanderburgh county which is not one of the specified counties and the potential to emit of NO_x has been limited to less than one hundred (100) tons per year; therefore, pursuant to 326 IAC 10-1-1(c), the requirements of 326 IAC 10-1 are not applicable.

Compliance Requirements

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less 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 requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions 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:

The plant has applicable compliance monitoring conditions as specified below:

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

- (f) The Permittee shall record the pressure drop across the baghouse used in conjunction with the aggregate dryer/mixer and magnetite drying process, once per day when the process is in operation and venting to the atmosphere. When for any one reading, the pressure drop across the baghouse is outside the normal range of 2.0 and 6.0 inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps in accordance with Section C- Response to Excursions or Exceedances. A pressure reading that is outside the above mentioned range is not a deviation from this permit. Failure to take response steps in accordance with Section C - Response to Excursions or Exceedances, shall be considered a deviation from this permit.

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

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

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

These monitoring conditions are necessary because the baghouses for the aggregate mixing and drying process and the magnetite drying process must operate properly to ensure compliance with 326 IAC 2-8 (FESOP), 326 IAC 12, 40 CFR 60.90, Subpart I, and to ensure compliance with the PM and PM10 emission limits so that the requirements of 326 IAC 2-2 (PSD) do not apply.

Conclusion

The operation of this operation of a stationary drum-mix asphalt plant shall be subject to the conditions of the FESOP 163-23182-03408.

Company Name:
Plant Location:
County:
Permit Reviewer:

J.H. Rudolph & Company, Inc.
3300 S. Green River Road, Evansville
Vanderburgh
Julia Handley/EVP

**** aggregate dryer burner****

The following calculations determine the amount of emissions created by natural gas combustion, from the aggregate dryer burner, based on 8,760 hours of operation and US EPA's AP-42, 5th Edition, Section 1.4 - Natural Gas Combustion, Tables 1.4-1 and 1.4-2.

Criteria Pollutant:	$\frac{116 \text{ MMBtu/hr} * 8,760 \text{ hr/yr}}{1000 \text{ Btu/cf} * 2,000 \text{ lb/ton}}$	* Ef (lb/MMcf) = (ton/yr)
P M:	1.9 lb/MMcf =	0.97 ton/yr
P M-10:	7.6 lb/MMcf =	3.86 ton/yr
S O 2:	0.6 lb/MMcf =	0.30 ton/yr
N O x:	190.0 lb/MMcf =	96.54 ton/yr
V O C:	5.5 lb/MMcf =	2.79 ton/yr
C O:	84.0 lb/MMcf =	42.68 ton/yr

The following calculations determine the amount of emissions created by the combustion of liquified petroleum gas (butane) @ 0.01 (gr Sulfur/100 cf gas), from the aggregate dryer, based on 8,760 hours of use and US EPA's AP-42,5th Edition, Section 1.5 - Liquified Petroleum Gas Combustion, Table 1.5-2.

Criteria Pollutant:	$\frac{116 \text{ MMBtu/hr} * 8,760 \text{ hr/yr}}{102,000 \text{ Btu/gal} * 2,000 \text{ lb/ton}}$	* Ef (lb/1,000 gal) = (ton/yr)
P M:	0.6 lb/1000 gal =	2.99 ton/yr*
P M-10:	0.6 lb/1000 gal =	2.99 ton/yr*
S O 2:	9.00E-04 lb/1000 gal =	4.48E-03 ton/yr
N O x:	21.0 lb/1000 gal =	104.60 ton/yr
V O C:	0.60 lb/1000 gal =	2.99 ton/yr
C O:	3.6 lb/1000 gal =	17.93 ton/yr

*No differentiation made between PM and PM-10

The following calculations determine the amount of emissions created by the combustion of # 2 distillate fuel oil @ 0.5 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-2, and 1.3-3.

Criteria Pollutant:	$\frac{116 \text{ MMBtu/hr} * 8,760 \text{ hr/yr}}{139,000 \text{ Btu/gal} * 2,000 \text{ lb/ton}}$	* Ef (lb/1,000 gal) = (ton/yr)
P M:	2.0 lb/1000 gal =	7.31 ton/yr
P M-10:	3.3 lb/1000 gal =	12.06 ton/yr
S O 2:	76.8 lb/1000 gal =	280.88 ton/yr
N O x:	24.0 lb/1000 gal =	87.73 ton/yr
V O C:	0.20 lb/1000 gal =	0.73 ton/yr
C O:	5.0 lb/1000 gal =	18.28 ton/yr

The following calculations determine the amount of emissions created by the combustion of # 4 fuel oil @ 1.00 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.3-1, 1.3-2, and 1.3-3.

Criteria Pollutant:	$\frac{116 \text{ MMBtu/hr} * 8,760 \text{ hr/yr}}{138,000 \text{ Btu/gal} * 2,000 \text{ lb/ton}}$	* Ef (lb/1,000 gal) = (ton/yr)
P M:	7.0 lb/1000 gal =	25.77 ton/yr
P M-10:	8.5 lb/1000 gal =	31.29 ton/yr
S O 2:	150.0 lb/1000 gal =	552.26 ton/yr
N O x:	47.0 lb/1000 gal =	173.04 ton/yr
V O C:	0.20 lb/1000 gal =	0.74 ton/yr
C O:	5.0 lb/1000 gal =	18.41 ton/yr

The following calculations determine the amount of emissions created by the combustion of re-refined waste oil

@ 0.70 % sulfur,
@ 0.50 % ash, and
@ 0.001 %Cl, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.11 - Waste Oil Combustion, Tables 1.11-1, 1.11-2, , 1.11-3, and 1.11-4.

Criteria Pollutant: $\frac{116 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr}}{140,000 \text{ Btu/gal} \times 2,000 \text{ lb/ton}}$ * Ef (lb/1,000 gal) = (ton/yr)

P M:	32.0 lb/1000 gal =	116.13 ton/yr
P M-10:	25.5 lb/1000 gal =	92.54 ton/yr
S O 2:	102.9 lb/1000 gal =	373.44 ton/yr
N O x:	19.0 lb/1000 gal =	68.95 ton/yr
V O C:	1.00 lb/1000 gal =	3.63 ton/yr
C O:	5.0 lb/1000 gal =	18.15 ton/yr
HCl:	0.1 lb/1000 gal =	0.24 ton/yr

The maximum potential emissions from the aggregate dryer burner due to fuel combustion are the following:

Criteria Pollutant:		Worst Case Fuel
P M:	116.13 ton/yr	Re-refined Waste Oil
P M-10:	92.54 ton/yr	Re-refined Waste Oil
S O 2:	552.26 ton/yr	Fuel Oil No. 4
N O x:	173.04 ton/yr	Fuel Oil No. 4
V O C:	3.63 ton/yr	Re-refined Waste Oil
C O:	42.68 ton/yr	Natural Gas
HCl:	0.24 ton/yr	Re-refined Waste Oil

****hot oil heater****

The following calculations determine the amount of emissions created by natural gas combustion, from hot oil heating, based on 8,760 hours of operation and US EPA's AP-42, 5th Edition, Section 1.4 - Natural Gas Combustion, Tables 1.4-1, 1.4-2, and 1.4-3.

Criteria Pollutant: $\frac{2.1 \text{ MMBtu/hr} \times 8,760 \text{ hr/yr}}{1000 \text{ Btu/cf} \times 2,000 \text{ lb/ton}}$ * Ef (lb/MMcf) = (ton/yr)

P M:	1.9 lb/MMcf =	0.02 ton/yr
P M-10:	7.6 lb/MMcf =	0.07 ton/yr
S O 2:	0.6 lb/MMcf =	0.01 ton/yr
N O x:	100.0 lb/MMcf =	0.01 ton/yr
V O C:	5.5 lb/MMcf =	0.05 ton/yr
C O:	84.0 lb/MMcf =	0.77 ton/yr

**** aggregate drying: drum-mix plant ****

The following calculations determine the amount of worst case emissions created by aggregate drying before controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Tables 11.1-5 and 11.1-10 for a drum mix dryer which has the capability of combusting either fuel oil, natural gas, or re-refined waste oil:

Pollutant: $\frac{\text{Ef} \times \text{lb/ton} \times 650}{2,000} \times 8,760 \text{ hr/yr}$

Criteria Pollutant:

P M:	28 lb/ton =	79,716.00 ton/yr
P M-10:	6.5 lb/ton =	18,505.50 ton/yr
VOC:	0.032 lb/ton =	91.10 ton/yr
Pb:	0.0000033 lb/ton =	0.01 ton/yr
HCl:	0.00021 lb/ton =	0.60 ton/yr

**** magnetite drying: drum-mix plant ****

The following calculations determine the amount of worst case emissions created by magnetite drying before controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.24 - Metallic Minerals Processing, Table 11.24-2 for drying of high-moisture ore:

Pollutant: $\frac{\text{Ef} \times \text{lb/ton} \times 5.707}{2,000} \times 8,760 \text{ hr/yr}$

Criteria Pollutant:

P M:	19.7 lb/ton =	492.43 ton/yr
P M-10:	12 lb/ton =	299.96 ton/yr

**** portable crusher ****

The following calculation determines the amount of PM10 emissions created by the RAP crusher, based on a maximum throughput of 150 tons/hr, 8760 hours of operation and AP-42, Table 11.19.2-2.

Pollutant:	Ef	lb/ton x	150	ton/hr x	8,760 hr/yr
	PM:	0.0054 lb/ton =		3.55	ton/yr
	PM-10	0.0024 lb/ton =		1.58	ton/yr

**** conveying / handling ****

The following calculations determine the amount of emissions created by material handling, based on 8,760 hours of use and AP-42, Section 13.2.4, Equation 1. The emission factor for calculating PM emissions is calculated as follows:

PM-10 Emissions:

$$E = k(0.0032)^2 \left(\frac{U}{5} \right)^{1.3} \left(\frac{M}{2} \right)^{1.4}$$

$$= 5.23E-03 \text{ lb PM-10/ton}$$

$$= 1.11E-02 \text{ lb PM/ton}$$

where k = 0.35 (particle size multiplier for <10um)
0.74 (particle size multiplier for <30um)
U = 12 mph mean wind speed
M = 1.5 material moisture content (%)

$$\frac{650 \text{ ton/hr} \times 8,760 \text{ hrs/yr} \times \text{Ef (lb/ton of material)}}{2,000 \text{ lb/ton}} = (\text{ton/yr})$$

Total PM 10 Emissions: 14.89 tons/yr
Total PM Emissions: 31.47 tons/yr

**** paved roads ****

The following calculations determine the amount of emissions created by vehicle traffic on paved roads, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 13.2.1.

$$9 \text{ trip/hr} \times 0.28 \text{ miles/roundtrip} \times 8,760 \text{ hr/yr} = 22,391 \text{ mile/yr}$$

$$E_f = k(sL/2)^{0.65} (W/3)^{1.5} - C$$

$$= 0.69 \text{ lb PM-10/mile}$$

$$= 3.53 \text{ lb PM/mile}$$

where k = 0.016 (particle size multiplier for PM-10) (k=0.082 for PM-30 or TSP)
sL = 8.2 road surface silt loading (g/m²)
W = 20.0 tons average weight of all vehicles traveling the road
C = 0.00047 emission factor for 1980's vehicle exhaust, brake wear and tire wear for PM and PM10

$$\text{PM-10: } \frac{0.69 \text{ lb/mi} \times 22,391 \text{ mi/yr}}{2000 \text{ lb/ton}} = 7.71 \text{ tons/yr}$$

$$\text{PM: } \frac{3.53 \text{ lb/mi} \times 22,391 \text{ mi/yr}}{2000 \text{ lb/ton}} = 39.53 \text{ tons/yr}$$

Total PM Emissions From Paved Roads = 39.53 tons/yr
Total PM-10 Emissions From Paved Roads = 7.71 tons/yr

**** storage ****

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.

Material	Silt Content (wt %)	Pile Size (acres)	Storage Capacity (tons)	PM Emissions tons/yr	PM-10 Emissions tons/yr
Sand	1.1	0.49	15,000	0.11	0.04
Stone	1.1	1.160	30,000	0.27	0.09
RAP	0.8	0.470	15,000	0.079	0.03
Total				0.46	0.16

Sample Calculation:

$$\text{Emissions (storage)} = \frac{E_f \times (\text{Pile Size in acres}) \times (365 \text{ day/yr})}{(2,000 \text{ lb/ton})}$$

$$E_f = 1.7 \left(\frac{s}{1.5} \right)^{0.35} \frac{(365-p)}{235} \left(\frac{f}{15} \right)$$

$$= 1.27 \text{ lb/acre/day}$$

where s = 1.1 % silt

p = 125 days of rain greater than or equal to 0.01 inches
f = 15 % of wind greater than or equal to 12 mph

**** load-out ****

The following calculations determine the amount of emissions created by plant load-out, based on 8,760 hours of use and USEPA's AP-42, Section 11.1, Tables 11.1-14 through 11.1-16.

$$\begin{aligned} \text{PM/PM}_{10} \text{ Ef} &= 0.000181 + 0.00141(-V)e^{((0.0251)(T+460)-20.43)} \\ &= 5.22\text{E-}04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

PM/PM₁₀ = 1.49 tons/yr
Total PAH HAPs = 0.09 tons/yr (5.93% of Organic PM emissions per AP-42)*
Phenol = 0.02 tons/yr (1.18% of Organic PM emissions per AP-42)*

$$\begin{aligned} \text{TOC Ef} &= 0.0172(-V)e^{((0.0251)(T+460)-20.43)} \\ &= 4.16\text{E-}03 \text{ lb TOC per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

VOC = 11.13 tons/yr (94% of TOC emissions per AP-42)
Worst Case Single HAP (Xylenes) = 0.06 tons/yr (0.49% of TOC emissions per AP-42)
Total Volatile HAPs = 0.18 tons/yr (1.5% of TOC emissions per AP-42)

$$\begin{aligned} \text{CO Ef} &= 0.00558(-V)e^{((0.0251)(T+460)-20.43)} \\ &= 1.35\text{E-}03 \text{ lb CO per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

CO = 3.84 tons/yr

**** silo filling ****

The following calculations determine the amount of emissions created by silo filling, based on 8,760 hours of use and USEPA's AP-42, Section 11.1, Tables 11.1-14 through 11.1-16.

$$\begin{aligned} \text{PM/PM}_{10} \text{ Ef} &= 0.000332 + 0.00105(-V)e^{((0.0251)(T+460)-20.43)} \\ &= 5.86\text{E-}04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

PM/PM₁₀ = 1.67 tons/yr
Total PAH HAPs = 0.11 tons/yr (11.40% of Organic PM emissions per AP-42)*

$$\begin{aligned} \text{TOC Ef} &= 0.0504(-V)e^{((0.0251)(T+460)-20.43)} \\ &= 1.22\text{E-}02 \text{ lb TOC per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

VOC = 34.70 tons/yr (100% of TOC emissions per AP-42)
Worst Case Single HAP (Formaldehyde) = 0.24 tons/yr (0.69% of TOC emissions per AP-42)
Total Volatile HAPs = 0.45 tons/yr (1.3% of TOC emissions per AP-42)

$$\begin{aligned} \text{CO Ef} &= 0.00488(-V)e^{((0.0251)(T+460)-20.43)} \\ &= 1.18\text{E-}03 \text{ lb CO per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

CO = 3.36 tons/yr

* Organic PM emissions are calculated using the equation from Table 11.1-14.

$$\begin{aligned} \text{Organic PM Ef} &= 0.00141(-V)e^{((0.0251)(T+460)-20.43)} \\ &= 3.41\text{E-}04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

****cold mix VOC storage emissions ****

I. Emulsified Asphalt with Solvent.

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing emulsified asphalt of which 46.4% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.0696 weight percent of Solvent in stockpile***
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **3,963.02 tons/yr**

* Weight percent flash-off is based on use of emulsified asphalt containing a maximum of 15% of the liquid binder by weight of VOC solvent and 46.4% by weight of VOC solvent evaporating.

II. Cut back asphalt rapid cure

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing cut back asphalt rapid cure of which 95% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.24035 weight percent flash-off of cold mix**
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **13,685.53 tons/yr**

* Weight percent flash-off is based on use of gelled asphalt containing a maximum of 25.3% of the liquid binder by weight of VOC solvent and 95% by weight of VOC solvent evaporating.

III. Cut back asphalt medium cure

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing cut back asphalt medium cure of which 70% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.2002 weight percent flash-off of cold mix**
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **11,399.39 tons/yr**

* Weight percent flash-off is based on use of gelled asphalt containing a maximum of 28.6% of the liquid binder by weight of VOC solvent and 70% by weight of VOC solvent evaporating.

IV. Cut back asphalt slow cure

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing cut back asphalt slow cure of which 25% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.05 weight percent flash-off of cold mix**
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **2,847.00 tons/yr**

* Weight percent flash-off is based on use of gelled asphalt containing a maximum of 20% of the liquid binder by weight of VOC solvent and 25% by weight of VOC solvent evaporating.

V. Other asphalt with solvent binder

The following calculations determine the amount of VOC emissions created by the application of stockpile mix containing cut back asphalt slow cure of which 25% by weight of VOC is evaporated, based on 8,760 hours of operation.

VOC Emission Factor = **0.006475 weight percent flash-off of cold mix**
Potential Throughput (tons/yr) = **5,694,000 tons/yr stockpile mix**

Potential VOC Emissions (tons/yr) = Potential Throughput (tons/yr) * VOC Emission Factor (wt% flash-off)
Potential VOC Emissions = **368.69 tons/yr**

* Weight percent flash-off is based on use of gelled asphalt containing a maximum of 25.9% of the liquid binder by weight of VOC solvent and 2.5% by weight of VOC solvent evaporating.

Worst Case from Cold Mix VOC Storage = 13,685.53 tons/yr

** summary of source emissions before controls **	
Criteria Pollutants:	
	P M: 80,402.76 ton/yr
	P M-10: 18,925.56 ton/yr
	S O 2: 552.27 ton/yr
	N O x: 173.05 ton/yr
	V O C: 13,826.14 ton/yr
	C O: 50.65 ton/yr
	HCl: 0.8 ton/yr

** source emissions after controls **

In order to qualify for the FESOP program, this source must limit SO2 and NOx emissions to 99.9 tons per year. Consequently, NOx and SO2 emissions from the aggregate dryer must be limited as follows:

NOx limited emissions=1.9 tons per year	0.01	= tons per year from the hot oil heater	99.89	tons per year
SO2 limited emissions=1.9 tons per year	0.01	= tons per year from the hot oil heater	99.89	tons per year

* Emissions of PM and PM-10 from aggregate drying operations are controlled with a 99.924 % control efficiency.

The following calculations determine the amount of emissions created by natural gas combustion, from the aggregate dryer, based on a maximum fuel usage of 1,016.16 MMcf

Criteria Pollutant:	<u>1,016.16 MMcf/yr</u>	* Ef (lb/MMcf) = (ton/yr)	
	2,000 lb/ton		
P M:	1.9 lb/MMcf =	7.34E-04 ton/yr *	
P M-10:	7.6 lb/MMcf =	2.93E-03 ton/yr *	
S O 2:	0.6 lb/MMcf =	0.30 ton/yr	1034.526316
N O x:	190.0 lb/MMcf =	96.54 ton/yr	
V O C:	5.5 lb/MMcf =	2.79 ton/yr	
C O:	84.0 lb/MMcf =	42.68 ton/yr	

The following calculations determine the amount of emissions created by the combustion of liquified petroleum gas @ 0.01 % sulfur (gr/100 cf gas), from the aggregate dryer, based on a fuel usage limitation of 9,513,760 gal/yr:

Criteria Pollutant:	<u>9,514 Kgal/yr:</u>	* Ef (lb/1,000 gal) = (ton/yr)	
	2,000 lb/ton		
P M:	0.6 lb/1000 gal =	2.17E-03 ton/yr *	
P M-10:	0.6 lb/1000 gal =	2.17E-03 ton/yr *	
S O 2:	9.00E-04 lb/1000 gal =	4.28E-03 ton/yr	
N O x:	21.0 lb/1000 gal =	99.89 ton/yr	
V O C:	0.60 lb/1000 gal =	2.85 ton/yr	
C O:	3.6 lb/1000 gal =	17.12 ton/yr	

*No differentiation made between Pm and PM-10

The following calculations determine the amount of emissions created by the combustion of No. 2 distillate fuel oil @ 0.5 % sulfur, from the aggregate dryer burner, based on a fuel usage limitation of 2,600,012 gal/yr:

Criteria Pollutant:	<u>2,600 Kgal/yr:</u>	* Ef (lb/1,000 gal) = (ton/yr)	
	2,000 lb/ton		
P M:	2.0 lb/1000 gal =	1.98E-03 ton/yr	2500957.234
P M-10:	3.3 lb/1000 gal =	3.26E-03 ton/yr	
S O 2:	76.8 lb/1000 gal =	99.89 ton/yr	
N O x:	24.0 lb/1000 gal =	31.20 ton/yr	
V O C:	0.20 lb/1000 gal =	0.26 ton/yr	
C O:	5.0 lb/1000 gal =	6.50 ton/yr	

The following calculations determine the amount of emissions created by the combustion of No. 4 fuel oil @ 1.00 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and based on a fuel usage limitation of 1,331,926 gal/yr:

Criteria Pollutant:	<u>1,332</u> Kgal/yr:	* Ef (lb/1,000 gal) = (ton/yr)
	2,000 lb/ton	
P M:	7.0 lb/1000 gal =	3.54E-03 ton/yr
P M-10:	8.5 lb/1000 gal =	4.30E-03 ton/yr
S O 2:	150.0 lb/1000 gal =	99.89 ton/yr
N O x:	47.0 lb/1000 gal =	31.30 ton/yr
V O C:	0.20 lb/1000 gal =	0.13 ton/yr
C O:	5.0 lb/1000 gal =	3.33 ton/yr

The following calculations determine the amount of emissions created by the combustion of re-refined waste oil @ 0.70 % sulfur, @ 0.50 % ash, and @ 0.001 %Cl, from the aggregate dryer burner, based on 8,760 hours of use and based on a fuel usage limitation of 1,941,584 gal/yr:

Criteria Pollutant:	<u>1,942</u> Kgal/yr:	* Ef (lb/1,000 gal) = (ton/yr)
	2,000 lb/ton	
P M:	32.0 lb/1000 gal =	2.36E-02 ton/yr
P M-10:	25.5 lb/1000 gal =	1.88E-02 ton/yr
S O 2:	102.9 lb/1000 gal =	99.89 ton/yr
N O x:	19.0 lb/1000 gal =	18.45 ton/yr
V O C:	1.00 lb/1000 gal =	0.97 ton/yr
C O:	5.0 lb/1000 gal =	4.85 ton/yr
HCl:	0.1 lb/1000 gal =	0.06 ton/yr

Criteria Pollutant:		Worst Case Fuel
P M:	2.36E-02 ton/yr *	Re-refined Waste Oil
P M-10:	1.88E-02 ton/yr *	Re-refined Waste Oil
S O 2:	99.89 ton/yr	Re-refined Waste Oil/No. 4 & No. 2 fuel oils
N O x:	99.89 ton/yr	Liquified Petroleum gas
V O C:	2.85 ton/yr	Liquified Petroleum gas
C O:	42.68 ton/yr	Natural Gas
HCl:	0.06 ton/yr	Re-refined Waste Oil

**** Fuel Usage Limitations ****

Fuel: Natural Gas

A fuel usage limitation for natural gas is not needed because the potential to emit of each criteria pollutant is less than 100 tons per year.

Fuel: #2 distillate oil

99.89 <u>tons SO2/year limited</u>	x	7310.50	<u>Kgals</u>
280.88 tons SO2/year potential			year potential
		=	2600.012 <u>Kgals</u>
			year limited

Fuel: LPG

99.89 <u>tons NOx/year limited</u>	x	9962.35	<u>Kgals</u>
104.60 tons NOx/year potential			year potential
		=	9513.760 <u>Kgals</u>
			year limited

Fuel: #4 fuel oil

99.89 <u>tons SO2/year limited</u>	x	7363.48	<u>Kgals</u>
552.26 tons SO2/year potential			year potential
		=	1331.926 <u>Kgals</u>
			year limited

Fuel: Re-refined waste oil

99.89 <u>tons SO2/year limited</u>	x	7258.29	<u>Kgals</u>
373.44 tons SO2/year potential			year potential
		=	1941.584 <u>Kgals</u>
			year limited

**** Fuel Equivalence Limitations ****

Fuel: Natural Gas

Fuel equivalence limit for natural gas based on SO2 emissions from #4 fuel oil:

$$\frac{552.26 \text{ \#4 F.O. potential emissions (ton/yr)}}{7363.48 \text{ \#4 F.O. potential usage (kgal/yr)}} \quad / \quad \frac{0.30 \text{ n.g. potential emissions (ton/yr)}}{1016.16 \text{ n.g. potential usage (MMCFyr)}}$$

$$= \quad 250.000 \frac{\text{MMCF n.g. burn}}{\text{Kgal \#4 F.O. burned}} \quad \text{or} \quad 0.0040 \frac{\text{Kgal \#4 F.O. burned}}{\text{MMCF n.g. burned}}$$

Fuel equivalence limit for natural gas based on NOx emissions from LPG:

$$\frac{104.60 \text{ LPG potential emissions (ton/yr)}}{9962.35 \text{ LPG potential usage (kgal/yr)}} \quad / \quad \frac{96.54 \text{ n.g. potential emissions (ton/yr)}}{1016.16 \text{ n.g. potential usage (MMCFyr)}}$$

$$= \quad 0.111 \frac{\text{MMCF n.g. burn}}{\text{Kgal LPG burned}} \quad \text{or} \quad 9.0476 \frac{\text{Kgal LPG burned}}{\text{MMCF n.g. burned}}$$

Fuel: #2 distillate oil

Fuel equivalence limit for #2 fuel oil based on SO2 emissions from #4 fuel oil:

$$\frac{552.26 \text{ \#4 F.O. potential emissions (ton/yr)}}{7363.48 \text{ \#4 F.O. potential usage (kgal/yr)}} \quad / \quad \frac{280.88 \text{ \#2 F.O. potential emis. (ton/yr)}}{7310.50 \text{ \#2 F.O. potential usage (Kgal/yr)}}$$

$$= \quad 1.9521 \frac{\text{Kgal \#2 F.O. bu}}{\text{Kgal \#4 F.O. burned}} \quad \text{or} \quad 0.5123 \frac{\text{Kgal \#4 F.O. burned}}{\text{Kgal \#2 F.O. burned}}$$

Fuel equivalence limit for #2 distillate fuel oil based on NOx emissions from LPG:

$$\frac{104.60 \text{ LPG potential emissions (ton/yr)}}{9962.35 \text{ LPG potential usage (kgal/yr)}} \quad / \quad \frac{87.73 \text{ \#2 F.O. potential emissions (ton/yr)}}{7310.50 \text{ \#2 F.O. potential usage (kgal/yr)}}$$

$$= \quad 0.875 \frac{\text{Kgal \#2 F.O. bu}}{\text{Kgal LPG burned}} \quad \text{or} \quad 1.1429 \frac{\text{Kgal LPG burned}}{\text{Kgal \#2 F.O. burned}}$$

Fuel: LPG

Fuel equivalence limit for Liquefied Petroleum Gas based on SO2 emissions from #4 fuel oil:

$$\frac{552.26 \text{ \#4 F.O. potential emissions (ton/yr)}}{7363.48 \text{ \#4 F.O. potential usage (kgal/yr)}} \quad / \quad \frac{0.00 \text{ LPG potential emissions (ton/yr)}}{9962.35 \text{ LPG potential usage (kgal/yr)}}$$

$$= \quad 166666.667 \frac{\text{Kgal LPG burne}}{\text{Kgal \#4 F.O. burned}} \quad \text{or} \quad 0.000006 \frac{\text{Kgal \#4 F.O. burned}}{\text{Kgal LPG burned}}$$

Fuel: #4 fuel oil

Fuel equivalence limit for #4 fuel oil based on NOx emissions from LPG:

$$\frac{104.60 \text{ LPG potential emissions (ton/yr)}}{9962.35 \text{ LPG potential usage (kgal/yr)}} \quad / \quad \frac{173.04 \text{ \#4 F.O. potential emis. (ton/yr)}}{7363.48 \text{ \#4 F.O. potential usage (Kgal/yr)}}$$

$$= \quad 0.4468 \frac{\text{Kgal \#4 F.O. bu}}{\text{Kgal LPG burned}} \quad \text{or} \quad 2.2381 \frac{\text{Kgal LPG burned}}{\text{Kgal \#4 F.O. burned}}$$

Fuel: Re-refined waste oil

Fuel equivalence limit for re-refined waste oil based on SO2 emissions from #4 fuel oil:

$$\frac{552.26 \text{ \#4 F.O. potential emissions (ton/yr)}}{7363.48 \text{ \#4 F.O. potential usage (kgal/yr)}} \quad / \quad \frac{373.44 \text{ W.O. potential emis. (ton/yr)}}{7258.29 \text{ W.O. potential usage (Kgal/yr)}}$$

$$= \quad 1.4577 \frac{\text{Kgal W.O. burne}}{\text{Kgal \#4 F.O. burned}} \quad \text{or} \quad 0.6860 \frac{\text{Kgal \#4 F.O. burned}}{\text{Kgal W.O. burned}}$$

Fuel equivalence limit for re-refined waste oil based on NOx emissions from LPG:

$$\frac{104.60 \text{ LPG potential emissions (ton/yr)}}{9962.35 \text{ LPG potential usage (kgal/yr)}} \quad / \quad \frac{68.95 \text{ W.O. potential emis. (ton/yr)}}{7258.29 \text{ W.O. potential usage (Kgal/yr)}}$$

$$= \quad 1.1053 \frac{\text{Kgal W.O. burne}}{\text{Kgal LPG burned}} \quad \text{or} \quad 0.9048 \frac{\text{Kgal LPG burned}}{\text{Kgal W.O. burned}}$$

In order to qualify for the FESOP program, this source must limit VOC emissions to 99.9 tons per year. Consequently, the annual throughput shall be limited as follows:

Annual throughput limit = 2,000,000.00 tons asphalt/year

* Emissions of PM and PM-10 from drying operations are controlled with a 99.924 % control efficiency.

**** aggregate drying: drum-mix plant - Limited Throughput* ***

The following calculations determine the amount of worst case emissions created by aggregate drying after controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Tables 11.1-5 and 11.1-10 for a drum mix dryer which has the capability of combusting either fuel oil, natural gas, or re-refined waste oil:

Pollutant:	Ef	lb/ton x	2,000,000.00	ton/yr
			2,000	lb/ton
Criteria Pollutant:				
	P M:	28	lb/ton =	21.28 ton/yr
	P M-10:	6.5	lb/ton =	4.94 ton/yr
	VOC:	0.032	lb/ton =	32.00 ton/yr
	Pb:	0.0000033	lb/ton =	0.00 ton/yr
	HCl:	0.00021	lb/ton =	0.21 ton/yr

**** magnetite drying: drum-mix plant - controlled emissions* ***

The following calculations determine the amount of worst case emissions created by magnetite drying after controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.24 - Metallic Minerals Processing, Table 11.24-2 for drying of high-moisture ore:

Pollutant:	Ef	lb/ton x	5.71 ton/hr x	8760.00
			2000.00 lb/ton	
Pollutant:	Ef	lb/ton x	5.707	ton/hr x
			2,000	lb/ton
Criteria Pollutant:				
	P M:	19.7	lb/ton =	0.37 ton/yr
	P M-10:	12	lb/ton =	0.23 ton/yr

**** conveying / handling -Limited Throughput* ***

The following calculations determine the amount of emissions created by material handling, based on 8,760 hours of use and AP-42, Section 13.2.4, Equation 1. The emission factor for calculating PM emissions is calculated as follows:

PM-10 Emissions:

$$E = k \cdot (0.0032) \cdot \left(\frac{U}{5} \right)^{1.3} \cdot \left(\frac{M}{2} \right)^{1.4}$$

$$= 5.23E-03 \text{ lb PM-10/ton}$$

$$= 1.11E-02 \text{ lb PM/ton}$$

where k = 0.35 (particle size multiplier for <10um)
0.74 (particle size multiplier for <30um)

U = 12 mph mean wind speed
M = 1.5 material moisture content (%)

$$\frac{2,000,000.00 \text{ ton/yr} \cdot \text{Ef (lb/ton of material)}}{2,000 \text{ lb/ton}} = (\text{ton/yr})$$

Total PM 10 Emissions: 5.23 tons/yr
Total PM Emissions: 11.06 tons/yr

**** load-out - Limited Throughput ****

The following calculations determine the amount of emissions created by plant load-out, based on 8,760 hours of use and USEPA's AP-42, Section 11.1, Tables 11.1-14 through 11.1-16.

$$\begin{aligned} \text{PM/PM10 Ef} &= 0.000181 + 0.00141(-V)e((0.0251)(T+460)-20.43) \\ &= 5.22E-04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

PM/PM10 = 0.52 tons/yr
Total PAH HAPs = 0.03 tons/yr (5.93% of Organic PM emissions per AP-42)*
Phenol = 0.01 tons/yr (1.18% of Organic PM emissions per AP-42)*

$$\begin{aligned} \text{TOC Ef} &= 0.0172(-V)e((0.0251)(T+460)-20.43) \\ &= 4.16E-03 \text{ lb TOC per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

VOC = 3.91 tons/yr (94% of TOC emissions per AP-42)
Worst Case Single HAP (Xylenes) = 0.02 tons/yr (0.49% of TOC emissions per AP-42)
Total Volatile HAPs = 0.06 tons/yr (1.5% of TOC emissions per AP-42)

$$\begin{aligned} \text{CO Ef} &= 0.00558(-V)e((0.0251)(T+460)-20.43) \\ &= 1.35E-03 \text{ lb CO per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

CO = 1.35 tons/yr

**** silo filling - Limited Throughput****

The following calculations determine the amount of emissions created by silo filling, based on 8,760 hours of use and USEPA's AP-42, Section 11.1, Tables 11.1-14 through 11.1-16.

$$\begin{aligned} \text{PM/PM10 Ef} &= 0.000332 + 0.00105(-V)e((0.0251)(T+460)-20.43) \\ &= 5.86E-04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

PM/PM10 = 0.59 tons/yr
Total PAH HAPs = 0.04 tons/yr (11.40% of Organic PM emissions per AP-42)*

$$\begin{aligned} \text{TOC Ef} &= 0.0504(-V)e((0.0251)(T+460)-20.43) \\ &= 1.22E-02 \text{ lb TOC per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

VOC = 12.19 tons/yr (100% of TOC emissions per AP-42)
Worst Case Single HAP (Formaldehyde) = 0.08 tons/yr (0.69% of TOC emissions per AP-42)
Total Volatile HAPs = 0.16 tons/yr (1.3% of TOC emissions per AP-42)

$$\begin{aligned} \text{CO Ef} &= 0.00488(-V)e((0.0251)(T+460)-20.43) \\ &= 1.18E-03 \text{ lb CO per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

CO = 1.18 tons/yr

* Organic PM emissions are calculated using the equation from Table 11.1-14.

$$\begin{aligned} \text{Organic PM Ef} &= 0.00141(-V)e((0.0251)(T+460)-20.43) \\ &= 3.41E-04 \text{ lb PM or PM-10 per ton of asphalt mix produced} \\ \text{where } V &= -0.5 \text{ asphalt volatility (default value of -0.5 used per AP-42)} \\ T &= 325 \text{ hot mix asphalt} \end{aligned}$$

****cold mix VOC storage limitations ****

The following calculations determine the amount of VOC emissions created by the application of liquid binder for cold mix stockpiles, based on the source's use of cut back asphalt with solvent as the liquid binder type. Cut back asphalt with solvent is defined with the following properties:

Emulsified asphalt:

Maximum weight % of VOC solvent in binder 15.0%
Weight % VOC solvent in binder that evaporates: 46.4%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

Cut back asphalt rapid cure:

Maximum weight % of VOC solvent in binder 25.3%
Weight % VOC solvent in binder that evaporates: 95.0%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

Cut back asphalt medium cure:

Maximum weight % of VOC solvent in binder 28.6%
Weight % VOC solvent in binder that evaporates: 70.0%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

Cut back asphalt slow cure:

Maximum weight % of VOC solvent in binder 20.0%
Weight % VOC solvent in binder that evaporates: 25.0%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

Other asphalt with solvent binder:

Maximum weight % of VOC solvent in binder 25.9%
Weight % VOC solvent in binder that evaporates: 2.5%
Volume % of diluent allowed = 7% (per 326 IAC 8-5-2)

In order to qualify for the FESOP program, this source must limit VOC emissions to less than 99.90 tons per year. Deducting the VOC emitted from other activities, VOC solvent usage as diluent in the liquid binder used in the production of cold mix asphalt from the plant shall be limited as follows:

$$(99.90 \text{ tons VOC/yr} - 51.00 \text{ tons VOC/yr from other sources after controls} = \mathbf{48.90 \text{ tons of VOC emitted per year}}$$

This is equivalent to limiting the usage of cut back asphalt with solvent liquid binder to less than the following:

- 105.39 tons of VOC solvent per 12 consecutive month period for emulsified asphalt.
- 51.47 tons of VOC solvent per 12 consecutive month period for rapid cure cut back asphalt.
- 69.86 tons of VOC solvent per 12 consecutive month period for medium cure cut back asphalt.
- 195.60 tons of VOC solvent per 12 consecutive month period for slow cure cut back asphalt.
- 1955.97 tons of VOC solvent per 12 consecutive month period for other asphalt with solvent binder.

**** source emissions after controls ****

dryer burner combustion:		nonfugitive	
P M:	2.4E-02 ton/yr x		2.4E-02 ton/yr
P M-10:	1.9E-02 ton/yr x		1.9E-02 ton/yr
S O 2:	99.89 ton/yr x		99.89 ton/yr
N O x:	99.89 ton/yr x		99.89 ton/yr
V O C:	2.85 ton/yr x		2.85 ton/yr
C O:	42.68 ton/yr x		42.68 ton/yr
HCl:	0.06 ton/yr x		0.06 ton/yr
hot oil heater:		nonfugitive	
P M:	0.02 ton/yr x	100.00% emitted after controls =	0.02 ton/yr
P M-10:	0.07 ton/yr x	100.00% emitted after controls =	0.07 ton/yr
S O 2:	0.01 ton/yr x	100.00% emitted after controls =	0.01 ton/yr
N O x:	0.01 ton/yr x	100.00% emitted after controls =	0.01 ton/yr
VOC:	0.05 ton/yr x	100.00% emitted after controls =	0.05 ton/yr
C O:	0.77 ton/yr x	100.00% emitted after controls =	0.77 ton/yr
aggregate drying		nonfugitive	
P M:	21.28 ton/yr x		21.28 ton/yr
P M-10:	4.94 ton/yr x		4.94 ton/yr
VOC:	32.00 ton/yr x		32.00 ton/yr
Pb:	0.00 ton/yr x		0.00 ton/yr
HCl:	0.21 ton/yr x		0.21 ton/yr
magnetite drying		nonfugitive	
P M:	0.37 ton/yr x		0.37 ton/yr
P M-10:	0.23 ton/yr x		0.23 ton/yr
crusher		fugitive	
P M:	3.55 ton/yr x	100% emitted after controls =	3.55 ton/yr
P M-10:	1.58 ton/yr x	100% emitted after controls =	1.58 ton/yr
conveying/handling:		fugitive	
P M:	5.23 ton/yr x	50% emitted after controls =	2.61 ton/yr
P M-10:	11.06 ton/yr x	50% emitted after controls =	5.53 ton/yr
paved roads:		fugitive	
P M:	39.53 ton/yr x	50% emitted after controls =	19.76 ton/yr
P M-10:	7.71 ton/yr x	50% emitted after controls =	3.85 ton/yr
storage piles:		fugitive	
P M:	0.46 ton/yr x	50% emitted after controls =	0.23 ton/yr
P M-10:	0.16 ton/yr x	50% emitted after controls =	0.08 ton/yr
load-out & silo filling		fugitive	
P M:	1.11 ton/yr x	100% emitted after controls =	1.11 ton/yr
P M-10:	1.11 ton/yr x	100% emitted after controls =	1.11 ton/yr
VOC:	16.10 ton/yr x	100% emitted after controls =	16.10 ton/yr
CO:	2.53 ton/yr x	100% emitted after controls =	2.53 ton/yr
Cold mix storage:		fugitive	
VOC:	48.90 ton/yr x		48.90 ton/yr

** summary of source emissions after limitation and controls **			
Criteria Pollutant:	Non-Fugitive	Fugitive	Total
PM:	21.70 ton/yr	27.26 ton/yr	48.96 ton/yr
PM-10:	5.26 ton/yr	14.12 ton/yr	19.38 ton/yr
S O 2:	99.90 ton/yr	0.00 ton/yr	99.90 ton/yr
N O x:	99.90 ton/yr	0.00 ton/yr	99.90 ton/yr
V O C:	34.90 ton/yr	65.00 ton/yr	99.90 ton/yr
C O:	43.45 ton/yr	2.53 ton/yr	45.98 ton/yr
HCl:	0.27 ton/yr	0.00 ton/yr	0.27 ton/yr

Hazardous Air Pollutants (HAPs)

**** aggregate dryer burner****

The following calculations determine the amount of HAP emissions created by the combustion of distillate fuel oil before & after controls @ 0.49 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Table 1.3-10.

Hazardous Air Pollutants (HAPs):

		116 MMBtu/hr * 8760 hr/yr 2,000 lb/ton	* Ef (lb/10 ¹² Btu) = (ton/yr)
		Potential To Emit	Limited Emissions
Arsenic:	4 lb/10 ¹² Btu =	2.03E-03 ton/yr	1.54E-06 ton/yr
Beryllium:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Cadmium:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Chromium:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Lead:	9 lb/10 ¹² Btu =	4.57E-03 ton/yr	3.48E-06 ton/yr
Manganese:	6 lb/10 ¹² Btu =	3.05E-03 ton/yr	2.32E-06 ton/yr
Mercury:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Nickel:	3 lb/10 ¹² Btu =	1.52E-03 ton/yr	1.16E-06 ton/yr
Selenium:	15 lb/10 ¹² Btu =	7.62E-03 ton/yr	5.79E-06 ton/yr
Total HAPs =		2.49E-02 ton/yr	1.89E-05 ton/yr

The following calculations determine the amount of HAP emissions created by the combustion of waste oil before & after controls @ 0.70 % sulfur, from the aggregate dryer burner, based on 8,760 hours of use and US EPA's AP-42, 5th Edition, Section 1.3 - Fuel Oil Combustion, Tables 1.11-1, 1.11-4.

Hazardous Air Pollutants (HAPs):

		116 MMBtu/hr * 8,760 hr/yr 140,000 Btu/gal * 2,000 lb/ton	* Ef (lb/1,000 gal) = (ton/yr)
		Potential To Emit	Limited Emissions
Arsenic:	1.10E-01 lb/1000 gal =	0.40 ton/yr	3.03E-04 ton/yr
Cadmium:	9.30E-03 lb/1000 gal =	3.38E-02 ton/yr	2.57E-05 ton/yr
Chromium:	2.00E-02 lb/1000 gal =	7.26E-02 ton/yr	5.52E-05 ton/yr
Cobalt:	2.10E-04 lb/1000 gal =	7.62E-04 ton/yr	5.79E-07 ton/yr
Lead:	1.87E-01 lb/1000 gal =	0.68 ton/yr	5.16E-04 ton/yr
Manganese:	6.80E-02 lb/1000 gal =	0.25 ton/yr	1.88E-04 ton/yr
Nickel:	1.10E-02 lb/1000 gal =	3.99E-02 ton/yr	3.03E-05 ton/yr
Total HAPs =		1.47 ton/yr	1.12E-03 ton/yr

**** aggregate drying: drum-mixer ****

The following calculations determine the amount of HAP emissions created by aggregate drying before & after controls, based on 8,760 hours of use and USEPA's AP-42, 5th Edition, Section 11.1 - Hot Mix Asphalt Plants, Table 11.1-10 for a drum mix dryer which can be fired with either fuel oil or natural gas. The HAP emission factors represent the worst case emissions (fuel oil combustion).

Uncontrolled:

Ef	lb/ton x	650 ton/hr x	8760 hr/yr
		2000 lb/ton	

Controlled:

Ef	lb/ton x	2,000,000.00 ton/yr	
		2000 lb/ton	

Hazardous Air Pollutants (HAPs):

		Potential To Emit	Limited Emissions
Acetaldehyde	3.20E-04 lb/ton =	0.91 ton/yr	0.32 ton/yr
Acrolein	2.60E-05 lb/ton =	0.07 ton/yr	0.03 ton/yr
Benzene:	3.90E-04 lb/ton =	1.11 ton/yr	0.39 ton/yr
Ethyl benzene:	2.40E-04 lb/ton =	0.68 ton/yr	0.24 ton/yr
Formaldehyde:	3.10E-03 lb/ton =	8.83 ton/yr	3.10 ton/yr
Hexane:	9.20E-04 lb/ton =	2.62 ton/yr	0.92 ton/yr
2,2,4 Trimethylpentane:	4.00E-05 lb/ton =	0.11 ton/yr	0.04 ton/yr
Methyl chloroform:	4.8E-05 lb/ton =	0.14 ton/yr	0.05 ton/yr
Propionaldehyde	1.30E-04 lb/ton =	0.37 ton/yr	0.13 ton/yr
Quinone	1.60E-04 lb/ton =	0.46 ton/yr	0.16 ton/yr
Toluene:	2.90E-03 lb/ton =	8.26 ton/yr	2.90 ton/yr
Total PAH HAPs:	1.100E-04 lb/ton =	0.31 ton/yr	0.11 ton/yr
Xylene:	2.00E-04 lb/ton =	0.57 ton/yr	0.20 ton/yr
Total HAPs =		24.44 ton/yr	8.58 ton/yr

**** summary of source HAP emissions ****

potential to emit		limited emissions	
Hazardous Air Pollutants (HAPs):		Hazardous Air Pollutants (HAPs):	
Acetaldehyde	0.911 ton/yr	Acetaldehyde	0.32 ton/yr
Acrolein	0.074 ton/yr	Acrolein	0.03 ton/yr
Arsenic:	0.399 ton/yr	Arsenic:	0.00 ton/yr
Benzene:	1.110 ton/yr	Benzene:	0.39 ton/yr
Beryllium:	0.002 ton/yr	Beryllium:	0.00 ton/yr
Cadmium:	0.034 ton/yr	Cadmium:	0.00 ton/yr
Chromium:	0.073 ton/yr	Chromium:	0.00 ton/yr
Cobalt:	0.001 ton/yr	Cobalt:	0.00 ton/yr
Ethyl benzene:	0.683 ton/yr	Ethyl benzene:	0.24 ton/yr
Formaldehyde:	9.065 ton/yr	Formaldehyde:	3.18 ton/yr
HCl	0.837 ton/yr	HCl	0.27 ton/yr
Hexane	2.619 ton/yr	Hexane	0.92 ton/yr
Lead:	0.679 ton/yr	Lead:	0.00 ton/yr
Manganese:	0.247 ton/yr	Manganese:	0.00 ton/yr
Methyl chloroform:	0.137 ton/yr	Methyl chloroform:	0.05 ton/yr
Mercury:	0.002 ton/yr	Mercury:	0.00 ton/yr
Nickel:	0.040 ton/yr	Nickel:	0.00 ton/yr
Propionaldehyde	0.370 ton/yr	Propionaldehyde	0.13 ton/yr
Phenol	0.018 ton/yr	Phenol	0.01 ton/yr
Quinone	0.456 ton/yr	Quinone	0.16 ton/yr
Selenium:	0.008 ton/yr	Selenium:	0.00 ton/yr
2,2,4 Trimethylpentane:	0.114 ton/yr	2,2,4 Trimethylpentane:	0.04 ton/yr
Toluene:	8.256 ton/yr	Toluene:	2.90 ton/yr
Total PAH HAPs:	0.512 ton/yr	Total PAH HAPs:	0.18 ton/yr
Xylene:	0.627 ton/yr	Xylene:	0.22 ton/yr
Total:	27.27 ton/yr	Total:	9.04 ton/yr

**** miscellaneous ****

326 IAC 7 Compliance Calculations:

The following calculations determine the maximum sulfur content of distillate # 2 fuel oil allowable by 326 IAC 7:

$$0.5 \text{ lb/MMBtu} \times 139,000 \text{ Btu/gal} = 69.5 \text{ lb/1000gal}$$

$$69.5 \text{ lb/1000gal} / 142 \text{ lb/1000 gal} = 0.5 \%$$

Sulfur content must be less than or equal to 0.5% to comply with 326 IAC 7.

The following calculations determine the maximum sulfur content of # 4 fuel oil allowable by 326 IAC 7:

$$1.6 \text{ lb/MMBtu} \times 138,000 \text{ Btu/gal} = 220.8 \text{ lb/1000gal}$$

$$220.8 \text{ lb/1000gal} / 150 \text{ lb/1000 gal} = 1.5 \%$$

Sulfur content must be less than or equal to 1.5% to comply with 326 IAC 7.

The following calculations determine the maximum sulfur content of re-refined waste oil allowable by 326 IAC 7:

$$1.6 \text{ lb/MMBtu} \times 140,000 \text{ Btu/gal} = 224 \text{ lb/1000gal}$$

$$224 \text{ lb/1000gal} / 150 \text{ lb/1000 gal} = 1.5 \%$$

Sulfur content must be less than or equal to 1.5% to comply with 326 IAC 7.

326 IAC 6-3-2 Compliance Calculations:

The following calculations determine compliance with 326 IAC 6-3-2 for the aggregate drying process with a process weight rates in excess of 30 tons per hour

$$\text{limit} = 55 * (650 ^{0.11}) - 40 = 72.15 \text{ lb/hr or } 316.00 \text{ ton/yr}$$

The following calculations determine compliance with 326 IAC 6-3-2 for the magnetite drying process with a process weight rates less then 30 tons per hour:

$$\text{limit} = 4.1 * (5.707 ^{0.67}) = 13.17 \text{ lb/hr or } 2.31 \text{ lb/ton or } 57.68 \text{ ton/yr}$$

Since the emission limits pursuant to 326 IAC 6.5-1-2 and 40 CFR 60 Subpart I are more stringent than this limit, the limit pursuant to 326 IAC 6-3-2 does not apply. The emission limits pursuant to 326 IAC 6.5-1-2 and Subpart I shall also render the requirements of 326 IAC 2-2 (PSD) and 326 IAC 2-3 (Emission Offset) not applicable.

The following calculations determine compliance with 326 IAC 6-3-2 for the RAP crushing process with a process weight rates in excess of 30 tons per hour:

$$\text{limit} = 55 * (150 ^{0.11}) - 40 = 55.44 \text{ lb/hr or } 242.83 \text{ ton/yr}$$

PM-10 Emission Limit for Aggregate Dryer:

(99.90 tons PM-10/yr -	18.83	tons PM-10/yr from other sources)			
=					
	81.07 tons PM-10/yr	18.51 lbs/hr			(Will comply)
Controlled PM-10 emissions from the aggregate dryer are		1.13 lbs/hr <	18.51	lbs/hr	
Based on a asphalt mix throughput max of 2,000,000 tons/yr, this emission limit is equivalent of asphalt mix.			0.081	lb PM10 per ton	

PM-10 Emission Limit for Magnetite Drying process:

PM-10 emissions from the Magnetite Drying process shall not exceed 1 ton per year.					
	1.00 tons PM-10/yr	0.23 lbs/hr			(Will comply)
Controlled PM-10 emissions from the aggregate dryer are		0.05 lbs/hr <	0.23	lbs/hr	
Based on a magnetite drying maximum capacity of 50,000 tons/yr, this emission limit is equivalent of magnetite.			0.040	lb PM10 per ton	

PM Emission Limit for Aggregate Mixer and Dryer:

(249.90 tons PM/yr -	31.12	tons PM/yr from other sources)			
=					
	218.78 tons PM/yr	49.95 lbs/hr			(Will comply)
Controlled PM emissions from the aggregate dryer are		4.86 lbs/hr <	49.95	lbs/hr	
Based on a asphalt mix throughput max of 2,000,000 tons/yr, this emission limit is equivalent of asphalt mix.			0.219	lb PM per ton	

PM Emission Limit for Magnetite Drying process:

PM emissions from the Magnetite Drying process shall not exceed 1 ton per year.					
	1.00 tons PM/yr	0.23 lbs/hr			(Will comply)
Controlled PM emissions from the aggregate dryer are		0.09 lbs/hr <	0.23	lbs/hr	
Based on a magnetite drying maximum capacity of 50,000 tons/yr, this emission limit is equivalent of magnetite.			0.040	lb PM per ton	

40 CFR Part 60.90, Subpart I (Standards of Performance for Hot Mix Asphalt Plants) and 326 IAC 6.5-1-2 Compliance Calculations:

The following calculations determine compliance with NSPS 40 CFR Part 60.90, Subpart I, which limits stack emissions from asphalt plants to 0.04 gr/dscf and 326 IAC 6.5-1-2 which limits emissions from asphalt plants to 0.03 gr/dscf : (Will comply)

Aggregate Dryer and Mixer Baghouse:					
	21.68 ton/yr *	2000 lb/ton *	7000 gr/lb	=	0.016 gr/dscf
	525,600 min/yr *	37,004 dscf/min			

Allowable particulate emissions under NSPS equate to	55.57 tons per year.	12.69 lbs/hr
Allowable particulate emissions under 326 IAC 6.5-1-2 equate to	41.68 tons per year.	9.52 lbs/hr

Note:

$$\text{SCFM} = 48,988 \text{ acfm} * (460 + 68) / (460 + 239) = 37,004 \text{ scfm}$$

Assumes exhaust gas temperature of 239F, and exhaust gas flow of 48,988 acfm.