



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*  
Governor

*Thomas W. Easterly*  
Commissioner

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

TO: Interested Parties / Applicant

DATE: March 29, 2011

RE: Calcar Quarry / 117 - 29047 - 03220

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

## Notice of Decision: Approval - Effective Immediately

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

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

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

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

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

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

Enclosures  
FNPER.dot12/03/07



**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*  
Governor

*Thomas W. Easterly*  
Commissioner

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

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

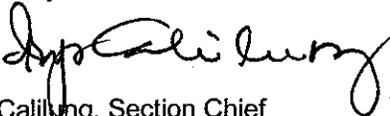
**Calcar Quarry  
860 East US Highway 150  
Paoli, Indiana 47454**

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

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

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

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

Operation Permit No.: F117-29047-03220	
Issued by:  Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: March 29, 2011 Expiration Date: March 29, 2021

## TABLE OF CONTENTS

<b>A. SOURCE SUMMARY</b> .....	<b>5</b>
A.1 General Information [326 IAC 2-8-3(b)]	
A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-8-3(c)(3)]	
A.3 Insignificant Activities [326 IAC 2-7-1(21)][326 IAC 2-8-3(c)(3)(I)]	
A.4 FESOP Applicability [326 IAC 2-8-2]	
<b>B. GENERAL CONDITIONS</b> .....	<b>9</b>
B.1 Definitions [326 IAC 2-8-1]	
B.2 Permit Term [326 IAC 2-8-4(2)][326 IAC 2-1.1-9.5][IC 13-15-3-6(a)]	
B.3 Term of Conditions [326 IAC 2-1.1-9.5]	
B.4 Enforceability [326 IAC 2-8-6] [IC 13-17-12]	
B.5 Severability [326 IAC 2-8-4(4)]	
B.6 Property Rights or Exclusive Privilege [326 IAC 2-8-4(5)(D)]	
B.7 Duty to Provide Information [326 IAC 2-8-4(5)(E)]	
B.8 Certification [326 IAC 2-8-3(d)][326 IAC 2-8-4(3)(C)(i)][326 IAC 2-8-5(1)]	
B.9 Annual Compliance Certification [326 IAC 2-8-5(a)(1)]	
B.10 Compliance Order Issuance [326 IAC 2-8-5(b)]	
B.11 Preventive Maintenance Plan [326 IAC 1-6-3][326 IAC 2-8-4(9)] [326 IAC 2-8-5(a)(1)]	
B.12 Emergency Provisions [326 IAC 2-8-12]	
B.13 Prior Permits Superseded [326 IAC 2-1.1-9.5]	
B.14 Termination of Right to Operate [326 IAC 2-8-9][326 IAC 2-8-3(h)]	
B.15 Permit Modification, Reopening, Revocation and Reissuance, or Termination [326 IAC 2-8-4(5)(C)][326 IAC 2-8-7(a)][326 IAC 2-8-8]	
B.16 Permit Renewal [326 IAC 2-8-3(h)]	
B.17 Permit Amendment or Revision [326 IAC 2-8-10][326 IAC 2-8-11.1]	
B.18 Operational Flexibility [326 IAC 2-8-15][326 IAC 2-8-11.1]	
B.19 Source Modification Requirement [326 IAC 2-8-11.1]	
B.20 Inspection and Entry [326 IAC 2-8-5(a)(2)][IC 13-14-2-2][IC 13-17-3-2] [IC 13-30-3-1]	
B.21 Transfer of Ownership or Operational Control [326 IAC 2-8-10]	
B.22 Annual Fee Payment [326 IAC 2-7-19] [326 IAC 2-8-4(6)] [326 IAC 2-8-16] [326 IAC 2-1.1-7]	
B.23 Credible Evidence [326 IAC 2-8-4(3)][326 IAC 2-8-5][62 FR 8314] [326 IAC 1-1-6]	
<b>C. SOURCE OPERATION CONDITIONS</b> .....	<b>19</b>
<b>Emission Limitations and Standards [326 IAC 2-8-4(1)]</b>	
C.1 Particulate Emission Limitations For Processes with Process Weight Rates Less Than One Hundred (100) Pounds per Hour [326 IAC 6-3-2]	
C.2 Overall Source Limit [326 IAC 2-8]	
C.3 Opacity [326 IAC 5-1]	
C.4 Open Burning [326 IAC 4-1] [IC 13-17-9]	
C.5 Incineration [326 IAC 4-2] [326 IAC 9-1-2]	
C.6 Fugitive Dust Emissions [326 IAC 6-4]	
C.7 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]	
<b>Testing Requirements [326 IAC 2-8-4(3)]</b>	
C.8 Performance Testing [326 IAC 3-6]	

**Compliance Requirements [326 IAC 2-1.1-11]**

- C.9 Compliance Requirements [326 IAC 2-1.1-11]

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

- C.10 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]
- C.11 Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-8-4(3)]  
[326 IAC 2-8-5(1)]

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

- C.12 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]
- C.13 Risk Management Plan [326 IAC 2-8-4] [40 CFR 68]
- C.14 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]
- C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4]  
[326 IAC 2-8-5]

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

- C.16 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]
- C.17 General Reporting Requirements [326 IAC 2-8-4(3)(C)] [326 IAC 2-1.1-11]

**Stratospheric Ozone Protection**

- C.18 Compliance with 40 CFR 82 and 326 IAC 22-1

**D.1. EMISSIONS UNIT OPERATION CONDITIONS..... 26**

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

- D.1.1 PSD Minor Limit [326 IAC 2-2]
- D.1.2 FESOP and PSD Minor Limits [326 IAC 2-8-4][326 IAC 2-2]
- D.1.3 FESOP Limits [326 IAC 2-8-4][326 IAC 2-2]
- D.1.4 Sulfur Dioxide (SO<sub>2</sub>) [326 IAC 7-1.1-1] [326 IAC 7-2-1]
- D.1.5 Sulfur Dioxide (SO<sub>2</sub>) Emissions [326 IAC 2-8-4] [326 IAC 2-2]
- D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

**Compliance Determination Requirements**

- D.1.7 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]
- D.1.8 Particulate Matter (PM and PM10) Control
- D.1.9 Sulfur Dioxide (SO<sub>2</sub>) Emissions and Sulfur Content

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

- D.1.10 Visible Emissions Notations
- D.1.11 Parametric Monitoring
- D.1.12 Broken or Failed Bag Detection

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

- D.1.13 Record Keeping Requirements
- D.1.14 Reporting Requirements

**D.2. FACILITY CONDITIONS..... 33**

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

- D.2.1 PSD Minor Limit [326 IAC 2-2]
- D.2.2 FESOP Limits [326 IAC 2-8-4] [326 IAC 2-2]
- D.2.3 Particulate [326 IAC 6-3-2]
- D.2.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]
- D.2.5 Particulate Control

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

D.2.6 Visible Emissions Notations

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

D.2.7 Record Keeping Requirements

D.2.8 Reporting Requirements

**E.1. EMISSIONS UNIT OPERATION CONDITIONS ..... 36**

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

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

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

**E.2. EMISSIONS UNIT OPERATION CONDITIONS ..... 37**

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

E.2.1 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

E.2.2 New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants [40 CFR Part 60, Subpart OOO] [326 IAC 12]

**E.3. EMISSIONS UNIT OPERATION CONDITIONS ..... 39**

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

E.3.1 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

E.3.2 New Source Performance Standards (NSPS) for Area Source Standards for Source Category: Gasoline **Dispensing Facilities** [40 CFR Part 60, Subpart CCCCC] [326 IAC 12]

Certification Form ..... 41

Emergency Occurrence Form ..... 42

Quarterly Report Forms ..... 44

Quarterly Deviation and Compliance Monitoring Report Form ..... 49

**Attachment A: Fugitive Dust Plan**

**Attachment B: Subpart I**

**Attachment C: Subpart OOO**

**Attachment D: NESHAP Subpart CCCCC - Area Source Standards for Source Category: Gasoline Dispensing Facilities [40 CFR 63, Subpart 6C] [326 IAC 20]**

## SECTION A SOURCE SUMMARY

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

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

---

The Permittee owns and operates a stationary hot mix asphalt batch plant and stone crushing operation. This source does not use any slag or shingles in the asphalt aggregate mix, and does not manufacture and/or produce cold-mix asphalt.

Source Address:	860 East US Highway 150, Paoli, Indiana 47454
General Source Phone Number:	812-723-2627
SIC Code:	2951
County Location:	Orange
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

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

---

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

- (a) One (1) batch hot-mix asphalt plant consisting of the following:
- (1) One (1) aggregate dryer, identified as ID#3, constructed in 1958, with a maximum burner heat input capacity of fifty-one (51) million British thermal units (MMBtu) per hour firing natural gas fired burner, using #2 distillate fuel oil, No.4 distillate, No. 4, 5 or 6 residual fuel oil as backup fuels, exhausting through stack SV1.
  - (2) One (1) batch mixer, identified as ID#2, constructed in 1958, with a maximum throughput capacity of 120 tons per hour of raw material, equipped with one (1) cyclone, identified as ID#9, and a scrubber, identified as ID#11, for particulate control and exhausting through one (1) stack, identified as SV1.
- Under 40 CFR 60, Subpart I, this hot mix asphalt plant is considered an affected facility.
- (3) Material handling, screening and conveying operations, constructed in 1958, Uncontrolled and exhausting to the outside atmosphere, consisting of the following:
    - (A) Aggregate storage piles consisting of the following:
      - (i) One (1) #23 natural sand pile, pile size: 400 tons.
      - (ii) One (1) #24 crushed limestone pile, pile size: 100 tons.

- (iii) One (1) #5 limestone pile, pile size: 200 tons.
- (iv) One (1) #11f limestone pile, pile size: 400 tons.
- (v) One (1) #11c limestone pile, pile size: 400 tons.
- (vi) One (1) #8 limestone pile, pile size: 200 tons.
- (B) One (1) silo, with 100 ton capacity (occasionally used for temporary hot mix storage).
- C) Six (6) cold feed bins (for aggregate going into batch plant), identified as ID#1CFB, #2CFB, #3CFB, #4CFB, #5CFB and #6CFB, each with a capacity of 30 tons.
- (D) Two (2) flat conveyors, identified as #1FC and #2FC, each with a capacity of 70 tons per hour.
- (E) One (1) screening system, identified as #1SS, with a capacity of 120 tons per hour.
- (b) One (1) 1.0 million British Thermal Units (MMBtu) per hour hot oil heater firing natural gas as the primary fuel and #1 fuel oil as the backup fuel, and exhausting to stack SV1.
- (c) Four (4) storage tanks, including:
  - (1) One (1) 9,000 gallon storage tank, identified as ID#15A, installed prior to July 23, 1984, for liquid asphalt AC-20.
  - (2) One (1) 11,000 gallon storage tank, identified as ID#15B, installed prior to July 23, 1984, for liquid asphalt AC-20.
  - (3) One (1) 1,000 gallon storage tank, identified as ID #16, installed prior to July 23, 1984, for #1 fuel oil.
  - (4) One (1) 8,000 gallon storage tank, identified as ID#14, installed prior to July 23, 1984, for either #2 fuel or waste oil.
- (d) One (1) crushed stone operation, constructed in 1958, consisting of the following:
  - (1) One (1) jaw crusher, identified as unit ID#1CR, installed in March 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (2) One (1) standard crusher, identified as unit ID#2CR, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (3) One (1) standard crusher, identified as unit ID#3CR, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (4) One (1) short head crusher, identified as unit ID#4CR, installed in 1990, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (5) Two (2) Secco screens, identified as units ID#1SC and ID#2SC, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, each, with no control.

- (6) One (1) Conveying system consisting of:
  - (A) Twenty-one (21) belt conveyors, identified as units ID#1-16BC, #18BC, #19BC, #20BC, #23BC and #24BC, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (B) Three (3) radial stackers, identified as units ID#17RS, #21RS, and #22RS, installed in 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control.

Under NSPS Subpart OOO, the crushing operation is considered an affected facility.

- (7) Aggregate storage piles consisting of the following:
  - (A) One (1) #73 limestone pile, pile size: 3,000 tons.
  - (B) One (1) #fill pile, pile size: 2,000 tons.
  - (C) One (1) #53 limestone pile, pile size: 2,000 tons.
  - (D) One (1) #24 crushed limestone pile, pile size: 2,000 tons.
  - (E) One (1) #11f limestone pile, pile size: 1,000 tons.
  - (F) One (1) #11c limestone pile, pile size: 200 tons.
  - (G) One (1) #11b-borrow limestone pile, pile size: 500 tons.
  - (H) One (1) #8 limestone pile, pile size: 2,000 tons.
  - (I) One (1) #2 limestone pile, pile size: 2,000 tons.

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

This stationary source also includes the following insignificant activities:

- (a) A gasoline fuel transfer and dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day, such as filling of tanks, locomotives, automobiles, having storage capacity less than or equal to ten thousand five hundred (10,500) gallons;
  - Under 40 CFR 60, Subpart CCCCCC, the units comprising this operation are considered affected facilities.
- (b) Fuel oil-fired combustion sources with heat input equal to or less than two million (2,000,000) Btu/hr and firing fuel containing less than five-tenths (0.5) percent;
  - One (1) #1 fuel oil-fired combustion unit, for use as a backup system in place of the natural gas hot oil heater when fuel oil is the primary fuel and not natural gas.
- (c) One (1) testing laboratory as defined in 326 IAC 2-7-1(20).
- (d) Paved and unpaved roads and parking lots with public access. [326 IAC 6-4]

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

---

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

## SECTION B GENERAL CONDITIONS

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

---

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

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

---

- (a) This permit, F117-29047-03220, is issued for a fixed term of ten (10) years from the issuance date of this permit, as determined in accordance with IC 4-21.5-3-5(f) and IC 13-15-5-3. Subsequent revisions, modifications, or amendments of this permit do not affect the expiration date of this permit.
- (b) If IDEM, OAQ, upon receiving a timely and complete renewal permit application, fails to issue or deny the permit renewal prior to the expiration date of this permit, this existing permit shall not expire and all terms and conditions shall continue in effect, until the renewal permit has been issued or denied.

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

---

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

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

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

---

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

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

---

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

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

---

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

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

---

- (a) The Permittee shall furnish to IDEM, OAQ, within a reasonable time, any information that IDEM, OAQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. Upon request, the Permittee shall also furnish to IDEM, OAQ copies of records required to be kept by this permit.
- (b) For information furnished by the Permittee to IDEM, OAQ, the Permittee may include a claim of confidentiality in accordance with 326 IAC 17.1. When furnishing copies of requested records directly to U. S. EPA, the Permittee may assert a claim of confidentiality in accordance with 40 CFR 2, Subpart B.

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

---

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

- (1) it contains a certification by an "authorized individual", as defined by 326 IAC 2-1.1-1(1), and
  - (2) the certification states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) The Permittee may use the attached Certification Form, or its equivalent with each submittal requiring certification. One (1) certification may cover multiple forms in one (1) submittal.
  - (c) An "authorized individual" is defined at 326 IAC 2-1.1-1(1).

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

---

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

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

- (b) The annual compliance certification report required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) The annual compliance certification report shall include the following:
  - (1) The appropriate identification of each term or condition of this permit that is the basis of the certification;
  - (2) The compliance status;
  - (3) Whether compliance was continuous or intermittent;
  - (4) The methods used for determining the compliance status of the source, currently and over the reporting period consistent with 326 IAC 2-8-4(3); and
  - (5) Such other facts, as specified in Sections D of this permit, as IDEM, OAQ may require to determine the compliance status of the source.

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

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

---

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

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

- (a) A Preventive Maintenance Plan meets the requirements of 326 IAC 1-6-3 if it includes, at a minimum:
- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
  - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
  - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

The Permittee shall implement the PMPs.

- (b) If required by specific condition(s) in Section D of this permit where no PMP was previously required, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) no later than ninety (90) days after issuance of this permit or ninety (90) days after initial start-up, whichever is later, including the following information on each facility:
- (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
  - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
  - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

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

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

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

The Permittee shall implement the PMPs.

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

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

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

---

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

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

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

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance and Enforcement Branch), or  
Telephone Number: 317-233-0178 (ask for Office of Air Quality, Compliance and Enforcement Branch)  
Facsimile Number: 317-233-6865  
Southwest Regional Office phone: (812) 380-2305; fax: (812) 380-2304.

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

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

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

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

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

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

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.
- (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
- (e) The Permittee seeking to establish the occurrence of an emergency shall make records available upon request to ensure that failure to implement a PMP did not cause or contribute to an exceedance of any limitations on emissions. However, IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-8-3(c)(6) be revised in response to an emergency.
- (f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-8 and any other applicable rules.
- (g) Operations may continue during an emergency only if the following conditions are met:
- (1) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.
  - (2) If an emergency situation causes a deviation from a health-based limit, the Permittee may not continue to operate the affected emissions facilities unless:
    - (A) The Permittee immediately takes all reasonable steps to correct the emergency situation and to minimize emissions; and
    - (B) Continued operation of the facilities is necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw material of substantial economic value.

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

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

- (a) All terms and conditions of permits established prior to F117-29047-03220 and issued pursuant to permitting programs approved into the state implementation plan have been either:
- (1) incorporated as originally stated,
  - (2) revised, or

(3) deleted.

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

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

---

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

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

---

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

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

- (1) That this permit contains a material mistake.
- (2) That inaccurate statements were made in establishing the emissions standards or other terms or conditions.
- (3) That this permit must be revised or revoked to assure compliance with an applicable requirement. [326 IAC 2-8-8(a)]

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

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

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

---

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

Request for renewal shall be submitted to:

Indiana Department of Environmental Management  
Permit Administration and Support Section, Office of Air Quality  
100 North Senate Avenue

MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

- (b) A timely renewal application is one that is:
- (1) Submitted at least nine (9) months prior to the date of the expiration of this permit; and
  - (2) If the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (c) If the Permittee submits a timely and complete application for renewal of this permit, the source's failure to have a permit is not a violation of 326 IAC 2-8 until IDEM, OAQ takes final action on the renewal application, except that this protection shall cease to apply if, subsequent to the completeness determination, the Permittee fails to submit by the deadline specified, pursuant to 326 IAC 2-8-3(g), in writing by IDEM, OAQ any additional information identified as being needed to process the application.

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

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

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

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

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

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

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

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

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

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

and

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

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

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

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

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

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

---

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

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

---

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

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

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

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

- (a) The Permittee must comply with the requirements of 326 IAC 2-8-10 whenever the Permittee seeks to change the ownership or operational control of the source and no other change in the permit is necessary.
- (b) Any application requesting a change in the ownership or operational control of the source shall contain a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new Permittee. The application shall be submitted to:  
  
Indiana Department of Environmental Management  
Permit Administration and Support Section, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251  
  
Any such application does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-8-10(b)(3)]

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

- (a) The Permittee shall pay annual fees to IDEM, OAQ no later than thirty (30) calendar days of receipt of a billing. Pursuant to 326 IAC 2-7-19(b), if the Permittee does not receive a bill from IDEM, OAQ the applicable fee is due April 1 of each year.
- (b) Failure to pay may result in administrative enforcement action or revocation of this permit.
- (c) The Permittee may call the following telephone numbers: 1-800-451-6027 or 317-233-4230 (ask for OAQ, Billing, Licensing, and Training Section), to determine the appropriate permit fee.

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

---

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

## SECTION C SOURCE OPERATION CONDITIONS

Entire Source

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

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

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

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

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

(a) Pursuant to 326 IAC 2-8:

- (1) The potential to emit any regulated pollutant, except particulate matter (PM), from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period.
- (2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
- (3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.

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

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

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

#### C.3 Opacity [326 IAC 5-1]

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

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A,

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

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

---

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

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

---

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

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

---

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

C.7 Asbestos Abatement Projects [326 IAC 14-10] [326 IAC 18] [40 CFR 61, Subpart M]

---

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

All required notifications shall be submitted to:

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

Indianapolis, Indiana 46204-2251

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

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

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

#### **C.8 Performance Testing [326 IAC 3-6]**

---

- (a) For performance testing required by this permit, a test protocol, except as provided elsewhere in this permit, shall be submitted to:  
  
Indiana Department of Environmental Management  
Compliance and Enforcement Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251  
  
no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ if the Permittee submits to IDEM, OAQ a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

### **Compliance Requirements [326 IAC 2-1.1-11]**

#### **C.9 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.10 Compliance Monitoring [326 IAC 2-8-4(3)][326 IAC 2-8-5(a)(1)]

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

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

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

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

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

#### C.11 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.12 Emergency Reduction Plans [326 IAC 1-5-2] [326 IAC 1-5-3]

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

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

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

C.13 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.14 Response to Excursions or Exceedances [326 IAC 2-8-4] [326 IAC 2-8-5]

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

- (a) The Permittee shall take reasonable response steps to restore operation of the emissions unit (including any control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing excess emissions.
- (b) The response shall include minimizing the period of any startup, shutdown or malfunction. The response may include, but is not limited to, the following:
  - (1) initial inspection and evaluation;
  - (2) recording that operations returned or are returning to normal without operator action (such as through response by a computerized distribution control system); or
  - (3) any necessary follow-up actions to return operation to normal or usual manner of operation.
- (c) A determination of whether the Permittee has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include, but is not limited to, the following:
  - (1) monitoring results;
  - (2) review of operation and maintenance procedures and records; and/or
  - (3) inspection of the control device, associated capture system, and the process.
- (d) Failure to take reasonable response steps shall be considered a deviation from the permit.
- (e) The Permittee shall record the reasonable response steps taken.

C.15 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-8-4][326 IAC 2-8-5]

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall submit a description of its response actions to IDEM, OAQ, no later than seventy-five (75) days after the date of the test.
- (b) A retest to demonstrate compliance shall be performed no later than one hundred eighty (180) days after the date of the test. Should the Permittee demonstrate to IDEM, OAQ that retesting in one hundred eighty (180) days is not practicable, IDEM, OAQ may extend the retesting deadline

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

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

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

#### **C.16 General Record Keeping Requirements [326 IAC 2-8-4(3)] [326 IAC 2-8-5]**

---

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

#### **C.17 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 except that a deviation required to be reported pursuant to an applicable requirement that exists independent of this permit, shall be reported according to the schedule stated in the applicable requirement and does not need to be included in this report. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by an "authorized individual" as defined by 326 IAC 2-1.1-1(1). A deviation is an exceedance of a permit limitation or a failure to comply with a requirement of the permit.
- (b) The address for report submittal is:  
  
Indiana Department of Environmental Management  
Compliance and Enforcement Branch, Office of Air Quality  
100 North Senate Avenue  
MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251
- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (d) Reporting periods are based on calendar years, unless otherwise specified in this permit. For the purpose of this permit "calendar year" means the twelve (12) month period from January 1 to December 31 inclusive.

### **Stratospheric Ozone Protection**

#### **C.18 Compliance with 40 CFR 82 and 326 IAC 22-1**

---

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

## SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

### Emissions Unit Description:

- (a) One (1) batch hot-mix asphalt plant consisting of the following:
- (1) One (1) aggregate dryer, identified as ID#3, constructed in 1958, with a maximum burner heat input capacity of fifty-one (51) million British thermal units (MMBtu) per hour firing natural gas fired burner, using #2 distillate fuel oil, No.4 distillate, No. 4, 5 or 6 residual fuel oil as backup fuels, exhausting through stack SV1.
  - (2) One (1) batch mixer, identified as ID#2, constructed in 1958, with a maximum throughput capacity of 120 tons per hour of raw material, equipped with one (1) cyclone, identified as ID#9, and a scrubber, identified as ID#11, for particulate control and exhausting through one (1) stack, identified as SV1.

Under 40 CFR 60, Subpart I, this hot mix asphalt plant is considered an affected facility.

- (3) Material handling, screening and conveying operations, constructed in 1958, Uncontrolled and exhausting to the outside atmosphere, consisting of the following:
    - (A) Aggregate storage piles consisting of the following:
      - (i) One (1) #23 natural sand pile, pile size: 400 tons.
      - (ii) One (1) #24 crushed limestone pile, pile size: 100 tons.
      - (iii) One (1) #5 limestone pile, pile size: 200 tons.
      - (iv) One (1) #11f limestone pile, pile size: 400 tons.
      - (v) One (1) #11c limestone pile, pile size: 400 tons.
      - (vi) One (1) #8 limestone pile, pile size: 200 tons.
    - (B) One (1) silo, with 100 ton capacity (occasionally used for temporary hot mix storage).
    - (C) Six (6) cold feed bins (for aggregate going into batch plant), identified as ID#1CFB, #2CFB, #3CFB, #4CFB, #5CFB and #6CFB, each with a capacity of 30 tons.
    - (D) Two (2) flat conveyors, identified as #1FC and #2FC, each with a capacity of 70 tons per hour.
    - (E) One (1) screening system, identified as #1SS, with a capacity of 120 tons per hour.
- (b) One (1) 1.0 million British Thermal Units (MMBtu) per hour hot oil heater firing natural gas as the primary fuel and #1 fuel oil as the backup fuel, and exhausting to stack SV1.

(c) Four (4) storage tanks, including:

- (1) One (1) 9,000 gallon storage tank, identified as ID#15A, installed prior to July 23, 1984, for liquid asphalt AC-20.
- (2) One (1) 11,000 gallon storage tank, identified as ID#15B, installed prior to July 23, 1984, for liquid asphalt AC-20.
- (3) One (1) 1,000 gallon storage tank, identified as ID #16, installed prior to July 23, 1984, for #1 fuel oil.
- (4) One (1) 8,000 gallon storage tank, identified as ID#14, installed prior to July 23, 1984, for either #2 fuel or waste oil.

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

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

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

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

- (a) The asphalt production rate shall not exceed 493,160 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (b) PM emissions from the dryer/mixer shall not exceed 0.738 pounds of PM per ton of asphalt produced.

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

#### **D.1.2 FESOP and PSD Minor Limits [326 IAC 2-8-4] [326 IAC 2-2]**

Pursuant to 326 IAC 2-8-4 (FESOP), and in order to render the requirements of 326 IAC 2-2 (PSD) not applicable, the Permittee shall not use slag and asphalt shingles as an aggregate additive in its hot-mix asphalt operations.

Compliance with this requirement, combined with the potential SO<sub>2</sub> emissions from all other emission units at this source, shall limit the source-wide total potential to emit SO<sub>2</sub> to less than one hundred (100) tons per twelve (12) consecutive month period, and shall render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

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

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

- (a) The asphalt production rate shall not exceed 493,160 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (b) PM<sub>10</sub> emissions from the dryer/mixer shall not exceed 0.303 pounds of PM<sub>10</sub> per ton of asphalt produced.
- (c) PM<sub>2.5</sub> emissions from the dryer/mixer shall not exceed 0.319 pounds of PM<sub>2.5</sub> per ton of asphalt produced.

- (d) CO emissions from the dryer/mixer shall not exceed 0.40 pounds of CO per ton of asphalt produced.

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

D.1.4 Sulfur Dioxide (SO<sub>2</sub>) [326 IAC 7-1.1-1][326 IAC 7-2-1]

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

- (a) The sulfur dioxide (SO<sub>2</sub>) emissions from the dryer/mixer burner shall not exceed five tenths (0.5) pounds per MMBtu when using distillate oil.
- (b) The sulfur dioxide (SO<sub>2</sub>) emissions from the dryer/mixer burner shall not exceed one and six tenths (1.6) pounds per MMBtu heat input when using residual oil.
- (c) Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a calendar month average.

D.1.5 Sulfur Dioxide (SO<sub>2</sub>) Emissions [326 IAC 2-8-4] [326 IAC 2-2]

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

- (a) The sulfur content of the No. 2, 4 5 and 6 fuel oil shall not exceed 0.5 percent by weight.
- (b) Single Fuel Usage Limitations

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

- (1) Natural gas usage shall not exceed 447 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (2) No. 4 fuel oil usage shall not exceed 2,580,766 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (2) No. 2 fuel oil usage shall not exceed 2,726,161 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (2) No. 5 or 6 (residual) fuel oil usage shall not exceed 2,465,700 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

- (c) Multiple Fuel Usage Limitations

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

- (1) SO<sub>2</sub> emissions from the dryer/mixer shall not exceed 99 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

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

#### D.1.6 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

---

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

### Compliance Determination Requirements

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

---

- (a) In order to demonstrate compliance with Condition D.1.1(b), the Permittee shall perform PM testing of the dryer/mixer, utilizing methods approved by the Commissioner, at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition.
- (b) In order to demonstrate compliance with Conditions D.1.3(b) and D.1.3(c), the Permittee shall perform PM<sub>10</sub> and PM<sub>2.5</sub> testing on the dryer/mixer utilizing methods approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of this valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C - Performance Testing contains the Permittee's obligation with regard to the performance testing required by this condition. PM<sub>10</sub> and PM<sub>2.5</sub> includes filterable and condensable PM.

#### D.1.8 Particulate Matter (PM and PM<sub>10</sub>) Control

---

- (a) In order to comply with Conditions D.1.1 and D.1.3, the baghouse for particulate control shall be in operation and control emissions from the dryer/mixer at all times when the dryer/mixer is in operation.
- (b) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

#### D.1.9 Sulfur Dioxide Emissions and Sulfur Content

---

Compliance with the fuel limitations established in Conditions D.1.4(a) and D.1.4(b) - Sulfur Dioxide (SO<sub>2</sub>) 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 units heat input when combusting No. 2 distillate fuel oil, or one and six tenths (1.6) pounds per million British thermal units heat input when combusting No. 4 residual fuel oil, by:
  - (1) Providing vendor analysis of heat content and sulfur content of the fuel delivered, if accompanied by a vendor certification; or

- (2) Analyzing the fuel sample to determine the sulfur content of the fuel via the procedures in 40 CFR 60, Appendix A, Method 19.
  - (A) Fuel samples may be collected from the fuel tank immediately after the fuel tank is filled and before any fuel 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 51 MMBtu per hour burner, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

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

When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner, the Permittee shall use the following equation to determine the tons of SO<sub>2</sub> emitted per twelve (12) consecutive month period:

Sulfur Dioxide emission calculation

$$S = \frac{G(E_G) + O(E_O) + F(E_F) + R(E_R)}{2,000 \text{ lbs/ton}}$$

Where:

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

G = million cubic feet of natural gas used in last twelve (12) months

O = gallons of No. 4 fuel oil used in last twelve (12) months

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

R = gallons of No. 5 and 6 fuel oil used in last twelve (12) months

Emission Factors:

E<sub>G</sub> = 0.6 pounds per million cubic feet of natural gas

E<sub>O</sub> = 75.00 lb/1000 gallons of No. 4 fuel oil

E<sub>F</sub> = 71.00 lb/1000 gallons of No. 2 fuel oil

E<sub>R</sub> = 78.5 lb/1000 gallon of No. 5 and 6 fuel oil

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

**D.1.10 Visible Emissions Notations**

---

- (a) Visible emission notations of the dryer/mixer stack (SV1) exhaust shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. An abnormal visible emission notation is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

#### D.1.11 Parametric Monitoring

---

The Permittee shall record the pressure drop across the baghouse used in conjunction with the dryer/mixer, at least once per day when the dryer/mixer is in operation. When for any one reading, the pressure drop across the baghouse is outside the normal range of five tenths (0.5) and six and five tenths (6.5) inches of water or a range established during the latest stack test, the Permittee shall take reasonable response steps. Section C - Response to Excursions or Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. A pressure reading that is outside the above-mentioned range is not a deviation from this permit. Failure to take response steps shall be considered a deviation from this permit.

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

#### D.1.12 Broken or Failed Bag Detection

---

- (a) For a single compartment baghouse controlling emissions from a process operated continuously, a failed unit and the associated process shall be shut down immediately until the failed unit has been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).
- (b) For a single compartment baghouse controlling emissions from a batch process, the feed to the process shall be shut down immediately until the failed unit has been repaired or replaced. The emissions unit shall be shut down no later than the completion of the processing of the material in the 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 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)] [326 IAC 2-8-16]**

#### D.1.13 Record Keeping Requirements

---

- (a) To document the compliance status with Conditions D.1.1(a), and D.1.3(a), the Permittee shall keep monthly records of the amount of asphalt processed through the dryer/mixer.
- (b) To document the compliance status with Conditions D.1.4 and D.1.5, the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained for (1) through (4) below shall be taken monthly and shall be complete and sufficient to establish compliance with the limits established in Conditions D.1.4 and D.1.5.

- (1) Calendar dates covered in the compliance determination period;
- (2) Actual fuel usage, sulfur content, and heat content, for each fuel used at the source since the last compliance determination period;
- (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
- (4) If the fuel supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:
  - (i) Fuel supplier certifications;
  - (ii) The name of the fuel supplier; and
  - (iii) A statement from the fuel supplier that certifies the sulfur content of the No. 2 and No. 4 fuel oils.

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.

- (e) To document the compliance status with Condition D.1.10, the Permittee shall maintain records of visible emission notations of the dryer/mixer stack (SV1) exhaust once per day. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g., the process did not operate that day).
- (f) To document the compliance status with Condition D.1.11, the Permittee shall maintain records once per day of the pressure drop during normal operation. The Permittee shall include in its daily record when the pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g., the process did not operate that day).
- (g) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.

#### D.1.14 Reporting Requirements

---

- (a) A quarterly summary of the information to document compliance status with Conditions D.1.1(a), D.1.3(a) and D.1.5 shall be submitted using the reporting forms located at the end of this permit, or their equivalent, not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-8-5(a)(1) by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

## SECTION D.2 OPERATION CONDITIONS

Operation Description: Crushed Stone Operation [326 IAC 2-8-4(10)]

(e) Crushed stone operation consisting of:

- (1) One (1) jaw crusher, identified as unit ID#1CR installed in March 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
- (2) One (1) standard crusher, identified as unit ID#2CR, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
- (3) One (1) standard crusher, identified as unit ID#3CR, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
- (4) One (1) short head crusher, identified as unit ID#4CR, installed in 1990, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
- (5) Two (2) Secco screens, identified as units ID#1SC and ID#2SC, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, each, with no control.
- (6) One (1) Conveying system consisting of:
  - (A) Twenty-one (21) belt conveyors, identified as units ID#1-16BC, #18BC, #19BC, #20BC, #23BC and #24BC, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (B) Three (3) radial stackers, identified as units ID#17RS, #21RS, and #22RS, installed in 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control.

Under NSPS Subpart OOO, the crushing operation is considered an affected facility.

(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 PSD Minor Limit [326 IAC 2-2]

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

- (a) The annual throughput of the crushed stone processing operation shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM emissions from each crusher shall not exceed 0.0054 pounds of PM per ton of stone crushed.
- (c) PM emissions from each screen shall not exceed 0.025 pounds of PM per ton of stone screened.
- (d) PM emissions from each conveyor shall not exceed 0.03 pounds of PM per ton of stone conveyed.

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

**D.2.2 FESOP Limits [326 IAC 2-8-4] [326 IAC 2-2]**

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

- (a) The annual throughput of the crushed stone processing operation shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM10 emissions from each crusher shall not exceed 0.0024 pounds of PM10 per ton of stone crushed.
- (c) PM10 emissions from each screen shall not exceed 0.0087 pounds of PM10 per ton of stone screened.
- (d) PM10 emissions from each conveyor shall not exceed 0.0011 pounds of PM10 per ton of stone conveyed.
- (e) PM2.5 emissions from each crusher shall not exceed 0.0024 pounds of PM2.5 per ton of stone crushed.
- (f) PM2.5 emissions from each screen shall not exceed 0.0087 pounds of PM2.5 per ton of stone screened.
- (g) PM2.5 emissions from each conveyor shall not exceed 0.0011 pounds of PM2.5 per ton of stone conveyed.

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

**D.2.3 Particulate [326 IAC 6-3-2]**

- (a) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of the following operations shall not exceed the pound per hour limits listed in the table below:

Unit ID	Emission Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
(ID#1CR)	jaw crusher	100	51.28
(ID#2CR)	standard crusher	100	51.28
(ID#3CR)	standard crusher	100	51.28
(ID#4CR)	standard crusher	100	51.28
(ID#1SC)	secco screen	100	51.28
(ID#2SC)	secco screen	100	51.28
ID#1-16BC, #18BC,#19BC, #20BC, #23BC and	21 belt conveyors	100 each	51.28 each

Unit ID	Emission Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
#24BC			
ID#17RS, #21RS, and #22RS	radial stackers	100 (each)	51.28 (each)

The pounds per hour limitations were calculated using the following equations:

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

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

Or

Interpolation and extrapolation of the data for the process weight rate in excess of 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.2.4 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

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

### Compliance Determination Requirements

#### D.2.5 Particulate Control

In order to comply with Conditions D.2.1, D.2.2 and D.2.3, the Permittee shall use a wet process or continuous wet suppressions at all times that the crushed stone operation is in operation

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

#### D.2.6 Visible Emissions Notations

- (a) Visible emission notations of the crushing, screening, and conveying operations shall be performed once per day during normal daylight operations. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) If abnormal emissions are observed, the Permittee shall take reasonable response. Section C - Response to Excursions or Exceedances contains the Permittee's obligation

with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.

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

#### **D.2.7 Record Keeping Requirements**

---

- (a) To document the compliance status with Conditions D.2.1 and D.2.2 the Permittee shall maintain monthly records of the amount of material processed through the stone crushing plant.
- (b) To document the compliance status with Condition D.2.6, the Permittee shall maintain a daily record of visible emission notations of the crushing, screening, and conveying operations. The Permittee shall include in its daily record when a visible emission notation is not taken and the reason for the lack of visible emission notation (e.g. the process did not operate that day).
- (c) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.

#### **D.2.8 Reporting Requirements**

---

A quarterly summary of the information to document compliance status with Conditions D.2.1 and D.2.2 shall be submitted not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meet the requirements of 326 IAC 2-8-5(a)(1) by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).

## SECTION E.1

## EMISSIONS UNIT OPERATION CONDITIONS

### Emissions Unit Description:

- (a) One (1) batch hot-mix asphalt plant consisting of the following:
- (1) One (1) aggregate dryer, identified as ID#3, constructed in 1958, with a maximum burner heat input capacity of fifty-one (51) million British thermal units (MMBtu) per hour firing natural gas fired burner, using #2 distillate fuel oil, No.4 distillate, No. 4, 5 or 6 residual fuel oil as backup fuels, exhausting through stack SV1.
  - (2) One (1) batch mixer, identified as ID#2, constructed in 1958, with a maximum throughput capacity of 120 tons per hour of raw material, equipped with one (1) cyclone, identified as ID#9, and a scrubber, identified as ID#11, for particulate control and exhausting through one (1) stack, identified as SV1.

Under 40 CFR 60, Subpart I, this hot mix asphalt plant is considered an affected facility.

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

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

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

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

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

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

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

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

- (a) 40 CFR 60.90
- (b) 40 CFR 60.91
- (c) 40 CFR 60.92
- (d) 40 CFR 60.93

## SECTION E.2 EMISSIONS UNIT OPERATION CONDITIONS

### Emissions Unit Description:

- (d) One (1) crushed stone operation, constructed in 1958, consisting of the following:
- (1) One (1) jaw crusher, identified as unit ID#1CR, installed in March 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control. This jaw crusher replaced the existing crusher that was constructed in 1974.
  - (2) One (1) standard crusher, identified as unit ID#2CR, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (3) One (1) standard crusher, identified as unit ID#3CR, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (4) One (1) short head crusher, identified as unit ID#4CR, installed in 1990, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (5) Two (2) Secco screens, identified as units ID#1SC and ID#2SC, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, each, with no control.
  - (6) One (1) Conveying system consisting of:
    - (A) Twenty-one (21) belt conveyors, identified as units ID#1-16BC, #18BC, #19BC, #20BC, #23BC and #24BC, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
    - (B) Three (3) radial stackers, identified as units ID#17RS, #21RS, and #22RS, installed in 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control.

Under NSPS Subpart OOO, the crushing operation is considered an affected facility.

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

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

#### E.2.1 General Provisions Relating to New Source Performance Standards (NSPS) [326 IAC 12-1] [40 CFR 60, Subpart A]

- (a) Pursuant to 40 CFR 60.1, the Permittee shall comply with the provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated by reference as 326 IAC 12-1, except as otherwise specified in 40 CFR 60, Subpart OOO.
- (b) Pursuant to 40 CFR 60.10, the Permittee shall submit all required notifications and reports to:

Indiana Department of Environmental Management  
Compliance and Enforcement Branch, Office of Air Quality  
100 North Senate Avenue

MC 61-53 IGCN 1003  
Indianapolis, Indiana 46204-2251

E.2.2 New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants [40 CFR Part 60, Subpart OOO] [326 IAC 12]

---

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

- (a) 40 CFR 60.670(a), (d), (e), and (f)
- (b) 40 CFR 60.671
- (c) 40 CFR 60.672(b), (d), and (e)
- (d) 40 CFR 60.673
- (e) 40 CFR 60.675(a), (c)(1)(i), (ii), (iii), (c)(3), (d), (e), (g), and (i)
- (f) 40 CFR 60.676(a), (b)(1), (f), (h), (i), (j), and (k)
- (g) Table 1 and Table 3

Note: The jaw crusher, identified as unit ID#1CR, that was installed in March 2010, is exempt from the requirements of 40 CFR 60.672, 40 CFR 60.674, and 40 CFR 60.675.

**SECTION E.3**

**FACILITY OPERATION CONDITIONS**

**Emissions Unit Description:** Gasoline Dispensing Facility

- (a) A gasoline fuel transfer and dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day, such as filling of tanks, locomotives, automobiles, having storage capacity less than or equal to ten thousand five hundred (10,500) gallons;

Under 40 CFR 60, Subpart CCCCCC, the units comprising this operation are considered affected facilities.

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

**National Emission Standards for Hazardous Air Pollutants Requirements [326 IAC 2-7-5(1)]**

**E.3.1 General Provisions Relating to National Emission Standards for Hazardous Air Pollutants under 40 CFR Part 63 [326 IAC 20-1] [40 CFR Part 63, Subpart A]**

- (a) Pursuant to 40 CFR 63.11130, the Permittee shall comply with the provisions of 40 CFR Part 63, Subpart A – General Provisions, as specified in Table 3 of 40 CFR Part 63, Subpart CCCCCC in accordance with schedule in 40 CFR 63 Subpart CCCCCC

- (b) Pursuant to 40 CFR 63.10, the Permittee shall submit all required notifications and reports to:

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

**E.3.2 National Emissions Standards for Hazardous Air Pollutants for Source Category Gasoline Dispensing Facilities [40 CFR Part 63, Subpart CCCCCC]**

The Permittee shall comply with the following provisions of 40 CFR Part 63, Subpart CCCCCC (included as Attachment D, as follows:

- (1) 40 CFR 63. 11110
- (2) 40 CFR 63. 11111(a)(b)(e)(f)
- (3) 40 CFR 63. 11112(a)(d)
- (4) 40 CFR 63. 11113(b)(c)
- (5) 40 CFR 63. 11116
- (6) 40 CFR 63. 11130
- (7) 40 CFR 63. 11131
- (8) 40 CFR 63. 11132
- (9) Table 3

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE AND ENFORCEMENT BRANCH  
FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)  
CERTIFICATION**

Source Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
FESOP Permit No.: F117-29047-03220

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

Please check what document is being certified:

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

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

Signature:

Printed Name:

Title/Position:

Date:

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

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

Source Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
FESOP Permit No.: F117-29047-03220

**This form consists of 2 pages**

**Page 1 of 2**

- |   |
|---|
| <input type="checkbox"/> This is an emergency as defined in 326 IAC 2-7-1(12) <ul style="list-style-type: none"><li>• The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-0178, ask for Compliance Section); and</li><li>• The Permittee must submit notice in writing or by facsimile within two (2) working days (Facsimile Number: 317-233-6865), and follow the other requirements of 326 IAC 2-7-16</li></ul> |
|---|

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

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

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

Page 2 of 2

Date/Time Emergency started:
Date/Time Emergency was corrected:
Was the facility being properly operated at the time of the emergency?    Y    N Describe:
Type of Pollutants Emitted: TSP, PM-10, SO <sub>2</sub> , VOC, NO <sub>x</sub> , CO, Pb, other:
Estimated amount of pollutant(s) emitted during emergency:
Describe the steps taken to mitigate the problem:
Describe the corrective actions/response steps taken:
Describe the measures taken to minimize emissions:
If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by: \_\_\_\_\_

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

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

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

**FESOP Quarterly Report**

Source Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
FESOP No.: F117-29047-03220  
Facility: Crushed Stone Operations  
Parameter: Annual Material Throughput  
Limit: The annual throughput to the crushed stone plant shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

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

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

Month	Column 1	Column 2	Column 1 + Column 2
	Throughput this Month (tons)	Throughput Previous 11 Months (tons)	12 Month Total Throughput (tons)
Month 1			
Month 2			
Month 3			

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

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

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

**FESOP Quarterly Report**

Source Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
FESOP Permit No.: F117-29047-03220  
Facility: Drum dryer/mixer  
Parameter: Hot mix asphalt production  
Limit: The asphalt production rate shall not exceed 493,160 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

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

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

No deviation occurred in this quarter.

Deviation/s occurred in this quarter.

Deviation has been reported on: \_\_\_\_\_

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

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

**FESOP Quarterly Report**

Source Name: Calcar Quarry  
 Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
 FESOP Permit No.: F117-29047-03220  
 Facility: Dryer/Mixer Burner  
 Parameter: Single fuel usage  
 Limit: When combusting only one type of fuel per twelve (12) consecutive month period in the dryer/mixer burner the usage of fuel shall be limited as follows:

<i>Fuel Type (units)</i>	<i>Fuel Usage Limit (per 12 consecutive month period)</i>
<b>Natural Gas (million cubic feet)</b>	<b>447</b>
<b>No. 4 fuel oil (gallons)</b>	<b>2,580,766</b>
<b>No. 2 fuel oil (gallons)</b>	<b>2,736,161</b>
<b>Residual No. 5 or 6 (gallons)</b>	<b>2,465,700</b>

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

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

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

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

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

**FESOP Quarterly Report**  
Page 1 of 2

Source Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
FESOP Permit No.: F117-29047-03220  
Facility: Dryer/Mixer Burner  
Parameter: Multiple fuel usage / Sulfur dioxide (SO<sub>2</sub>) emissions  
Limit: SO<sub>2</sub> emissions from the dryer/mixer shall not exceed 99 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner, the Permittee shall use the following equation to determine the tons of SO<sub>2</sub> emitted per twelve (12) consecutive month period:

$$S = \frac{G(E_G) + O(E_O) + F(E_F) + R(E_R)}{2,000 \text{ lbs/ton}}$$

<p><u>Where:</u> S = tons of sulfur dioxide emissions for twelve (12) month consecutive period G = million cubic feet of natural gas used in last twelve (12) months O = gallons of No. 4 fuel oil used in last twelve (12) months F = gallons of No. 2 fuel oil used in last twelve (12) months R = gallons of No. 5 and 6 fuel oil used in last twelve (12) months</p>	<p><u>Emission Factors:</u> E<sub>G</sub> = 0.6 pounds per million cubic feet of natural gas E<sub>O</sub> = 71.0 lb/1000 gallon of No. 4 fuel oil E<sub>F</sub> = 71.00 lb/1000 gallons of No. 2 fuel oil E<sub>R</sub> = 78.6 lb/1000 gallon of No. 5 or 6 fuel oil</p>
--	---

FESOP Fuel Usage and SO2 Emissions Quarterly Reporting Form

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

<b>Month</b>	<b>Fuel Types/Slag (units)</b>	<b>Column 1</b>	<b>Column 2</b>	<b>Column 1 + Column 2</b>	<b>Total SO2 Emissions From All Fuels Used (tons per 12 month consecutive period)</b>
		<b>Usage This Month</b>	<b>Usage Previous 11 Months</b>	<b>Usage 12 Month Total</b>	
<b>Month 1</b>	<b>Natural gas (mmcf)</b>				
	<b>No. 4 fuel oil (gallons)</b>				
	<b>No. 2 fuel oil (gallons)</b>				
	<b>No. 5 and 6 fuel oil (gallons)</b>				
<b>Month 2</b>	<b>Natural gas (mmcf)</b>				
	<b>No. 4 fuel oil (gallons)</b>				
	<b>No. 2 fuel oil (gallons)</b>				
	<b>No. 5 and 6 fuel oil (gallons)</b>				
<b>Month 3</b>	<b>Natural gas (mmcf)</b>				
	<b>No. 4 fuel oil (gallons)</b>				
	<b>No. 2 fuel oil (gallons)</b>				
	<b>No. 5 and 6 fuel oil (gallons)</b>				

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

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

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
OFFICE OF AIR QUALITY  
COMPLIANCE AND ENFORCEMENT BRANCH  
FEDERALLY ENFORCEABLE STATE OPERATING PERMIT (FESOP)  
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
FESOP Permit No.: F117-29047-03220

Months: \_\_\_\_\_ to \_\_\_\_\_ Year: \_\_\_\_\_

Page 1 of 2

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

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

Form Completed by: \_\_\_\_\_

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

Date: \_\_\_\_\_

Phone: \_\_\_\_\_

## **Appendix A**

**CALCAR QUARRY  
860 East US Highway 150  
Paoli, Indiana 47454**

**Permit No. F117-29047-03220**

## APPENDIX A

### Fugitive Dust Plan for the Asphalt Plant and Crushed Stone (Aggregate) Plant

#### A. Asphalt Plant

1. General
  - a. The materials used in the asphalt plant that are most likely to cause the plant to emit fugitive dust are crushed limestone and natural sand.
  - b. This material is stockpiled on-site and transported on a solid limestone floor by a front-end loader from the stockpile to the loading bins of the asphalt plant.
  - c. The asphalt plant and stockpile area are located within a quarry pit.
    - i. The plant and stockpile area are bounded to the North by an eighty-foot high limestone wall and to the East, West, and South by forty-foot high limestone walls.
    - ii. these terrain features will contain the vast majority of fugitive dust that might escape the asphalt plant.
    - iii. the contained fugitive dust will most likely fall within the plant and stockpile area.
2. Monitoring
  - a. The asphalt plant operator, the front-end loader operator, and the plant foreman are responsible to work together in monitoring the asphalt plant for fugitive dust emissions.
    - i. Asphalt Plant Operator
      - (1) will monitor the area of the drum drier and the burner of the asphalt plant for fugitive dust emissions;
      - (2) will monitor the baghouse for proper operation.
    - ii. Front-End Loader Operator
      - (1) will monitor the haul roads in the stockpile area for fugitive dust emissions;
      - (2) will monitor area near the asphalt plant loading bins for fugitive dust emissions.
    - iii. Plant Foreman
      - (1) will monitor the elevator tower and screening area of the asphalt plant for fugitive dust emissions;
      - (2) will monitor asphalt truck approach roads for fugitive dust emissions.
  - b. Monitoring will consist of routine observation of each person's area of responsibility for unusual or unusually high dust emissions that poses a threat to leave the property boundaries of the plant area.
3. Standard Preventive Measures
  - a. Asphalt Plant Operator
    - i. will operate the baghouse at all times that the asphalt plant is in operation.
    - ii. will return dust captured in the baghouse to the hot-mix according to the

job mix formula or to the degree possible while still providing a quality product for the customer.

- b. Front-End Loader Operator
  - i. will empty the baghouse discharge truck when full to prevent spillage.
- c. Plant Foreman
  - i. will ensure that haul roads in the area of the asphalt plant are properly dampened so as to minimize airborne dust generation by vehicles.

4. Corrective Actions.

- a. Asphalt Plant Operator
  - i. If excessive fugitive dust is observed in the area of the drum drier or burner, check the baghouse for proper operation and adjust accordingly until the dust is under control.
  - ii. If the baghouse fails to function properly, discontinue plant operations until the problem is fixed and the baghouse is fully operational.
  - iii. Report all corrective actions to the plant foreman
- b. Front-End Loader Operator
  - i. If fugitive dust is observed on the haul roads or the area of the asphalt plant loading bins, notify the plant foreman immediately so that he may direct the water truck to dampen the roads appropriately.
  - ii. If the discharge truck becomes full, notify the asphalt plant operator, discontinue loading the asphalt plant, and unload the discharge truck.
  - iii. Report all corrective actions to the plant foreman.
- c. Plant Foreman
  - i. If fugitive dust is observed in the elevator tower or the screening area of the asphalt plant, notify the asphalt plant operator to check for proper operation of the baghouse.
  - ii. If fugitive dust is observed on the asphalt truck approach roads or any of the haul roads, increase the frequency of the water truck passes to increase the moisture in the road surface material.
  - iii. Report all corrective actions to the plant manager.

5. Emergency Situations

- a. All
  - i. In the event that any of the corrective actions fail to reduce fugitive dust to the degree that escape of the fugitive dust from the plant property is imminent, notify the asphalt plant operator, the plant foreman, and the plant manger.
- b. Asphalt Plant Operator
  - i. Discontinue operations until the fugitive dust emissions are under control and the threat of the dust leaving the property is minimized.

**(B) Crushed Stone (Aggregate) Plant**

- (a) Fugitive particulate matter (dust) emissions from paved roads, unpaved roads, and parking lots shall be controlled by one or more of the following measures on an as needed basis:
  - (1) Unpaved roads and parking lots:
    - (A) treating with water on an as needed basis
- (b) Fugitive particulate matter (dust) emissions from material (gravel, sand, slag, limestone, and/or recycled asphalt pavement (RAP)) storage piles shall be controlled by one or more of the following measures on an as needed basis:
  - (1) maintaining minimum size and number of storage piles;
  - (2) treating around the storage pile area with water on an as needed basis; and/or
  - (3) treating the storage piles with water on an as needed basis.
- (c) Fugitive particulate matter (dust) emissions from the transferring of materials (gravel, sand, slag, limestone, and/or recycled asphalt pavement (RAP)) shall be controlled by one of the following measures on an as needed basis:
  - (1) locating storage piles as close as possible to feed bins;
  - (2) limiting transfer points to three foot drops or less.
  - (3) applying water to the materials on an as needed basis.
- (d) Fugitive particulate matter (dust) emissions from transporting of materials (gravel, sand, slag, limestone, and/or recycled asphalt pavement (RAP)) shall be controlled by one of the following measures on an as needed basis:
  - (1) tarping the materials hauling vehicles;
  - (2) insuring tailgates are tight and do not leak;
  - (3) applying water to the materials on an as needed basis; and/or
  - (4) maintaining a 10 MPH speed limit in the yard.
- (e) Fugitive particulate matter (dust) emissions from the loading and unloading of materials (gravel, sand, slag, limestone, and/or recycled asphalt pavement (RAP)) shall be controlled by one of the following measures on an as needed basis:
  - (1) limiting free fall distance;
  - (2) limiting the rate of discharge of the materials; and/or
  - (3) applying water to the materials on an as needed basis.
- (f) Fugitive particulate matter (dust) emissions from material (gravel, sand, slag, limestone, and/or recycled asphalt pavement (RAP)) feed bins, conveyors, transfer points, screens, and/or crushers shall be controlled by the following measure on an as needed basis:
  - (1) limiting transfer points to three foot drops or less.
  - (2) enclosing the conveyors, transfer points, screens, and/or crushers; and/or
  - (3) applying water to the materials on an as needed basis.

## **Appendix B**

**CALCAR QUARRY  
860 East US Highway 150  
Paoli, Indiana 47454**

**Permit No. F117-29047-03220**

**Indiana Department of Environmental Management  
Office of Air Quality**

**Attachment B**

**Title 40: Protection of Environment**

**Subpart I—Standards of Performance for Hot Mix Asphalt Facilities**

**§ 60.90 Applicability and designation of affected facility.**

- (a) The affected facility to which the provisions of this subpart apply is each hot mix asphalt facility. For the purpose of this subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.
- (b) Any facility under paragraph (a) of this section that commences construction or modification after June 11, 1973, is subject to the requirements of this subpart.

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

**§ 60.91 Definitions.**

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

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

[51 FR 12325, Apr. 10, 1986]

**§ 60.92 Standard for particulate matter.**

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

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

**§ 60.93 Test methods and procedures.**

- (a) In conducting the performance tests required in §60.8, the owner or operator shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in §60.8(b).
- (b) The owner or operator shall determine compliance with the particulate matter standards in §60.92 as follows:

- (1) Method 5 shall be used to determine the particulate matter concentration. The sampling time and sample volume for each run shall be at least 60 minutes and 0.90 dscm (31.8 dscf).
- (2) Method 9 and the procedures in §60.11 shall be used to determine opacity.

[54 FR 6667, Feb. 14, 1989]

## **Appendix C**

**CALCAR QUARRY  
860 East US Highway 150  
Paoli, Indiana 47454**

**Permit No. F117-29047-03220**

**Indiana Department of Environmental Management  
Office of Air Quality**

**Attachment C**

**Title 40: Protection of Environment**

**Subpart 000—Standards of Performance for Nonmetallic Mineral Processing Plants**

**Source:** 74 FR 19309, Apr. 28, 2009, unless otherwise noted.

**§ 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; plants without crushers or grinding mills above ground; and wet material processing operations (as defined in §60.671).

(b) An affected facility that is subject to the provisions of subparts F or I of this part 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.

(c) Facilities at the following plants are not subject to the provisions of this subpart:

(1) Fixed sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 23 megagrams per hour (25 tons per hour) or less;

(2) Portable sand and gravel plants and crushed stone plants with capacities, as defined in §60.671, of 136 megagrams per hour (150 tons per hour) or less; and

(3) Common clay plants and pumice plants with capacities, as defined in §60.671, of 9 megagrams per hour (10 tons per hour) or less.

(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, and there is no increase in the amount of emissions, 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, modification, or reconstruction 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 do not apply to owners and operators of affected facilities subject to this subpart or that apply with certain exceptions.

### **§ 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 affected facilities 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 affected facilities 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.

*Crush or Crushing* means to reduce the size of nonmetallic mineral material by means of physical impaction of the crusher or grinding mill upon the material.

*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:

(1) Crushed and Broken Stone, including Limestone, Dolomite, Granite, Traprock, Sandstone, Quartz, Quartzite, Marl, Marble, Slate, Shale, Oil Shale, and Shell.

(2) Sand and Gravel.

(3) Clay including Kaolin, Fireclay, Bentonite, Fuller's Earth, Ball Clay, and Common Clay.

(4) Rock Salt.

(5) Gypsum (natural or synthetic).

(6) Sodium Compounds, including Sodium Carbonate, Sodium Chloride, and Sodium Sulfate.

(7) Pumice.

(8) Gilsonite.

(9) Talc and Pyrophyllite.

(10) Boron, including Borax, Kernite, and Colemanite.

(11) Barite.

(12) Fluor spar.

(13) Feldspar.

(14) Diatomite.

(15) Perlite.

(16) Vermiculite.

(17) Mica.

(18) 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.

*Saturated material* means, for purposes of this subpart, mineral material with sufficient surface moisture such that particulate matter emissions are not generated from processing of the material through screening operations, bucket

elevators and belt conveyors. Material that is wetted solely by wet suppression systems is not considered to be "saturated" for purposes of this definition.

*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). Grizzly feeders associated with truck dumping and static (non-moving) grizzlies used anywhere in the nonmetallic mineral processing plant are not considered to be screening operations.

*Seasonal shut down* means shut down of an affected facility for a period of at least 45 consecutive days due to weather or seasonal market conditions.

*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) of 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 material processing operation(s)* means any of the following:

- (1) Wet screening operations (as defined in this section) and subsequent screening operations, bucket elevators and belt conveyors in the production line that process saturated materials (as defined in this section) up to the first crusher, grinding mill or storage bin in the production line; or
- (2) Screening operations, bucket elevators and belt conveyors in the production line downstream of wet mining operations (as defined in this section) that process saturated materials (as defined in this section) up to the first crusher, grinding mill or storage bin in the production line.

*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 (PM).**

(a) Affected facilities must meet the stack emission limits and compliance requirements in Table 2 of this subpart within 60 days 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 §60.8. The requirements in Table 2 of this subpart apply for affected facilities with capture systems used to capture and transport particulate matter to a control device.

(b) Affected facilities must meet the fugitive emission limits and compliance requirements in Table 3 of this subpart within 60 days 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. The requirements in Table 3 of this subpart apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

(c) [Reserved]

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

(e) If any transfer point on a conveyor belt or any other affected facility is enclosed in a building, then each enclosed affected facility must comply with the emission limits in paragraphs (a) and (b) of this section, or the building enclosing the affected facility or facilities must comply with the following emission limits:

(1) Fugitive emissions from the building openings (except for vents as defined in §60.671) must not exceed 7 percent opacity; and

(2) Vents (as defined in §60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of this subpart.

(f) Any baghouse that controls emissions from only an individual, enclosed storage bin is exempt from the applicable stack PM concentration limit (and associated performance testing) in Table 2 of this subpart but must meet the applicable stack opacity limit and compliance requirements in Table 2 of this subpart. This exemption from the stack PM concentration limit does not apply for multiple storage bins with combined stack emissions.

### **§ 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.

### **§ 60.674 Monitoring of operations.**

(a) The owner or operator of any affected facility subject to the provisions of this subpart which uses a wet scrubber to control emissions shall install, calibrate, maintain and operate the following monitoring devices:

(1) A device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 250$  pascals  $\pm 1$  inch water gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.

(2) A device for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within  $\pm 5$  percent of design scrubbing liquid flow rate and must be calibrated on an annual basis in accordance with manufacturer's instructions.

(b) The owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses wet suppression to control emissions from the affected facility must perform monthly periodic inspections to check that water is flowing to discharge spray nozzles in the wet suppression system. The owner or operator must initiate corrective action within 24 hours and complete corrective action as expeditiously as practical if the owner or operator finds that water is not flowing properly during an inspection of the water spray nozzles. The owner or operator must record each inspection of the water spray nozzles, including the date of each inspection and any corrective actions taken, in the logbook required under §60.676(b).

(1) If an affected facility relies on water carryover from upstream water sprays to control fugitive emissions, then that affected facility is exempt from the 5-year repeat testing requirement specified in Table 3 of this subpart provided that the affected facility meets the criteria in paragraphs (b)(1)(i) and (ii) of this section:

(i) The owner or operator of the affected facility conducts periodic inspections of the upstream water spray(s) that are responsible for controlling fugitive emissions from the affected facility. These inspections are conducted according to paragraph (b) of this section and §60.676(b), and

(ii) The owner or operator of the affected facility designates which upstream water spray(s) will be periodically inspected at the time of the initial performance test required under §60.11 of this part and §60.675 of this subpart.

(2) If an affected facility that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (for example, water from recent rainfall), the logbook entry required under §60.676(b) must specify the control mechanism being used instead of the water sprays.

(c) Except as specified in paragraph (d) or (e) of this section, the owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses a baghouse to control emissions must conduct quarterly 30-minute visible emissions inspections using EPA Method 22 (40 CFR part 60, Appendix A-7). The Method 22 (40 CFR part 60, Appendix A-7) test shall be conducted while the baghouse is operating. The test is successful if no visible emissions are observed. If any visible emissions are observed, the owner or operator of the affected facility must initiate corrective action within 24 hours to return the baghouse to normal operation. The owner or operator must record each Method 22 (40 CFR part 60, Appendix A-7) test, including the date and any corrective actions taken, in the logbook required under §60.676(b). The owner or operator of the affected facility may establish a different baghouse-specific success level for the visible emissions test (other than no visible emissions) by conducting a PM performance test according to §60.675(b) simultaneously with a Method 22 (40 CFR part 60, Appendix A-7) to determine what constitutes normal visible emissions from that affected facility's baghouse when it is in compliance with the applicable PM concentration limit in Table 2 of this subpart. The revised visible emissions success level must be incorporated into the permit for the affected facility.

(d) As an alternative to the periodic Method 22 (40 CFR part 60, Appendix A-7) visible emissions inspections specified in paragraph (c) of this section, the owner or operator of any affected facility for which construction, modification, or reconstruction commenced on or after April 22, 2008, that uses a baghouse to control emissions may use a bag leak detection system. The owner or operator must install, operate, and maintain the bag leak detection system according to paragraphs (d)(1) through (3) of this section.

(1) Each bag leak detection system must meet the specifications and requirements in paragraphs (d)(1)(i) through (viii) of this section.

(i) The bag leak detection system must be certified by the manufacturer to be capable of detecting PM emissions at concentrations of 1 milligram per dry standard cubic meter (0.00044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative PM loadings. The owner or operator shall continuously record the output from the bag leak detection system using electronic or other means ( e.g. , using a strip chart recorder or a data logger).

(iii) The bag leak detection system must be equipped with an alarm system that will sound when the system detects an increase in relative particulate loading over the alarm set point established according to paragraph (d)(1)(iv) of this section, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) In the initial adjustment of the bag leak detection system, the owner or operator must establish, at a minimum, the baseline output by adjusting the sensitivity (range) and the averaging period of the device, the alarm set points, and the alarm delay time.

(v) Following initial adjustment, the owner or operator shall not adjust the averaging period, alarm set point, or alarm delay time without approval from the Administrator or delegated authority except as provided in paragraph (d)(1)(vi) of this section.

(vi) Once per quarter, the owner or operator may adjust the sensitivity of the bag leak detection system to account for seasonal effects, including temperature and humidity, according to the procedures identified in the site-specific monitoring plan required by paragraph (d)(2) of this section.

(vii) The owner or operator must install the bag leak detection sensor downstream of the fabric filter.

(viii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) The owner or operator of the affected facility must develop and submit to the Administrator or delegated authority for approval of a site-specific monitoring plan for each bag leak detection system. The owner or operator must operate and maintain the bag leak detection system according to the site-specific monitoring plan at all times. Each monitoring plan must describe the items in paragraphs (d)(2)(i) through (vi) of this section.

(i) Installation of the bag leak detection system;

(ii) Initial and periodic adjustment of the bag leak detection system, including how the alarm set-point will be established;

(iii) Operation of the bag leak detection system, including quality assurance procedures;

(iv) How the bag leak detection system will be maintained, including a routine maintenance schedule and spare parts inventory list;

(v) How the bag leak detection system output will be recorded and stored; and

(vi) Corrective action procedures as specified in paragraph (d)(3) of this section. In approving the site-specific monitoring plan, the Administrator or delegated authority may allow owners and operators more than 3 hours to alleviate a specific condition that causes an alarm if the owner or operator identifies in the monitoring plan this specific condition as one that could lead to an alarm, adequately explains why it is not feasible to alleviate this condition within 3 hours of the time the alarm occurs, and demonstrates that the requested time will ensure alleviation of this condition as expeditiously as practicable.

(3) For each bag leak detection system, the owner or operator must initiate procedures to determine the cause of every alarm within 1 hour of the alarm. Except as provided in paragraph (d)(2)(vi) of this section, the owner or operator must alleviate the cause of the alarm within 3 hours of the alarm by taking whatever corrective action(s) are necessary. Corrective actions may include, but are not limited to the following:

(i) Inspecting the fabric filter for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in PM emissions;

(ii) Sealing off defective bags or filter media;

(iii) Replacing defective bags or filter media or otherwise repairing the control device;

(iv) Sealing off a defective fabric filter compartment;

(v) Cleaning the bag leak detection system probe or otherwise repairing the bag leak detection system; or

(vi) Shutting down the process producing the PM emissions.

(e) As an alternative to the periodic Method 22 (40 CFR part 60, Appendix A-7) visible emissions inspections specified in paragraph (c) of this section, the owner or operator of any affected facility that is subject to the requirements for processed stone handling operations in the Lime Manufacturing NESHAP (40 CFR part 63, subpart AAAAA) may follow the continuous compliance requirements in row 1 items (i) through (iii) of Table 6 to Subpart AAAAA of 40 CFR part 63.

## § 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 appendices A–1 through A–7 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 PM standards in §60.672(a) as follows:

(1) Except as specified in paragraphs (e)(3) and (4) of this section, Method 5 of Appendix A–3 of this part or Method 17 of Appendix A–6 of this part shall be used to determine the particulate matter concentration. The sample volume shall be at least 1.70 dscm (60 dscf). For Method 5 (40 CFR part 60, Appendix A–3), 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 of Appendix A–4 of this part 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) or §60.672(e)(1), the owner or operator shall use Method 9 of Appendix A–4 of this part 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 of Appendix A–4 of this part, 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)(i) 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 (40 CFR part 60, Appendix A–4), the duration of the Method 9 (40 CFR part 60, Appendix A–4) observations shall be 1 hour (ten 6-minute averages).

(ii) The duration of the Method 9 (40 CFR part 60, Appendix A–4) observations may be reduced to the duration the affected facility operates (but not less than 30 minutes) for baghouses that control storage bins or enclosed truck or railcar loading stations that operate for less than 1 hour at a time.

(3) When determining compliance with the fugitive emissions standard for any affected facility described under §60.672(b) or §60.672(e)(1) of this subpart, the duration of the Method 9 (40 CFR part 60, Appendix A–4) observations must be 30 minutes (five 6-minute averages). Compliance with the applicable fugitive emission limits in Table 3 of this subpart must be based on the average of the five 6-minute averages.

(d) To demonstrate compliance with the fugitive emission limits for buildings specified in §60.672(e)(1), the owner or operator must complete the testing specified in paragraph (d)(1) and (2) of this section. Performance tests must be conducted while all affected facilities inside the building are operating.

(1) If the building encloses any affected facility that commences construction, modification, or reconstruction on or after April 22, 2008, the owner or operator of the affected facility must conduct an initial Method 9 (40 CFR part 60, Appendix A–4) performance test according to this section and §60.11.

(2) If the building encloses only affected facilities that commenced construction, modification, or reconstruction before April 22, 2008, and the owner or operator has previously conducted an initial Method 22 (40 CFR part 60, Appendix A–7) performance test showing zero visible emissions, then the owner or operator has demonstrated compliance with

the opacity limit in §60.672(e)(1). If the owner or operator has not conducted an initial performance test for the building before April 22, 2008, then the owner or operator must conduct an initial Method 9 (40 CFR part 60, Appendix A-4) performance test according to this section and §60.11 to show compliance with the opacity limit in §60.672(e)(1).

(e) The owner or operator may use the following as alternatives to the reference methods and procedures specified in this section:

(1) For the method and procedure of paragraph (c) of this section, if emissions from two or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:

(i) Use for the combined emission stream the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream.

(ii) Separate the emissions so that the opacity of emissions from each affected facility can be read.

(2) A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval if the following conditions are met:

(i) No more than three emission points may be read concurrently.

(ii) All three emission points must be within a 70 degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points.

(iii) If an opacity reading for any one of the three emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

(3) Method 5I of Appendix A-3 of this part may be used to determine the PM concentration as an alternative to the methods specified in paragraph (b)(1) of this section. Method 5I (40 CFR part 60, Appendix A-3) may be useful for affected facilities that operate for less than 1 hour at a time such as (but not limited to) storage bins or enclosed truck or railcar loading stations.

(4) In some cases, velocities of exhaust gases from building vents may be too low to measure accurately with the type S pitot tube specified in EPA Method 2 of Appendix A-1 of this part [ *i.e.*, velocity head <1.3 mm H<sub>2</sub>O (0.05 in. H<sub>2</sub>O)] and referred to in EPA Method 5 of Appendix A-3 of this part. For these conditions, the owner or operator may determine the average gas flow rate produced by the power fans ( *e.g.*, from vendor-supplied fan curves) to the building vent. The owner or operator may calculate the average gas velocity at the building vent measurement site using Equation 1 of this section and use this average velocity in determining and maintaining isokinetic sampling rates.

$$v_e = \frac{Q_f}{A_e} \quad (\text{Eq. 1})$$

Where:

$V_e$ = average building vent velocity (feet per minute);

$Q_f$ = average fan flow rate (cubic feet per minute); and

$A_e$ = area of building vent and measurement location (square feet).

(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)(1) and (2) during each particulate matter run and shall determine the averages.

(g) For performance tests involving only Method 9 (40 CFR part 60 Appendix A-4) testing, the owner or operator may reduce the 30-day advance notification of performance test in §60.7(a)(6) and 60.8(d) to a 7-day advance notification.

(h) [Reserved]

(i) If the initial performance test date for an affected facility falls during a seasonal shut down (as defined in §60.671 of this subpart) of the affected facility, then with approval from the permitting authority, the owner or operator may postpone the initial performance test until no later than 60 calendar days after resuming operation of the affected facility.

### **§ 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.

(b)(1) Owners or operators of affected facilities (as defined in §§60.670 and 60.671) for which construction, modification, or reconstruction commenced on or after April 22, 2008, must record each periodic inspection required under §60.674(b) or (c), including dates and any corrective actions taken, in a logbook (in written or electronic format). The owner or operator must keep the logbook onsite and make hard or electronic copies (whichever is requested) of the logbook available to the Administrator upon request.

(2) For each bag leak detection system installed and operated according to §60.674(d), the owner or operator must keep the records specified in paragraphs (b)(2)(i) through (iii) of this section.

(i) Records of the bag leak detection system output;

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(iii) The date and time of all bag leak detection system alarms, the time that procedures to determine the cause of the alarm were initiated, the cause of the alarm, an explanation of the actions taken, the date and time the cause of the alarm was alleviated, and whether the cause of the alarm was alleviated within 3 hours of the alarm.

(3) The owner or operator of each affected facility demonstrating compliance according to §60.674(e) by following the requirements for processed stone handling operations in the Lime Manufacturing NESHAP (40 CFR part 63, subpart AAAAA) must maintain records of visible emissions observations required by §63.7132(a)(3) and (b) of 40 CFR part 63, subpart AAAAA.

(c) During the initial performance test of a wet scrubber, and daily thereafter, the owner or operator shall record the measurements of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.

(d) After the initial performance test of a wet scrubber, the owner or operator shall submit semiannual reports to the Administrator of occurrences when the measurements of the scrubber pressure loss and liquid flow rate decrease by more than 30 percent from the average determined during the most recent performance test.

(e) The reports required under paragraph (d) of this section shall be postmarked within 30 days following end of the second and fourth calendar quarters.

(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 (40 CFR part 60, Appendix A-4) to demonstrate compliance with §60.672(b), (e) and (f).

(g) The owner or operator of any wet material processing operation that processes saturated and subsequently processes unsaturated materials, shall submit a report of this change within 30 days following such change. At the time of such change, this screening operation, bucket elevator, or belt conveyor becomes subject to the applicable opacity limit in §60.672(b) and the emission test requirements of §60.11.

(h) The subpart A requirement under §60.7(a)(1) for notification of the date construction or reconstruction commenced is waived for affected facilities 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.

(k) Notifications and reports required under this subpart and under subpart A of this part to demonstrate compliance with this subpart need only to be sent to the EPA Region or the State which has been delegated authority according to §60.4(b).

**Table 1 to Subpart OOO—Exceptions to Applicability of Subpart A to Subpart OOO**

**Table 1 to Subpart OOO—Exceptions to Applicability of Subpart A to Subpart OOO**

Subpart A reference	Applies to subpart OOO	Explanation
60.4, Address	Yes	Except in §60.4(a) and (b) submittals need not be submitted to both the EPA Region and delegated State authority (§60.676(k)).
60.7, Notification and recordkeeping	Yes	Except in (a)(1) notification of the date construction or reconstruction commenced (§60.676(h)).
		Also, except in (a)(6) performance tests involving only Method 9 (40 CFR part 60, Appendix A-4) require a 7-day advance notification instead of 30 days (§60.675(g)).
60.8, Performance tests	Yes	Except in (d) performance tests involving only Method 9 (40 CFR part 60, Appendix A-4) require a 7-day advance notification instead of 30 days (§60.675(g)).
60.11, Compliance with standards and maintenance requirements	Yes	Except in (b) under certain conditions (§§60.675(c)), Method 9 (40 CFR part 60, Appendix A-4) observation is reduced from 3 hours to 30 minutes for fugitive emissions.
60.18, General control device	No	Flares will not be used to comply with the emission limits.

**Table 2 to Subpart OOO—Stack Emission Limits for Affected Facilities With Capture Systems**

**Table 2 to Subpart OOO—Stack Emission Limits for Affected Facilities With Capture Systems**

<b>For * * *</b>	<b>The owner or operator must meet a PM limit of * * *</b>	<b>And the owner or operator must meet an opacity limit of * * *</b>	<b>The owner or operator must demonstrate compliance with these limits by conducting * * *</b>
Affected facilities (as defined in §§60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008	0.05 g/dscm (0.022 gr/dscf) <sup>a</sup>	7 percent for dry control devices <sup>b</sup>	An initial performance test according to §60.8 of this part and §60.675 of this subpart; and Monitoring of wet scrubber parameters according to §60.674(a) and §60.676(c), (d), and (e).
Affected facilities (as defined in §§60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008	0.032 g/dscm (0.014 gr/dscf) <sup>a</sup>	Not applicable (except for individual enclosed storage bins) 7 percent for dry control devices on individual enclosed storage bins	An initial performance test according to §60.8 of this part and §60.675 of this subpart; and Monitoring of wet scrubber parameters according to §60.674(a) and §60.676(c), (d), and (e); and
			Monitoring of baghouses according to §60.674(c), (d), or (e) and §60.676(b).

<sup>a</sup>Exceptions to the PM limit apply for individual enclosed storage bins and other equipment. See §60.672(d) through (f).

<sup>b</sup>The stack opacity limit and associated opacity testing requirements do not apply for affected facilities using wet scrubbers.

**Table 3 to Subpart OOO—Fugitive Emission Limits**

**Table 3 to Subpart OOO—Fugitive Emission Limits**

<p style="text-align: center;"><b>For * * *</b></p>	<p><b>The owner or operator must meet the following fugitive emissions limit for grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in §§60.670 and 60.671) * * *</b></p>	<p><b>The owner or operator must meet the following fugitive emissions limit for crushers at which a capture system is not used * * *</b></p>	<p><b>The owner or operator must demonstrate compliance with these limits by conducting * * *</b></p>
<p>Affected facilities (as defined in §§60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008</p>	<p>10 percent opacity</p>	<p>15 percent opacity</p>	<p>An initial performance test according to §60.11 of this part and §60.675 of this subpart.</p>
<p>Affected facilities (as defined in §§60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008</p>	<p>7 percent opacity</p>	<p>12 percent opacity</p>	<p>An initial performance test according to §60.11 of this part and §60.675 of this subpart; and Periodic inspections of water sprays according to §60.674(b) and §60.676(b); and</p>
			<p>A repeat performance test according to §60.11 of this part and §60.675 of this subpart within 5 years from the previous performance test for fugitive emissions from affected facilities without water sprays. Affected facilities controlled by water carryover from upstream water sprays that are inspected according to the requirements in §60.674(b) and §60.676(b) are exempt from this 5-year repeat testing requirement.</p>

## **Appendix D**

**CALCAR QUARRY  
860 East US Highway 150  
Paoli, Indiana 47454**

**Permit No. F117-29047-03220**

**Title 40: Protection of Environment**  
**PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES**

**Subpart CCCCCC—National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities**

**Source:** 73 FR 1945, Jan. 10, 2008, unless otherwise noted.

**What This Subpart Covers**

**§ 63.11110 What is the purpose of this subpart?**

This subpart establishes national emission limitations and management practices for hazardous air pollutants (HAP) emitted from the loading of gasoline storage tanks at gasoline dispensing facilities (GDF). This subpart also establishes requirements to demonstrate compliance with the emission limitations and management practices.

**§ 63.11111 Am I subject to the requirements in this subpart?**

(a) The affected source to which this subpart applies is each GDF that is located at an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank.

(b) If your GDF has a monthly throughput of less than 10,000 gallons of gasoline, you must comply with the requirements in §63.11116.

(c) If your GDF has a monthly throughput of 10,000 gallons of gasoline or more, you must comply with the requirements in §63.11117.

(d) If your GDF has a monthly throughput of 100,000 gallons of gasoline or more, you must comply with the requirements in §63.11118.

(e) An affected source shall, upon request by the Administrator, demonstrate that their average monthly throughput is less than the 10,000-gallon or the 100,000-gallon threshold level, as applicable.

(f) If you are an owner or operator of affected sources, as defined in paragraph (a) of this section, you are not required to obtain a permit under 40 CFR part 70 or 40 CFR part 71 as a result of being subject to this subpart. However, you must still apply for and obtain a permit under 40 CFR part 70 or 40 CFR part 71 if you meet one or more of the applicability criteria found in 40 CFR 70.3(a) and (b) or 40 CFR 71.3(a) and (b).

(g) The loading of aviation gasoline storage tanks at airports is not subject to this subpart and the aviation gasoline is not included in the gasoline throughput specified in paragraphs (b) through (e) of this section.

**§ 63.11112 What parts of my affected source does this subpart cover?**

(a) The emission sources to which this subpart applies are gasoline storage tanks and associated equipment components in vapor or liquid gasoline service at new, reconstructed, or existing GDF that meet the criteria specified in §63.11111. Pressure/Vacuum vents on gasoline storage tanks and the equipment necessary to unload product from cargo tanks into the storage tanks at GDF are covered emission sources. The equipment used for the refueling of motor vehicles is not covered by this subpart.

(b) An affected source is a new affected source if you commenced construction on the affected source after November 9, 2006, and you meet the applicability criteria in §63.11111 at the time you commenced operation.

(c) An affected source is reconstructed if you meet the criteria for reconstruction as defined in §63.2.

(d) An affected source is an existing affected source if it is not new or reconstructed.

### **§ 63.11113 When do I have to comply with this subpart?**

(a) If you have a new or reconstructed affected source, you must comply with this subpart according to paragraphs (a)(1) and (2) of this section, except as specified in paragraph (d) of this section.

(1) If you start up your affected source before January 10, 2008, you must comply with the standards in this subpart no later than January 10, 2008.

(2) If you start up your affected source after January 10, 2008, you must comply with the standards in this subpart upon startup of your affected source.

(b) If you have an existing affected source, you must comply with the standards in this subpart no later than January 10, 2011.

(c) If you have an existing affected source that becomes subject to the control requirements in this subpart because of an increase in the average monthly throughput, as specified in §63.11111(c) or §63.11111(d), you must comply with the standards in this subpart no later than 3 years after the affected source becomes subject to the control requirements in this subpart.

(d) If you have a new or reconstructed affected source and you are complying with Table 1 to this subpart, you must comply according to paragraphs (d)(1) and (2) of this section.

(1) If you start up your affected source from November 9, 2006 to September 23, 2008, you must comply no later than September 23, 2008.

(2) If you start up your affected source after September 23, 2008, you must comply upon startup of your affected source.

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 35944, June 25, 2008]

### **Emission Limitations and Management Practices**

#### **§ 63.11116 Requirements for facilities with monthly throughput of less than 10,000 gallons of gasoline.**

(a) You must not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include, but are not limited to, the following:

(1) Minimize gasoline spills;

(2) Clean up spills as expeditiously as practicable;

(3) Cover all open gasoline containers and all gasoline storage tank fill-pipes with a gasketed seal when not in use;

(4) Minimize gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.

(b) You are not required to submit notifications or reports, but you must have records available within 24 hours of a request by the Administrator to document your gasoline throughput.

(c) You must comply with the requirements of this subpart by the applicable dates specified in §63.11113.

**§ 63.11117 Requirements for facilities with monthly throughput of 10,000 gallons of gasoline or more.**

(a) You must comply with the requirements in section §63.11116(a).

(b) Except as specified in paragraph (c), you must only load gasoline into storage tanks at your facility by utilizing submerged filling, as defined in §63.11132, and as specified in paragraph (b)(1) or paragraph (b)(2) of this section.

(1) Submerged fill pipes installed on or before November 9, 2006, must be no more than 12 inches from the bottom of the storage tank.

(2) Submerged fill pipes installed after November 9, 2006, must be no more than 6 inches from the bottom of the storage tank.

(c) Gasoline storage tanks with a capacity of less than 250 gallons are not required to comply with the submerged fill requirements in paragraph (b) of this section, but must comply only with all of the requirements in §63.11116.

(d) You must have records available within 24 hours of a request by the Administrator to document your gasoline throughput.

(e) You must submit the applicable notifications as required under §63.11124(a).

(f) You must comply with the requirements of this subpart by the applicable dates contained in §63.11113.

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 12276, Mar. 7, 2008]

**§ 63.11118 Requirements for facilities with monthly throughput of 100,000 gallons of gasoline or more.**

(a) You must comply with the requirements in §§63.11116(a) and 63.11117(b).

(b) Except as provided in paragraph (c) of this section, you must meet the requirements in either paragraph (b)(1) or paragraph (b)(2) of this section.

(1) Each management practice in Table 1 to this subpart that applies to your GDF.

(2) If, prior to January 10, 2008, you satisfy the requirements in both paragraphs (b)(2)(i) and (ii) of this section, you will be deemed in compliance with this subsection.

(i) You operate a vapor balance system at your GDF that meets the requirements of either paragraph (b)(2)(i)(A) or paragraph (b)(2)(i)(B) of this section.

(A) Achieves emissions reduction of at least 90 percent.

(B) Operates using management practices at least as stringent as those in Table 1 to this subpart.

(ii) Your gasoline dispensing facility is in compliance with an enforceable State, local, or tribal rule or permit that contains requirements of either paragraph (b)(2)(i)(A) or paragraph (b)(2)(i)(B) of this section.

(c) The emission sources listed in paragraphs (c)(1) through (3) of this section are not required to comply with the control requirements in paragraph (b) of this section, but must comply with the requirements in §63.11117.

(1) Gasoline storage tanks with a capacity of less than 250 gallons that are constructed after January 10, 2008.

(2) Gasoline storage tanks with a capacity of less than 2,000 gallons that were constructed before January 10, 2008.

(3) Gasoline storage tanks equipped with floating roofs, or the equivalent.

(d) Cargo tanks unloading at GDF must comply with the management practices in Table 2 to this subpart.

(e) You must comply with the applicable testing requirements contained in §63.11120.

(f) You must submit the applicable notifications as required under §63.11124.

(g) You must keep records and submit reports as specified in §§63.11125 and 63.11126.

(h) You must comply with the requirements of this subpart by the applicable dates contained in §63.11113.

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 12276, Mar. 7, 2008]

## Testing and Monitoring Requirements

### § 63.11120 What testing and monitoring requirements must I meet?

(a) Each owner or operator, at the time of installation of a vapor balance system required under §63.11118(b)(1), and every 3 years thereafter, must comply with the requirements in paragraphs (a)(1) and (2) of this section.

(1) You must demonstrate compliance with the leak rate and cracking pressure requirements, specified in item 1(g) of Table 1 to this subpart, for pressure-vacuum vent valves installed on your gasoline storage tanks using the test methods identified in paragraph (a)(1)(i) or paragraph (a)(1)(ii) of this section.

(i) California Air Resources Board Vapor Recovery Test Procedure TP-201.1E,—Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves, adopted October 8, 2003 (incorporated by reference, see §63.14).

(ii) Use alternative test methods and procedures in accordance with the alternative test method requirements in §63.7(f).

(2) You must demonstrate compliance with the static pressure performance requirement, specified in item 1(h) of Table 1 to this subpart, for your vapor balance system by conducting a static pressure test on your gasoline storage tanks using the test methods identified in paragraph (a)(2)(i) or paragraph (a)(2)(ii) of this section.

(i) California Air Resources Board Vapor Recovery Test Procedure TP-201.3,—Determination of 2-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities, adopted April 12, 1996, and amended March 17, 1999 (incorporated by reference, see §63.14).

(ii) Use alternative test methods and procedures in accordance with the alternative test method requirements in §63.7(f).

(b) Each owner or operator choosing, under the provisions of §63.6(g), to use a vapor balance system other than that described in Table 1 to this subpart must demonstrate to the Administrator or delegated authority under paragraph §63.11131(a) of this subpart, the equivalency of their vapor balance system to that described in Table 1 to this subpart using the procedures specified in paragraphs (b)(1) through (3) of this section.

(1) You must demonstrate initial compliance by conducting an initial performance test on the vapor balance system to demonstrate that the vapor balance system achieves 95 percent reduction using the California Air Resources Board Vapor Recovery Test Procedure TP-201.1,—Volumetric Efficiency for Phase I Vapor Recovery Systems, adopted April 12, 1996, and amended February 1, 2001, and October 8, 2003, (incorporated by reference, see §63.14).

(2) You must, during the initial performance test required under paragraph (b)(1) of this section, determine and document alternative acceptable values for the leak rate and cracking pressure requirements specified in item 1(g) of Table 1 to this subpart and for the static pressure performance requirement in item 1(h) of Table 1 to this subpart.

(3) You must comply with the testing requirements specified in paragraph (a) of this section.

## **Notifications, Records, and Reports**

### **§ 63.11124 What notifications must I submit and when?**

(a) Each owner or operator subject to the control requirements in §63.11117 must comply with paragraphs (a)(1) through (3) of this section.

(1) You must submit an Initial Notification that you are subject to this subpart by May 9, 2008, or at the time you become subject to the control requirements in §63.11117, unless you meet the requirements in paragraph (a)(3) of this section. The Initial Notification must contain the information specified in paragraphs (a)(1)(i) through (iii) of this section. The notification must be submitted to the applicable EPA Regional Office and delegated State authority as specified in §63.13.

(i) The name and address of the owner and the operator.

(ii) The address (i.e., physical location) of the GDF.

(iii) A statement that the notification is being submitted in response to this subpart and identifying the requirements in paragraphs (a) through (c) of §63.11117 that apply to you.

(2) You must submit a Notification of Compliance Status to the applicable EPA Regional Office and the delegated State authority, as specified in §63.13, by the compliance date specified in §63.11113 unless you meet the requirements in paragraph (a)(3) of this section. The Notification of Compliance Status must be signed by a responsible official who must certify its accuracy and must indicate whether the source has complied with the requirements of this subpart. If your facility is in compliance with the requirements of this subpart at the time the Initial Notification required under paragraph (a)(1) of this section is due, the Notification of Compliance Status may be submitted in lieu of the Initial Notification provided it contains the information required under paragraph (a)(1) of this section.

(3) If, prior to January 10, 2008, you are operating in compliance with an enforceable State, local, or tribal rule or permit that requires submerged fill as specified in §63.11117(b), you are not required to submit an Initial Notification or a Notification of Compliance Status under paragraph (a)(1) or paragraph (a)(2) of this section.

(b) Each owner or operator subject to the control requirements in §63.11118 must comply with paragraphs (b)(1) through (5) of this section.

(1) You must submit an Initial Notification that you are subject to this subpart by May 9, 2008, or at the time you become subject to the control requirements in §63.11118. The Initial Notification must contain the information specified in paragraphs (b)(1)(i) through (iii) of this section. The notification must be submitted to the applicable EPA Regional Office and the delegated State authority as specified in §63.13.

(i) The name and address of the owner and the operator.

(ii) The address (i.e., physical location) of the GDF.

(iii) A statement that the notification is being submitted in response to this subpart and identifying the requirements in paragraphs (a) through (c) of §63.11118 that apply to you.

(2) You must submit a Notification of Compliance Status to the applicable EPA Regional Office and the delegated State authority, as specified in §63.13, by the compliance date specified in §63.11113. The Notification of Compliance Status must be signed by a responsible official who must certify its accuracy and must indicate whether the source has complied with the requirements of this subpart. If your facility is in compliance with the requirements of this subpart at the time the Initial Notification required under paragraph (b)(1) of this section is due, the Notification of Compliance Status may be submitted in lieu of the Initial Notification provided it contains the information required under paragraph (b)(1) of this section.

(3) If, prior to January 10, 2008, you satisfy the requirements in both paragraphs (b)(3)(i) and (ii) of this section, you are not required to submit an Initial Notification or a Notification of Compliance Status under paragraph (b)(1) or paragraph (b)(2) of this subsection.

(i) You operate a vapor balance system at your gasoline dispensing facility that meets the requirements of either paragraphs (b)(3)(i)(A) or (b)(3)(i)(B) of this section.

(A) Achieves emissions reduction of at least 90 percent.

(B) Operates using management practices at least as stringent as those in Table 1 to this subpart.

(ii) Your gasoline dispensing facility is in compliance with an enforceable State, local, or tribal rule or permit that contains requirements of either paragraphs (b)(3)(i)(A) or (b)(3)(i)(B) of this section.

(4) You must submit a Notification of Performance Test, as specified in §63.9(e), prior to initiating testing required by §63.11120(a) and (b).

(5) You must submit additional notifications specified in §63.9, as applicable.

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 12276, Mar. 7, 2008]

### **§ 63.11125 What are my recordkeeping requirements?**

(a) Each owner or operator subject to the management practices in §63.11118 must keep records of all tests performed under §63.11120(a) and (b).

(b) Records required under paragraph (a) of this section shall be kept for a period of 5 years and shall be made available for inspection by the Administrator's delegated representatives during the course of a site visit.

### **§ 63.11126 What are my reporting requirements?**

Each owner or operator subject to the management practices in §63.11118 shall report to the Administrator the results of all volumetric efficiency tests required under §63.11120(b). Reports submitted under this paragraph must be submitted within 180 days of the completion of the performance testing.

### **Other Requirements and Information**

#### **§ 63.11130 What parts of the General Provisions apply to me?**

Table 3 to this subpart shows which parts of the General Provisions apply to you.

#### **§ 63.11131 Who implements and enforces this subpart?**

(a) This subpart can be implemented and enforced by the U.S. EPA or a delegated authority such as the applicable State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to a State, local, or tribal agency, then that agency, in addition to the U.S. EPA, has the authority to implement and enforce this subpart. Contact the applicable U.S. EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to a State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under subpart E of this part, the authorities contained in paragraph (c) of this section are retained by the Administrator of U.S. EPA and cannot be transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to State, local, or tribal agencies are as specified in paragraphs (c)(1) through (3) of this section.

(1) Approval of alternatives to the requirements in §§63.11116 through 63.11118 and 63.11120.

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f), as defined in §63.90, and as required in this subpart.

(3) Approval of major alternatives to recordkeeping and reporting under §63.10(f), as defined in §63.90, and as required in this subpart.

### **§ 63.11132 What definitions apply to this subpart?**

As used in this subpart, all terms not defined herein shall have the meaning given them in the Clean Air Act (CAA), or in subparts A and BBBB of this part. For purposes of this subpart, definitions in this section supersede definitions in other parts or subparts.

*Dual-point vapor balance system* means a type of vapor balance system in which the storage tank is equipped with an entry port for a gasoline fill pipe and a separate exit port for a vapor connection.

*Gasoline cargo tank* means a delivery tank truck or railcar which is loading gasoline or which has loaded gasoline on the immediately previous load.

*Gasoline dispensing facility* (GDF) means any stationary facility which dispenses gasoline into the fuel tank of a motor vehicle.

*Monthly throughput* means the total volume of gasoline that is loaded into all gasoline storage tanks during a month, as calculated on a rolling 30-day average.

*Submerged filling* means, for the purposes of this subpart, the filling of a gasoline storage tank through a submerged fill pipe whose discharge is no more than the applicable distance specified in §63.11117(b) from the bottom of the tank. Bottom filling of gasoline storage tanks is included in this definition.

*Vapor balance system* means a combination of pipes and hoses that create a closed system between the vapor spaces of an unloading gasoline cargo tank and a receiving storage tank such that vapors displaced from the storage tank are transferred to the gasoline cargo tank being unloaded.

*Vapor-tight* means equipment that allows no loss of vapors. Compliance with vapor-tight requirements can be determined by checking to ensure that the concentration at a potential leak source is not equal to or greater than 100 percent of the Lower Explosive Limit when measured with a combustible gas detector, calibrated with propane, at a distance of 1 inch from the source.

### **Table 1 to Subpart CCCCC of Part 63—Applicability Criteria and Management Practices for Gasoline Dispensing Facilities With Monthly Throughput of 100,000 Gallons of Gasoline or More**

If you own or operate	Then you must
1. A new, reconstructed, or existing GDF subject to §63.11118	Install and operate a vapor balance system on your gasoline storage tanks that meets the design criteria in paragraphs (a) through (h).
	(a) All vapor connections and lines on the storage tank shall be equipped with closures that seal upon disconnect.
	(b) The vapor line from the gasoline storage tank to the gasoline cargo tank shall be vapor-tight, as defined in §63.11132.
	(c) The vapor balance system shall be designed such that the pressure in the tank truck does not exceed 18 inches water pressure or 5.9 inches water vacuum during product transfer.
	(d) The vapor recovery and product adaptors, and the method of connection with the delivery elbow, shall be designed so as to prevent the over-tightening or loosening of fittings during normal delivery operations.
	(e) If a gauge well separate from the fill tube is used, it shall be provided with a submerged drop tube that extends the same distance from the bottom of the storage tank as specified in §63.11117(b).
	(f) Liquid fill connections for all systems shall be equipped with vapor-tight caps.
	(g) Pressure/vacuum (PV) vent valves shall be installed on the storage tank vent pipes. The pressure specifications for PV vent valves shall be: a positive pressure setting of 2.5 to 6.0 inches of water and a negative pressure setting of 6.0 to 10.0 inches of water. The total leak rate of all PV vent valves at an affected facility, including connections, shall not exceed 0.17 cubic foot per hour at a pressure of 2.0 inches of water and 0.63 cubic foot per hour at a vacuum of 4 inches of water.
	(h) The vapor balance system shall be capable of meeting the static pressure performance requirement of the following equation:
	$P_f = 2e^{-500.887/v}$
	Where:
	$P_f$ = Minimum allowable final pressure, inches of water.
	$v$ = Total ullage affected by the test, gallons.
	$e$ = Dimensionless constant equal to approximately 2.718.
	$2$ = The initial pressure, inches water.
2. For new or reconstructed GDF, or new storage tank(s) at an existing affected facility subject to §63.11118	Equip your gasoline storage tanks with a dual-point vapor balance system, as defined in §63.11132, and comply with the requirements of item 1 in this Table.

[73 FR 1945, Jan. 10, 2008, as amended at 73 FR 35944, June 25, 2008]

**Table 2 to Subpart CCCCCC of Part 63—Applicability Criteria and Management Practices for Gasoline Cargo Tanks Unloading at Gasoline Dispensing Facilities With Monthly Throughput of 100,000 Gallons of Gasoline or More**

If you own or operate	Then you must
A gasoline cargo tank	Not unload gasoline into a storage tank at a GDF subject to the control requirements in this subpart unless the following conditions are met:
	(i) All hoses in the vapor balance system are properly connected,
	(ii) The adapters or couplers that attach to the vapor line on the storage tank have closures that seal upon disconnect,
	(iii) All vapor return hoses, couplers, and adapters used in the gasoline delivery are vapor-tight,
	(iv) All tank truck vapor return equipment is compatible in size and forms a vapor-tight connection with the vapor balance equipment on the GDF storage tank, and
	(v) All hatches on the tank truck are closed and securely fastened.
	(vi) The filling of storage tanks at GDF shall be limited to unloading by vapor-tight gasoline cargo tanks. Documentation that the cargo tank has met the specifications of EPA Method 27 shall be carried on the cargo tank.

**Table 3 to Subpart CCCCCC of Part 63—Applicability of General Provisions**

Citation	Subject	Brief description	Applies to subpart CCCCCC
§63.1	Applicability	Initial applicability determination; applicability after standard established; permit requirements; extensions, notifications	Yes, specific requirements given in §63.11111.
§63.1(c)(2)	Title V Permit	Requirements for obtaining a title V permit from the applicable permitting authority	Yes, §63.11111(f) of subpart CCCCCC exempts identified area sources from the obligation to obtain title V operating permits.
§63.2	Definitions	Definitions for part 63 standards	Yes, additional definitions in §63.11132.
§63.3	Units and Abbreviations	Units and abbreviations for part 63 standards	Yes.

§63.4	Prohibited Activities and Circumvention	Prohibited activities; Circumvention, severability	Yes.
§63.5	Construction/Reconstruction	Applicability; applications; approvals	Yes.
§63.6(a)	Compliance with Standards/Operation & Maintenance—Applicability	General Provisions apply unless compliance extension; General Provisions apply to area sources that become major	Yes.
§63.6(b)(1)–(4)	Compliance Dates for New and Reconstructed Sources	Standards apply at effective date; 3 years after effective date; upon startup; 10 years after construction or reconstruction commences for CAA section 112(f)	Yes.
§63.6(b)(5)	Notification	Must notify if commenced construction or reconstruction after proposal	Yes.
§63.6(b)(6)	[Reserved]		
§63.6(b)(7)	Compliance Dates for New and Reconstructed Area Sources That Become Major	Area sources that become major must comply with major source standards immediately upon becoming major, regardless of whether required to comply when they were an area source	No.
§63.6(c)(1)–(2)	Compliance Dates for Existing Sources	Comply according to date in this subpart, which must be no later than 3 years after effective date; for CAA section 112(f) standards, comply within 90 days of effective date unless compliance extension	No, §63.11113 specifies the compliance dates.
§63.6(c)(3)–(4)	[Reserved]		
§63.6(c)(5)	Compliance Dates for Existing Area Sources That Become Major	Area sources That become major must comply with major source standards by	No.

		date indicated in this subpart or by equivalent time period (e.g., 3 years)	
§63.6(d)	[Reserved]		
§63.6(e)(1)	Operation & Maintenance	Operate to minimize emissions at all times; correct malfunctions as soon as practicable; and operation and maintenance requirements independently enforceable; information Administrator will use to determine if operation and maintenance requirements were met	Yes.
§63.6(e)(2)	[Reserved]		
§63.6(e)(3)	Startup, Shutdown, and Malfunction (SSM) Plan	Requirement for SSM plan; content of SSM plan; actions during SSM	No.
§63.6(f)(1)	Compliance Except During SSM	You must comply with emission standards at all times except during SSM	No.
§63.6(f)(2)–(3)	Methods for Determining Compliance	Compliance based on performance test, operation and maintenance plans, records, inspection	Yes.
§63.6(g)(1)–(3)	Alternative Standard	Procedures for getting an alternative standard	Yes.
§63.6(h)(1)	Compliance with Opacity/Visible Emission (VE) Standards	You must comply with opacity/VE standards at all times except during SSM	No.
§63.6(h)(2)(i)	Determining Compliance with Opacity/VE Standards	If standard does not State test method, use EPA Method 9 for opacity in appendix A of part 60 of this chapter and EPA Method 22 for VE in appendix A of part 60 of this chapter	No.
§63.6(h)(2)(ii)	[Reserved]		

§63.6(h)(2)(iii)	Using Previous Tests To Demonstrate Compliance With Opacity/VE Standards	Criteria for when previous opacity/VE testing can be used to show compliance with this subpart	No.
§63.6(h)(3)	[Reserved]		
§63.6(h)(4)	Notification of Opacity/VE Observation Date	Must notify Administrator of anticipated date of observation	No.
§63.6(h)(5)(i), (iii)–(v)	Conducting Opacity/VE Observations	Dates and schedule for conducting opacity/VE observations	No.
§63.6(h)(5)(ii)	Opacity Test Duration and Averaging Times	Must have at least 3 hours of observation with 30 6-minute averages	No.
§63.6(h)(6)	Records of Conditions During Opacity/VE Observations	Must keep records available and allow Administrator to inspect	No.
§63.6(h)(7)(i)	Report Continuous Opacity Monitoring System (COMS) Monitoring Data From Performance Test	Must submit COMS data with other performance test data	No.
§63.6(h)(7)(ii)	Using COMS Instead of EPA Method 9	Can submit COMS data instead of EPA Method 9 results even if rule requires EPA Method 9 in appendix A of part 60 of this chapter, but must notify Administrator before performance test	No.
§63.6(h)(7)(iii)	Averaging Time for COMS During Performance Test	To determine compliance, must reduce COMS data to 6-minute averages	No.
§63.6(h)(7)(iv)	COMS Requirements	Owner/operator must demonstrate that COMS performance evaluations are conducted according to §63.8(e); COMS are properly maintained and operated according to §63.8(c) and data quality as	No.

		§63.8(d)	
§63.6(h)(7)(v)	Determining Compliance with Opacity/VE Standards	COMS is probable but not conclusive evidence of compliance with opacity standard, even if EPA Method 9 observation shows otherwise. Requirements for COMS to be probable evidence-proper maintenance, meeting Performance Specification 1 in appendix B of part 60 of this chapter, and data have not been altered	No.
§63.6(h)(8)	Determining Compliance with Opacity/VE Standards	Administrator will use all COMS, EPA Method 9 (in appendix A of part 60 of this chapter), and EPA Method 22 (in appendix A of part 60 of this chapter) results, as well as information about operation and maintenance to determine compliance	No.
§63.6(h)(9)	Adjusted Opacity Standard	Procedures for Administrator to adjust an opacity standard	No.
§63.6(i)(1)–(14)	Compliance Extension	Procedures and criteria for Administrator to grant compliance extension	Yes.
§63.6(j)	Presidential Compliance Exemption	President may exempt any source from requirement to comply with this subpart	Yes.
§63.7(a)(2)	Performance Test Dates	Dates for conducting initial performance testing; must conduct 180 days after compliance date	Yes.
§63.7(a)(3)	CAA Section 114 Authority	Administrator may require a performance test under CAA section 114 at any time	Yes.
§63.7(b)(1)	Notification of Performance Test	Must notify Administrator 60 days before the test	Yes.
§63.7(b)(2)	Notification of Re-scheduling	If have to reschedule	Yes.

		performance test, must notify Administrator of rescheduled date as soon as practicable and without delay	
§63.7(c)	Quality Assurance (QA)/Test Plan	Requirement to submit site-specific test plan 60 days before the test or on date Administrator agrees with; test plan approval procedures; performance audit requirements; internal and external QA procedures for testing	Yes.
§63.7(d)	Testing Facilities	Requirements for testing facilities	Yes.
§63.7(e)(1)	Conditions for Conducting Performance Tests	Performance tests must be conducted under representative conditions; cannot conduct performance tests during SSM	Yes.
§63.7(e)(2)	Conditions for Conducting Performance Tests	Must conduct according to this subpart and EPA test methods unless Administrator approves alternative	Yes.
§63.7(e)(3)	Test Run Duration	Must have three test runs of at least 1 hour each; compliance is based on arithmetic mean of three runs; conditions when data from an additional test run can be used	Yes.
§63.7(f)	Alternative Test Method	Procedures by which Administrator can grant approval to use an intermediate or major change, or alternative to a test method	Yes.
§63.7(g)	Performance Test Data Analysis	Must include raw data in performance test report; must submit performance test data 60 days after end of test with the Notification of Compliance Status; keep data for 5 years	Yes.
§63.7(h)	Waiver of Tests	Procedures for Administrator	Yes.

		to waive performance test	
§63.8(a)(1)	Applicability of Monitoring Requirements	Subject to all monitoring requirements in standard	Yes.
§63.8(a)(2)	Performance Specifications	Performance Specifications in appendix B of 40 CFR part 60 apply	Yes.
§63.8(a)(3)	[Reserved]		
§63.8(a)(4)	Monitoring of Flares	Monitoring requirements for flares in §63.11 apply	Yes.
§63.8(b)(1)	Monitoring	Must conduct monitoring according to standard unless Administrator approves alternative	Yes.
§63.8(b)(2)–(3)	Multiple Effluents and Multiple Monitoring Systems	Specific requirements for installing monitoring systems; must install on each affected source or after combined with another affected source before it is released to the atmosphere provided the monitoring is sufficient to demonstrate compliance with the standard; if more than one monitoring system on an emission point, must report all monitoring system results, unless one monitoring system is a backup	No.
§63.8(c)(1)	Monitoring System Operation and Maintenance	Maintain monitoring system in a manner consistent with good air pollution control practices	No.
§63.8(c)(1)(i)–(iii)	Routine and Predictable SSM	Follow the SSM plan for routine repairs; keep parts for routine repairs readily available; reporting requirements for SSM when action is described in SSM plan	No.
§63.8(c)(2)–(8)	Continuous Monitoring System (CMS) Requirements	Must install to get representative emission or parameter measurements; must	No.

		verify operational status before or at performance test	
§63.8(d)	CMS Quality Control	Requirements for CMS quality control, including calibration, etc.; must keep quality control plan on record for 5 years; keep old versions for 5 years after revisions	No.
§63.8(e)	CMS Performance Evaluation	Notification, performance evaluation test plan, reports	No.
§63.8(f)(1)–(5)	Alternative Monitoring Method	Procedures for Administrator to approve alternative monitoring	No.
§63.8(f)(6)	Alternative to Relative Accuracy Test	Procedures for Administrator to approve alternative relative accuracy tests for continuous emissions monitoring system (CEMS)	No.
§63.8(g)	Data Reduction	COMS 6-minute averages calculated over at least 36 evenly spaced data points; CEMS 1 hour averages computed over at least 4 equally spaced data points; data that cannot be used in average	No.
§63.9(a)	Notification Requirements	Applicability and State delegation	Yes.
§63.9(b)(1)–(2), (4)–(5)	Initial Notifications	Submit notification within 120 days after effective date; notification of intent to construct/reconstruct, notification of commencement of construction/reconstruction, notification of startup; contents of each	Yes.
§63.9(c)	Request for Compliance Extension	Can request if cannot comply by date or if installed best available control technology or lowest achievable emission rate	Yes.

§63.9(d)	Notification of Special Compliance Requirements for New Sources	For sources that commence construction between proposal and promulgation and want to comply 3 years after effective date	Yes.
§63.9(e)	Notification of Performance Test	Notify Administrator 60 days prior	Yes.
§63.9(f)	Notification of VE/Opacity Test	Notify Administrator 30 days prior	No.
§63.9(g)	Additional Notifications when Using CMS	Notification of performance evaluation; notification about use of COMS data; notification that exceeded criterion for relative accuracy alternative	Yes, however, there are no opacity standards.
§63.9(h)(1)–(6)	Notification of Compliance Status	Contents due 60 days after end of performance test or other compliance demonstration, except for opacity/VE, which are due 30 days after; when to submit to Federal vs. State authority	Yes, however, there are no opacity standards.
§63.9(i)	Adjustment of Submittal Deadlines	Procedures for Administrator to approve change when notifications must be submitted	Yes.
§63.9(j)	Change in Previous Information	Must submit within 15 days after the change	Yes.
§63.10(a)	Recordkeeping/Reporting	Applies to all, unless compliance extension; when to submit to Federal vs. State authority; procedures for owners of more than one source	Yes.
§63.10(b)(1)	Recordkeeping/Reporting	General requirements; keep all records readily available; keep for 5 years	Yes.
§63.10(b)(2)(i)–(iv)	Records Related to SSM	Occurrence of each for operations (process equipment); occurrence of	No.

		each malfunction of air pollution control equipment; maintenance on air pollution control equipment; actions during SSM	
§63.10(b)(2)(vi)–(xi)	CMS Records	Malfunctions, inoperative, out-of-control periods	No.
§63.10(b)(2)(xii)	Records	Records when under waiver	Yes.
§63.10(b)(2)(xiii)	Records	Records when using alternative to relative accuracy test	Yes.
§63.10(b)(2)(xiv)	Records	All documentation supporting Initial Notification and Notification of Compliance Status	Yes.
§63.10(b)(3)	Records	Applicability determinations	Yes.
§63.10(c)	Records	Additional records for CMS	No.
§63.10(d)(1)	General Reporting Requirements	Requirement to report	Yes.
§63.10(d)(2)	Report of Performance Test Results	When to submit to Federal or State authority	Yes.
§63.10(d)(3)	Reporting Opacity or VE Observations	What to report and when	No.
§63.10(d)(4)	Progress Reports	Must submit progress reports on schedule if under compliance extension	Yes.
§63.10(d)(5)	SSM Reports	Contents and submission	Yes.
§63.10(e)(1)–(2)	Additional CMS Reports	Must report results for each CEMS on a unit; written copy of CMS performance evaluation; two-three copies of COMS performance evaluation	No.
§63.10(e)(3)(i)–(iii)	Reports	Schedule for reporting excess emissions	Yes, note that §63.11130(K) specifies excess emission

			events for this subpart.
§63.10(e)(3)(iv)–(v)	Excess Emissions Reports	Requirement to revert to quarterly submission if there is an excess emissions and parameter monitor exceedances (now defined as deviations); provision to request semiannual reporting after compliance for 1 year; submit report by 30th day following end of quarter or calendar half; if there has not been an exceedance or excess emissions (now defined as deviations), report contents in a statement that there have been no deviations; must submit report containing all of the information in §§63.8(c)(7)–(8) and 63.10(c)(5)–(13)	No, §63.11130(K) specifies excess emission events for this subpart.
§63.10(e)(3)(vi)–(viii)	Excess Emissions Report and Summary Report	Requirements for reporting excess emissions for CMS; requires all of the information in §§63.10(c)(5)–(13) and 63.8(c)(7)–(8)	No.
§63.10(e)(4)	Reporting COMS Data	Must submit COMS data with performance test data	No.
§63.10(f)	Waiver for Recordkeeping/Reporting	Procedures for Administrator to waive	Yes.
§63.11(b)	Flares	Requirements for flares	No.
§63.12	Delegation	State authority to enforce standards	Yes.
§63.13	Addresses	Addresses where reports, notifications, and requests are sent	Yes.
§63.14	Incorporations by Reference	Test methods incorporated by reference	Yes.
§63.15	Availability of Information	Public and confidential information	Yes.

**Indiana Department of Environmental Management  
Office of Air Quality**

**Technical Support Document (TSD) for a General Asphalt Federally  
Enforceable State Operating Permit (FESOP) and a Specific Source  
Operating Agreement (SSOA) Transitioning to a FESOP Renewal**

**Source Background and Description**

<b>Source Name:</b>	<b>Calcar Quarry</b>
<b>Source Location:</b>	<b>860 East U. S. Highway 150, Paoli, IN 47454</b>
<b>County:</b>	<b>Orange</b>
<b>SIC Code:</b>	<b>2951 &amp; 1422</b>
<b>Permit Renewal No.:</b>	<b>F117-29047-03220</b>
<b>Permit Reviewer:</b>	<b>Janet Mobley</b>

The Office of Air Quality (OAQ) has reviewed the operating permit renewal application from Calcar Quarry relating to the operation of a stationary hot mix asphalt batch plant operation. On March 4, 2010, Calcar Quarry submitted an application to the OAQ requesting to renew its General Asphalt FESOP for its stationary hot mix asphalt batch plant. IDEM, OAQ is no longer issuing the General FESOP permit until the permit can be updated to coincide with current environmental standards and regulations. Therefore, Calcar Quarry will be issued a Federally Enforceable State Operating Permit (FESOP) operating permit renewal. Calcar Quarry was issued a General Asphalt FESOP No. F117-22708-03220, on March 21, 2006, and a SSOA No. 117-6401-00005 issued on November 27, 1996, for its crushed stone operation for which a source determination was done during this review.

**Source Definition**

Calcar Quarry (source number 117-03220) operates a stationary asphalt batch plant and a crushed stone processing operation at 860 East U. S. Highway 150, Paoli, IN 47454. The asphalt plant operates pursuant to FESOP 117-22708-03220 which it seeks to renew under FESOP application number 117-29047-03220. The crushed stone processing operation is operating under SSOA 117-6401-00005. IDEM, OAQ has examined whether these two plants are part of the same major source. The term "major source" is defined at 326 IAC 2-7-1(22). In order for the two plants to be considered one major source, they must meet all three of the following criteria:

- (a) the plants must be under common ownership or common control;
- (b) the plants must have the same two-digit Standard Industrial Classification (SIC) Code or one must serve as a support facility for the other; and,
- (c) the plants must be located on contiguous or adjacent properties.

Calcar Quarry, Inc. owns both plants. Since the plants are under common ownership, and therefore also under common control, the first element of the definition is met.

The SIC Code Manual of 1987 sets out how to determine the proper SIC Code for each type of industry. The principal product of each plant determines its SIC Code. The asphalt plant has the two digit SIC

Code of 29 for the major group Petroleum Refining and Related Industries. The crushed stone processing plant has the two digit SIC Code of 14 for the major group Crushed and Broken Limestone.

A plant is considered a support facility if at least 50% of its output is dedicated to the other plant. Both plants stay open year round. The same drivers operate both types of trucks, switching between them as needed to meet customer orders. The trucks and drivers all operate out of the same location as the asphalt and crushed stone operation, meeting the second element of the definition.

The two plants are located on the same property, meeting the third element of the definition. Since the two plants meet all three of the elements of the major source definition, IDEM, OAQ finds that the two plants are one major source. For permitting purposes, the two plants will be under Plant ID 117-03220.

### Permitted Emission Units and Pollution Control Equipment

The Office of Air Quality (OAQ) has reviewed an application, submitted by Calcar Quarry on March 4, 2010, relating to the renewal of a General FESOP. IDEM, OAQ is no longer issuing the General FESOP permit until the permit can be updated to coincide with current environmental standards and regulations. Therefore, Calcar Quarry will be issued a Federally Enforceable State Operating Permit (FESOP). This source does not use any slag or shingles in the asphalt aggregate mix, and does not manufacture and/or produce cold-mix asphalt.

The source consists of the following permitted emission unit(s):

- (a) One (1) batch hot-mix asphalt plant consisting of the following:
  - (1) One (1) aggregate dryer, identified as ID#3, constructed in 1958, with a maximum burner heat input capacity of fifty-one (51) million British thermal units (MMBtu) per hour firing natural gas fired burner, using #2 distillate fuel oil, No.4 distillate, No. 4, 5 or 6 residual fuel oil as backup fuels, exhausting through stack SV1.
  - (2) One (1) batch mixer, identified as ID#2, constructed in 1958, with a maximum throughput capacity of 120 tons per hour of raw material, equipped with one (1) cyclone, identified as ID#9, and a scrubber, identified as ID#11, for particulate control and exhausting through one (1) stack, identified as SV1.

Under 40 CFR 60, Subpart I, this hot mix asphalt plant is considered an affected facility.

- (3) Material handling, screening and conveying operations, constructed in 1958, uncontrolled and exhausting to the outside atmosphere, consisting of the following:
  - (A) Aggregate storage piles consisting of the following:
    - (i) One (1) #23 natural sand pile, pile size: 400 tons.
    - (ii) One (1) #24 crushed limestone pile, pile size: 100 tons.
    - (iii) One (1) #5 limestone pile, pile size: 200 tons.
    - (iv) One (1) #11f limestone pile, pile size: 400 tons.
    - (v) One (1) #11c limestone pile, pile size: 400 tons.
    - (vi) One (1) #8 limestone pile, pile size: 200 tons.

- (B) One (1) one hundred (100) ton storage silo, (occasionally used for temporary hot mix storage).
  - (C) Six (6) cold feed bins (for aggregate going into batch plant), identified as ID#1CFB, #2CFB, #3CFB, #4CFB, #5CFB and #6CFB, each with a capacity of 30 tons.
  - (D) Two (2) flat conveyors, identified as #1FC and #2FC, each with a capacity of 70 tons per hour.
  - (E) One (1) screening system, identified as #1SS, with a capacity of 120 tons per hour.
- (b) One (1) 1.0 million British Thermal Units (MMBtu) per hour hot oil heater firing natural gas as the primary fuel and #1 fuel oil as the backup fuel, and exhausting to stack SV1.
- (c) Four (4) storage tanks, including:
- (1) One (1) 9,000 gallon storage tank, identified as ID#15A, installed prior to July 23, 1984, for liquid asphalt AC-20.
  - (2) One (1) 11,000 gallon storage tank, identified as ID#15B, installed prior to July 23, 1984, for liquid asphalt AC-20.
  - (3) One (1) 1,000 gallon storage tank, identified as ID #16, installed prior to July 23, 1984, for #1 fuel oil.
  - (4) One (1) 8,000 gallon storage tank, identified as ID#14, installed prior to July 23, 1984, for either #2 fuel or waste oil.
- (d) One (1) crushed stone operation, constructed in 1958, consisting of the following:
- (1) One (1) jaw crusher, identified as unit ID#1CR, installed in March 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control. This jaw crusher replaced the existing crusher that was constructed in 1974.
  - (2) One (1) standard crusher, identified as unit ID#2CR, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (3) One (1) standard crusher, identified as unit ID#3CR, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (4) One (1) short head crusher, identified as unit ID#4CR, installed in 1990, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (5) Two (2) Secco screens, identified as units ID#1SC and ID#2SC, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, each, with no control.
  - (6) One (1) Conveying system consisting of:
    - (A) Twenty-one (21) belt conveyors, identified as units ID#1-16BC, #18BC, #19BC, #20BC, #23BC and #24BC, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.

- (B) Three (3) radial stackers, identified as units ID#17RS, #21RS, and #22RS, installed in 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control.

Under NSPS Subpart OOO, the crushing operation is considered an affected facility.

- (7) Aggregate storage piles consisting of the following:
  - (A) One (1) #73 limestone pile, pile size: 3,000 tons.
  - (B) One (1) #fill pile, pile size: 2,000 tons.
  - (C) One (1) #53 limestone pile, pile size: 2,000 tons.
  - (D) One (1) #24 crushed limestone pile, pile size: 2,000 tons.
  - (E) One (1) #11f limestone pile, pile size: 1,000 tons.
  - (F) One (1) #11c limestone pile, pile size: 200 tons.
  - (G) One (1) #11b-borrow limestone pile, pile size: 500 tons.
  - (H) One (1) #8 limestone pile, pile size: 2,000 tons.
  - (I) One (1) #2 limestone pile, pile size: 2,000 tons.

The source consists of the following insignificant activities:

- (a) A gasoline fuel transfer and dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day, such as filling of tanks, locomotives, automobiles, having storage capacity less than or equal to ten thousand five hundred (10,500) gallons;

Under 40 CFR 60, Subpart CCCCCC, the units comprising this operation are considered affected facilities.

- (b) Fuel oil-fired combustion sources with heat input equal to or less than two million (2,000,000) Btu/hr and firing fuel containing less than five-tenths (0.5) percent;

One (1) #1 fuel oil-fired combustion unit, for use as a backup system in place of the natural gas hot oil heater when fuel oil is the primary fuel and not natural gas.

- (c) One (1) testing laboratory as defined in 326 IAC 2-7-1(20).
- (d) Paved and unpaved roads and parking lots with public access. [326 IAC 6-4]

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

The source does not have emission units that were constructed and/or are operating without a permit during this review.

#### **Emission Units and Pollution Control Equipment Removed From the Source**

The source has not removed emission units from the source since the last permit.

### Existing Approvals

Since the issuance of the General Asphalt FESOP No. F117-22708-03220, on March 21, 2006, the source has constructed or has been operating under the following approval as well:

Administrative Amendment No. 117-26511, issued on June 23, 2008.

The crushed stone processing operation has been operating under SSOA No. 117-6401-00005 issued on November 27, 1996

Due to this application, the source is transitioning from a General Asphalt FESOP to a FESOP Renewal.

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

### Enforcement Issue

There are no enforcement actions pending at this existing source.

### Emission Calculations

See Appendix A of this document for detailed emission calculations.

### County Attainment Status

The source is located in Orange County.

Pollutant	Designation
SO <sub>2</sub>	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O <sub>3</sub>	Unclassifiable or attainment effective June 15, 2004, for the 8-hour ozone standard. <sup>1</sup>
PM <sub>10</sub>	Unclassifiable effective November 15, 1990.
NO <sub>2</sub>	Cannot be classified or better than national standards.
Pb	Not designated.

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

- (a) Ozone Standards  
Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to ozone. Orange County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) PM2.5  
Orange County has been classified as attainment for PM2.5. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM2.5 emissions, and the effective date of these rules was July 15<sup>th</sup>, 2008. Indiana has three years from the publication of these rules to revise its PSD rules, 326 IAC 2-2, to include those requirements.

The May 8, 2008 rule revisions require IDEM to regulate PM10 emissions as a surrogate for PM2.5 emissions until 326 IAC 2-2 is revised.

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

#### **Fugitive Emissions**

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

#### **Portable Source**

This source that has been permitted as a portable in the past, did not relocate during the permit term. Therefore, this source is now considered a stationary source. The source ID will remain 117-03220 to ensure the history of the source is maintained in IDEM's tracking systems.

#### **Unrestricted Potential Emissions**

Appendix A.1 of this TSD reflects the unrestricted potential emissions of the source.

- (a) The potential to emit (PTE) (as defined in 326 IAC 2-7-1(29)) of PM10, PM2.5, SO2 and CO, each, is greater than one hundred (100) tons per year. The PTE of all other regulated criteria pollutants are less than one hundred (100) tons per year. The source would have been subject to the provisions of 326 IAC 2-7. However, the source will be issued a Federally Enforceable State Operating Permit (FESOP) Renewal (326 IAC 2-8), because the source will continue to limit emissions to less than the Title V major source threshold levels.
- (b) The potential to emit (PTE) (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the PTE of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, this source is still an area source under Section 112 of the Clean Air Act (CAA).

#### **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.

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance of Renewal (tons/year)								
	PM	PM10*	PM 2.5	SO <sub>2</sub>	NOx	VOC	CO	Total HAP	Worst Single HAP
<b>Ducted Emissions</b>									
Dryer Fuel Combustion (worst case) <sup>(1)</sup>	9.63	11.48	11.48	96.78	67.81	1.23	18.77	0.64	0.40 (hexane)
Dryer/mixer and batch tower (Process) <sup>(2)</sup>	181.98	74.63	78.61	21.70	29.59	8.88	98.63	1.91	0.67 (xylenes)
Dryer/Mixer Slag Processing	0	0	0	0.00	0	0	0	0	0
Hot Oil Heater Fuel Combustion	0.06	0.10	0.10	2.22	0.63	0.02	0.37	0.01	0.008 (hexane)
<b>Worst Case Emissions</b>	<b>182.04</b>	<b>74.73</b>	<b>78.71</b>	<b>99.00</b>	<b>68.43</b>	<b>8.90</b>	<b>99.00</b>	<b>1.92</b>	<b>0.67 (xylenes)</b>
<b>Fugitive Emissions (Asphalt Plant)</b>									
Asphalt Load-Out, Silo Filling, On-Site Yard <sup>(1)</sup>	0.27	0.27	0.27	0	0	4.22	0.71	0.07	0.02 (formaldehyde)
Material Storage Piles	2.23	0.78	0.78	0	0	0	0	0	0
Material Processing and Handling <sup>(1)</sup>	1.59	0.75	0.11	0	0	0	0	0	0
Material Crushing, Screening, and Conveying <sup>(1)</sup>	7.82	2.86	2.86	0	0	0	0	0	0
Unpaved and Paved Roads (worst case) <sup>(1)</sup>	6.83	1.74	0.17	0	0	0	0	0	0
Cold-Mix Asphalt Production	0	0	0	0	0	0.00	0	0.00	0.00
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.011	0	0.00	0.001 (xylenes)
Volatile Organic Liquid Storage Vessels <sup>□</sup>	0	0	0	0	0	negl	0	negl	negl
<b>Fugitive Emissions (Crushed Stone Plant)</b>									
Material Storage Piles	0.36	0.13	0.13	0	0	0	0	0	0
Material Processing and Handling	2.27	1.07	0.16	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	41.80	15.70	15.70	0	0	0	0	0	0
Unpaved Roads	3.77	0.96	0.10	0	0	0	0	0	0
<b>Total Fugitive Emissions</b>	<b>66.96</b>	<b>24.27</b>	<b>20.29</b>	<b>0.00</b>	<b>0.00</b>	<b>4.24</b>	<b>0.71</b>	<b>0.07</b>	<b>0.02 (formaldehyde)</b>
<b>Total Limited/Controlled Emissions</b>	<b>249.00</b>	<b>99.00</b>	<b>99.00</b>	<b>99.00</b>	<b>68.43</b>	<b>13.14</b>	<b>99.71</b>	<b>2.00</b>	<b>0.67</b>
Title V Major Source Thresholds	NA	100	100	100	100	100	100	25	10
PSD Major Source Thresholds	250	250	250	250	250	250	250	NA	NA
Emission Offset/ Nonattainment NSR Major Source Thresholds	NA	NA	NA	NA	NA	NA	NA	NA	NA

negl. = negligible

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

## FESOP STATUS

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

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

- (1) Pursuant to 326 IAC 2-8-4, the PM10 and CO emissions from the hot-mix asphalt plant dryer/mixer burner, and all other associated emission units at this source, shall be limited as follows:

### Asphalt Plant:

- (A) The asphalt production rate shall not exceed 493,160 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
- (B) PM10 emissions from the dryer/mixer shall not exceed 0.303 pounds of PM10 per ton of asphalt produced.
- (C) PM2.5 emissions from the dryer/mixer shall not exceed 0.319 pounds of PM2.5 per ton of asphalt produced.
- (D) CO emissions from the dryer/mixer shall not exceed 0.40 pounds of CO per ton of asphalt produced.

Based on the VOC and NO<sub>x</sub> PTE using the most recent AP-42 emission factors for asphalt plants, there is no need to specify limits for these two pollutants to render 326 IAC 2-8 not applicable.

- (2) Pursuant to 326 IAC 2-8-4, the SO<sub>2</sub> emissions from the dryer/mixer burner of the asphalt plant shall be limited as follows:
  - (A) Slag shall not be used as an aggregate additive in its hot mix asphalt operations.
  - (B) The sulfur content of the No. 4, No.2, and residual No. 5 or No. 6 fuel oil shall not exceed 0.5 percent by weight.
  - (C) When combusting only one type of fuel per twelve (12) consecutive month period in the dryer/mixer burner the usage of fuel shall be limited as follows:
    - (i) Natural gas usage shall not exceed 447 million cubic feet per twelve (12) consecutive month period, with compliance determined at the end of each month.
    - (ii) No. 4 fuel oil usage shall not exceed 2,580,766 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
    - (iii) No. 2 fuel oil usage shall not exceed 2,726,161 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

- (iv) Residual (No. 5 or No. 6) fuel oil usage shall not exceed 2,465,700 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Note: It has to be noted that this source is permitted to burn only the above mentioned type of fuels.

- (D) When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner, emissions from the dryer/mixer shall be limited as follows:
  - (i) SO<sub>2</sub> emissions from the dryer/mixer shall not exceed 99 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Crushed Stone Operation:

- (3) Pursuant to 326 IAC 2-8-4, the crushed stone operation shall be limited as follows:
  - (a) The annual throughput of the crushed stone processing operation shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
  - (b) PM<sub>10</sub> emissions from each crusher shall not exceed 0.0024 pounds of PM<sub>10</sub> per ton of stone crushed.
  - (c) PM<sub>10</sub> emissions from each screen shall not exceed 0.0087 pounds of PM<sub>10</sub> per ton of stone screened.
  - (d) PM<sub>10</sub> emissions from each conveyor shall not exceed 0.0011 pounds of PM<sub>10</sub> per ton of stone conveyed.
  - (e) PM<sub>2.5</sub> emissions from each crusher shall not exceed 0.0024 pounds of PM<sub>2.5</sub> per ton of stone crushed.
  - (f) PM<sub>2.5</sub> emissions from each screen shall not exceed 0.0087 pounds of PM<sub>2.5</sub> per ton of stone screened.
  - (g) PM<sub>2.5</sub> emissions from each conveyor shall not exceed 0.0011 pounds of PM<sub>2.5</sub> per ton of stone conveyed.

Compliance with these limits, combined with the potential to emit PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and CO from all other emission units at this source, shall limit the source-wide total potential to emit of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and CO to less than 100 tons per twelve (12) consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permits), 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)), and 326 IAC 2-1.1-5 (Nonattainment New Source Review) not applicable.

(b) PSD Minor Source

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

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

- (1) The asphalt production rate shall not exceed 493,160 tons per twelve (12) consecutive month period with compliance determined at the end of each month.
  - (2) PM emissions from the dryer/mixer shall not exceed 0.738 pounds of PM per ton of asphalt produced.
  - (3) The annual throughput of the crushed stone processing operation shall not exceed 1,000,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
  - (4) PM emissions from each crusher shall not exceed 0.0054 pounds of PM per ton of stone crushed.
  - (5) PM emissions from each screen shall not exceed 0.025 pounds of PM per ton of stone screened.
  - (6) PM emissions from each conveyor shall not exceed 0.03 pounds of PM per ton of stone conveyed.
- (c) Nonattainment New Source Review  
This existing source is not a major stationary source, under 326 IAC 2-1.1-5 (Nonattainment New Source Review), because the potential to emit particulate matter with a diameter less than ten 2.5 micrometers (PM<sub>2.5</sub>), is limited to less than 100 tons per year. Therefore, pursuant to 326 IAC 2-1.1-5, the Nonattainment New Source Review requirements do not apply.
- (d) The following terms and conditions from the previous approvals have been revised/changed in this FESOP Renewal:
- (1) A new condition prohibiting the use of slag in the aggregate mix has been added to the permit in order to ensure compliance with the one hundred (100) ton per year FESOP threshold for SO<sub>2</sub>, and making the requirements of 326 IAC 2-7 Title V (Part 70) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.
  - (2) As noted above, the emissions calculations were updated to reflect the source's most current "worst-case" operating conditions for all units, and includes emissions not previously counted. Additionally, the most recent AP-42 emission factors have been used to characterize these emissions.
  - (3) The existing annual asphalt production limit, has been reduced from 600,000 to 493,160 tons per year, to allow for the inclusion of the crushed stone operation, and to make the requirements of 326 IAC 2-7 Title V (Part 70) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable;
  - (4) The natural gas limitation has changed from 180 million cubic feet to 447 million cubic feet.
  - (5) The pound per ton (lb/ton) for PM, PM<sub>10</sub>, PM<sub>2.5</sub>, and VOC emission limits have been revised or included in the permit to accommodate the combining the crushed stone production and asphalt plant limit (ton/yr). See Appendix A.2 for detailed calculations.
  - (6) The annual throughput to the sand and gravel plant remains at 1,000,000 tons per year. This is the same limit as in the previous SSOA and did not change.

### Federal Rule Applicability

#### Compliance Assurance Monitoring (CAM)

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

#### New Source Performance Standards (NSPS)

- (a) This source is still subject to the New Source Performance Standards for Hot Mix Asphalt Facilities, 40 CFR 60, Subpart I.

The units subject to this rule include the following:

- (1) Dryers
- (2) Systems for screening, handling, storing, and weighing hot aggregate
- (3) Systems for loading, transferring, and storing mineral filler
- (4) Systems for mixing hot mix asphalt
- (5) The loading, transfer, and storage systems associated with emission control systems

Applicable portions of the NSPS are the following:

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

The requirements of 40 CFR Part 60, Subpart A – General Provisions, which are incorporated as 326 IAC 12-1, apply to the source except as otherwise specified in 40 CFR 60, Subpart I.

- (b) The requirements of the New Source Performance Standard for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR 60, Subpart Dc (326 IAC 12), are not included in this renewal, because the one (1) natural gas-fired hot oil heater, with a maximum rated heat input capacity of one (1) MMBtu/hr, still has a maximum design heat input capacity of less than the applicability threshold of ten (10) million British thermal units per hour.
- (c) The requirements of the New Source Performance Standard for Portland Cement Plants, 40 CFR 60, Subpart F (326 IAC 12), are not included in this renewal for the existing stationary ready-mix concrete batch plant, since it still does not meet the definition of a Portland cement plant, as defined in § 60.61, because the source still does not manufacture portland cement, by either the wet or dry process.
- (d) The requirements of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels, 40 CFR 60, Subpart Kb (326 IAC 12), are not included in this renewal for the one (1) 8,000 gallon No. 2 Fuel Oil storage tank, identified as Tank ID# 14, one (1) 1,000 gallon No. 1 Fuel Oil storage tank, identified as Tank ID#16 one (1) 9,000 gallon liquid asphalt storage tank, identified as Tank ID# 15A, and one (1) 11,000 gallon liquid asphalt storage tank, identified as Tank ID# 15B, because each tank was constructed before the rule applicability date of July 23, 1984, each tank still has a maximum capacity of less than 75 m<sup>3</sup> (19,813 gallons), and the liquid stored in each tank still has a maximum true vapor pressure of less than fifteen kiloPascals (15.0 kPa).
- (e) The requirements of the New Source Performance Standard for Asphalt Processing and Asphalt Roofing Manufacture, 40 CFR 60, Subpart UU (326 IAC 12), are not included in the permit, since

pursuant to 40 CFR 60.471, the hot mix asphalt plant is not an asphalt processing plant because it does not blow asphalt or an asphalt roofing plant because it does not produce asphalt roofing products.

- (f) The requirements of the New Source Performance Standard for Bulk Gasoline Terminals (40 CFR 60, Subpart XX) (326 IAC 12), are not included in this renewal, since the source does not meet the definition of a bulk gasoline terminal, as defined in 40 CFR 60.500. The source has an insignificant gasoline fuel transfer and dispensing operation.
- (g) The requirements of the New Source Performance Standard for Nonmetallic Mineral Processing Plants (40 CFR 60, Subpart OOO) (326 IAC 12), are included in this renewal, since the source crushes nonmetallic minerals.

The crushed stone operation was constructed before August 31, 1983. Therefore, at the time it was not subject to the New Source Performance Standards for Nonmetallic Mineral Processing Plants (40 CFR 60, Subpart OOO). However, the crushed stone operation was modified in 1990 when the source constructed an additional crusher, identified as unit ID#4CR. As a result, the crushed stone operation is subject to the New Source Performance Standards for Nonmetallic Mineral Processing Plants (40 CFR 60, Subpart OOO).

The source submitted information on the new jaw crusher, identified as unit ID#1CR, that was installed in March 2010. This jaw crusher replaced an existing crusher (installed in 1974) with the same 100 tons per hour capacity and did not replace all existing facilities in a production line with new facilities. Therefore, the crusher ID#1CR is subject to Subpart OOO, however, pursuant to 40 CFR 60.670(d)(1), the specific requirements of 40 CFR 60.672, 40 CFR 60.674, and 40 CFR 60.675, Subpart OOO are not applicable to this crusher.

The units subject to this rule include the following:

- (1) One (1) jaw crusher, identified as unit ID#1CR, installed in March 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control. This jaw crusher replaced the existing crusher that was constructed in 1974.
- (2) One (1) standard crusher, identified as unit ID#2CR, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
- (3) One (1) standard crusher, identified as unit ID#3CR, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
- (4) One (1) short head crusher, identified as unit ID#4CR, installed in 1990, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
- (5) Two (2) Secco screens, identified as units ID#1SC and ID#2SC, installed in 1978, capable of processing a maximum of 100 tons per hour of aggregate, each, with no control.
- (6) One (1) Conveying system consisting of:
  - (A) Twenty-one (21) belt conveyors, identified as units ID#1-16BC, #18BC, #19BC, #20BC, #23BC and #24BC, installed in 1981, capable of processing a maximum of 100 tons per hour of aggregate, with no control.
  - (B) Three (3) radial stackers, identified as units ID#17RS, #21RS, and #22RS, installed in 2010, capable of processing a maximum of 100 tons per hour of aggregate, with no control.

Applicable requirements are as follows:

- (a) 40 CFR 60.670(a), (d), (e), and (f)
- (b) 40 CFR 60.671
- (c) 40 CFR 60.672(b), (d), and (e)
- (d) 40 CFR 60.673
- (e) 40 CFR 60.675(a), (c)(1)(i), (ii), (iii), (c)(3), (d), (e), (g), and (i)
- (f) 40 CFR 60.676(a), (b)(1), (f), (h), (i), (j), and (k)
- (g) Table 1 and Table 3

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

- (h) The requirements of the New Source Performance Standard for Calciners and Dryers in Mineral Industries, 40 CFR 60, Subpart UUU (326 IAC 12), are not included in the permit, since this source is not a mineral processing plant, meaning that it does not process or produce any of the following minerals, their concentrates or any mixture of which the majority (>50 percent) is any of the following minerals or a combination of these minerals: alumina, ball clay, bentonite, diatomite, feldspar, fire clay, fuller's earth, gypsum, industrial sand, kaolin, lightweight aggregate, magnesium compounds, perlite, roofing granules, talc, titanium dioxide, and vermiculite.
- (i) There are no other New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) included in this renewal.

#### National Emission Standards for Hazardous Air Pollutants (NESHAP)

- (a) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) From the Portland Cement Manufacturing Industry, 40 CFR 63, Subpart LLL (326 IAC 20-27), are not included in this renewal, since the existing stationary does not meet the definition of a Portland cement plant, as defined in § 63.1341, because this source does not manufacture portland cement.
- (b) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD (326 IAC 20), are not included in this renewal, as follows:

On June 8, 2007, the United States Court of Appeals for the District of Columbia Circuit (in *National Resource Defense Council, Sierra Club, Environmental Integrity Project vs. EPA*, No. 04-1385), vacated 40 CFR 63, Subpart DDDDD in its entirety. Additionally, since State Rule 326 IAC 20-95 incorporated the requirements of the NESHAP 40 CFR 63, Subpart DDDDD by reference, the requirements of 326 IAC 20-95 are no longer effective. However, since NESHAP 40 CFR Part 63, Subpart DDDDD has been vacated, Section 112(j) of the Clean Air Act, major sources of Hazardous Air Pollutants (HAPs), in specified source categories, requires a case-by-case MACT determination when EPA fails to promulgate a scheduled MACT Standard by the regulatory deadline. Calcar Quarry is still considered an area source under Section 112 of the Clean Air Act, MACT Standards. Therefore, the source is not subject to a case-by-case MACT determination.
- (c) The requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR 63, Subpart LLLLL (326 IAC 20-(number)), are not included in the permit, since the hot mix asphalt plant is not a major source of HAPs, is not located at and is not part of a major source of HAP emissions, and does not engage in the preparation of asphalt flux or asphalt roofing materials.
- (d) The gasoline fuel transfer and dispensing operation is subject to the National Emission Standards for Hazardous Air Pollutants for Source Category Gasoline Dispensing Facilities (40 CFR 63,

Subpart CCCCCC), because the source has a gasoline dispensing facility (GDF) and is considered an area source. The affected source includes each gasoline cargo tank during the delivery of product to a GDF and also includes each storage tank. This is a new requirement to this source.

The units subject to this rule include the following:

A gasoline fuel transfer and dispensing operation handling less than or equal to one thousand three hundred (1,300) gallons per day, such as filling of tanks, locomotives, automobiles, having storage capacity less than or equal to ten thousand five hundred (10,500) gallons;

Applicable portions of the NESHAP are the following:

- (1) 40 CFR 63. 11110
- (2) 40 CFR 63. 11111(a)(b)(e)(f)
- (3) 40 CFR 63. 11112(a)(d)
- (4) 40 CFR 63. 11113(b)(c)
- (5) 40 CFR 63. 11116
- (6) 40 CFR 63. 11130
- (7) 40 CFR 63. 11131
- (8) 40 CFR 63. 11132
- (9) Table 3

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

The requirements of 40 CFR Part 63, Subpart A – General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the unit except as otherwise specified in 40 CFR 63, Subpart CCCCCC.

- (e) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14, 326 IAC 20 and 40 CFR Part 63) included in this renewal.

<b>State Rule Applicability - Entire Source</b>
---

The following state rules are applicable to the source:

- (a) 326 IAC 2-8-4 (FESOP)  
FESOP applicability is discussed under the PTE of the Entire Source After Issuance of the FESOP section above.
- (b) 326 IAC 2-2 (Prevention of Significant Deterioration(PSD))  
PSD applicability is discussed under the PTE of the Entire Source After Issuance of the FESOP section above.
- (c) 326 IAC 2-3 (Emission Offset) and (for PM2.5 nonattainment counties) 326 IAC 2-1.1-5 (Nonattainment New Source Review)  
Emission Offset (and Nonattainment New Source Review) applicability is discussed under the PTE of the Entire Source After Issuance of the FESOP section above.
- (d) 326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))  
This source is not subject to the requirements of 326 IAC 2-4.1, since the unlimited potential to emit of HAPs from the existing source is less than ten (10) tons per year for any single HAP and less than twenty-five (25) tons per year of a combination of HAPs.
- (e) 326 IAC 2-6 (Emission Reporting)  
This source is not subject to 326 IAC 2-6 (Emission Reporting) because it is not required to have an operating permit pursuant to 326 IAC 2-7 (Part 70); it is not located in Lake, Porter, or LaPorte

County, and its potential to emit lead is less than 5 tons per year. Therefore, this rule does not apply.

(f) 326 IAC 5-1 (Opacity Limitations)

This existing stationary source is located in Orange County. Therefore, pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

(g) 326 IAC 6-4 (Fugitive Dust Emissions Limitations)

The asphalt plant load-out and on-site yard, hot oil and asphalt heaters, and the material screening, and conveying, combined material processing and handling, the material storage piles, and unpaved roads from both the crushed stone operation and the asphalt plant each continue to have the potential to emit fugitive particulate emissions; therefore, this existing source continues to be subject to the requirements of 326 IAC 6-4. Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions Limitations), the source shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4.

(h) 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations)

The source is subject to the requirements of 326 IAC 6-5, because the Asphalt Load-Out and On-Site Yard, and the Material Storage Piles, Material Processing and Handling, Material Crushing, Screening, and Conveying, and Unpaved and Paved Roads from both the crushed stone operation and the asphalt plant combined have potential fugitive particulate emissions greater than 25 tons per year. Pursuant to 326 IAC 6-5, fugitive particulate matter emissions shall be controlled according to the Fugitive Dust Control Plan, which is included as Attachment A to the permit.

(i) 326 IAC 6.5 PM Limitations Except Lake County

This source is not subject to 326 IAC 6.5 because it is not located in one of the following counties: Clark, Dearborn, Dubois, Howard, Marion, St. Joseph, Vanderburgh, Vigo or Wayne.

(j) 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)

Pursuant to 326 IAC 6-3-1(c), 326 IAC 6-3 shall not apply if an applicable particulate matter emission limitation established in 326 IAC 6.5-1 (Particulate Matter Limitations Except Lake County) or 326 IAC 12 (New Source Performance Standards) is more stringent than the particulate limitation established in 326 IAC 6-3. This source is not subject to 326 IAC 6.5-1 (Particulate Matter Limitations Except Lake County) but is subject to 326 IAC 12 (New Source Performance Standards). However, IDEM has determined that the opacity limitations required under 40 CFR 60.670, Subpart OOO, 326 IAC 12 and 326 IAC 6.5-1 are not more stringent than 326 IAC 6-3. Therefore, 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes) does apply to the crushed stone operation.

Pursuant to 326 IAC 6-3-2(e)(3) (Particulate Emission Limitations for Manufacturing Processes), the allowable particulate emission rate from the following individual processes shall not exceed the limits in the following table:

Unit ID	Emission Unit Description	Max. Throughput Rate (tons/hr)	Particulate Emission Limit (lbs/hr)
(ID#1CR)	jaw crusher	100	51.28
(ID#2CR)	standard crusher	100	51.28
(ID#3CR)	standard crusher	100	51.28
(ID#4CR)	standard crusher	100	51.28
(ID#1SC)	secco screen	100	51.28
(ID#2SC)	secco screen	100	51.28
ID#1-16BC, #18BC, #19BC, #20BC, #23BC and #24BC	21 belt conveyors	100 (each)	51.28 (each)
ID#17RS, #21RS, and #22RS	radial stackers	100 (each)	51.28 (each)

The pounds per hour limitations were calculated using the following equations:

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

$$E = 4.10 P^{0.67} \quad \text{where } E = \text{rate of emission in pounds per hour; and} \\ P = \text{process weight rate in tons per hour}$$

Or

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

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

<b>State Rule Applicability – Individual Facilities</b>
---

Asphalt Plant

- (a) 326 IAC 6-2 (Emission Limitations for Sources of Indirect Heating)  
 The dryer/mixer is not subject to the requirements of 326 IAC 6-2 because it is not a source of indirect heating.
- (b) 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes)  
 Particulate emissions from this asphalt plant are subject to a more stringent particulate requirement in 40 CFR 60, Subpart I. Therefore, the asphalt plant is exempt from the requirements of 326 IAC 6-3.
- (c) 326 IAC 7-1.1-2 (Sulfur Dioxide (SO<sub>2</sub>) Emission Limitations)  
 Pursuant to 326 IAC 7-1.1-1, the dryer/mixer is subject to the requirements of 326 IAC 7-1.1-2, because it has potential sulfur dioxide emissions greater than twenty-five (25) tons per year. Pursuant to 7-1.1-2, sulfur dioxide emissions from the dryer/mixer shall not exceed five-tenths (0.5) pound per MMBtu for distillate oil combustion. Note: No. 4 fuel oil is distillate oil.

- (d) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)  
The dryer/mixer is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from the dryer/mixer are less than twenty-five (25) tons per year.
- (e) 326 IAC 8-5-2 (Miscellaneous operations: asphalt paving)  
Any paving application made after January 1, 1980, is subject to the requirements of 326 IAC 8-5-2. Pursuant to this rule, no person shall cause or allow the use of cutback asphalt or asphalt emulsion containing more than seven percent (7%) oil distillate by volume of emulsion for any paving application except the following purposes:
  - (a) penetrating prime coating
  - (b) stockpile storage
  - (c) application during the months of November, December, January, February and March.
- (f) 326 IAC 12 (New Source Performance Standards)  
See Federal Rule Applicability Section of this TSD.
- (g) 326 IAC 20 (Hazardous Air Pollutants)  
See Federal Rule Applicability Section of this TSD.
- (h) 326 IAC 13-8 (Used Oil Requirements)  
Upon further review, IDEM has determined that the requirements of this rule do not need to be included in the renewal, since they are regulated by another agency.

#### Hot Oil/Asphalt Cement Heaters

- (a) 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes)  
The hot oil heater is exempt from the requirements of 326 IAC 6-3, because, pursuant to 326 IAC 1-2-59, liquid and gaseous fuels and combustion air are not considered as part of the process weight.
- (b) 326 IAC 7-1.1-1 (Sulfur Dioxide Emission Limitations)  
This hot oil heater is not subject to 326 IAC 7-1.1-1 (Sulfur Dioxide Emission Limitations) because the potential to emit sulfur dioxide from the hot oil heater is less than twenty-five (25) tons per year and ten (10) pounds per hour.
- (c) 326 IAC 8-1-6 (New Facilities; General Reduction Requirements)  
The hot oil heater is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from the hot oil heater are less than twenty-five (25) tons per year.
- (d) 326 IAC 12 (New Source Performance Standards)  
See Federal Rule Applicability Section of this TSD.
- (e) 326 IAC 20 (Hazardous Air Pollutants)  
See Federal Rule Applicability Section of this TSD.

#### Storage Tanks

- (a) 326 IAC 8-1-6 (VOC Rules: General Reduction Requirements for New Facilities)  
Each storage tank is not subject to the requirements of 326 IAC 8-1-6, since the unlimited VOC potential emissions from each new storage tank is less than twenty-five (25) tons per year.

- (b) 326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)  
 The four (4) storage tanks, are not subject to the requirements of 326 IAC 8-4-3 because they are not petroleum liquid storage vessels with capacities greater than thirty-nine thousand (39,000) gallons.
- (c) 326 IAC 12 (New Source Performance Standards)  
 See Federal Rule Applicability Section of this TSD.
- (d) 326 IAC 20 (Hazardous Air Pollutants)  
 See Federal Rule Applicability Section of this TSD.
- (e) 326 IAC 8-9 (Volatile Organic Liquid Storage Vessels)  
 This stationary source is located in Orange County. The requirements of 326 IAC 8-9 apply only to vessels used to store a volatile organic liquid that are located in Clark, Floyd, Lake or Porter Counties. Therefore, the requirements of 326 IAC 8-9 do not apply to any of the liquid asphalt storage tanks, fuel oil storage tanks, and/or waste oil storage tanks.
- (f) There are no other 326 IAC 8 Rules that are applicable to this existing source.

<b>Compliance Determination and Monitoring Requirements</b>
---

Permits issued under 326 IAC 2-8 are required to ensure that sources can demonstrate compliance with all applicable state and federal rules on a continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-8-4. As a result, Compliance Determination Requirements are included in the permit. The Compliance Determination Requirements in Section D of the permit are those conditions that are found directly within state and federal rules and the violation of which serves as grounds for enforcement action.

If the Compliance Determination Requirements are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also in Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

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

<b>Emission Unit/Control</b>	<b>Operating Parameters</b>	<b>Frequency</b>
Dryer/Mixer Baghouse	Visible Emissions Notations	Once per day
Dryer/Mixer Baghouse	Pressure Drop	Once per day
Crushed Stone Operation/Wet Suppression	Visible Emissions Notations	Once per day
Crushed Stone Operation/Wet Suppression	Wet Suppression	Continuous

These monitoring conditions are necessary because the baghouse for the dryer/mixer must operate properly to ensure compliance with 40 CFR 60, Subpart I and 326 IAC 2-8 (FESOP).

There continue to be no applicable compliance determination requirements for the existing natural gas-fired combustion units at this existing source.

The testing requirements applicable to this source are as follows:

<b>Testing Requirements</b>				
<b>Emission Unit</b>	<b>Control Device</b>	<b>Pollutant</b>	<b>Timeframe for Testing</b>	<b>Frequency of Testing</b>
Dryer/Mixer	Baghouse	PM	Five (5) years from the last valid compliance demonstration	Once every five (5) years
Dryer/Mixer	Baghouse	PM10 and PM2.5	Five (5) years from the last valid compliance demonstration	Once every five (5) years

*\* The last valid stack test occurred on May 20, 2009. The source was in compliance at that time.*

The source previously performed PM and PM10 testing on the EU-01 mixer/dryer on May 20, 2009. The test results were below the proposed particulate limits.

There continue to be no applicable testing requirements for the existing hot-mix asphalt conveying, screening, and material transfer points, and hot oil heating system, and the crushed stone processing operation at this existing source.

#### **Recommendation**

The staff recommends to the Commissioner that the FESOP renewal be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on March 4, 2010, and additional information was received on May 6, 10, 2010, August 9, and 27th, September 1, 2010 and January 14, 2011.

#### **Conclusion**

The operation of this asphalt batch plant and stone crushing operation shall be subject to the conditions of the attached FESOP renewal No. 117-29047-03220.

#### **IDEM Contact**

- (a) Questions regarding this proposed permit can be directed to Janet Mobley at the Indiana Department Environmental Management, Office of Air Quality, Permits Branch, 100 North Senate Avenue, MC 61-53 IGCN 1003, Indianapolis, Indiana 46204-2251 or by telephone at (317) 234-5373 or toll free at 1-800-451-6027 extension 4-5373.
- (b) A copy of the findings is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>
- (c) For additional information about air permits and how the public and interested parties can participate, refer to the IDEM's Guide for Citizen Participation and Permit Guide on the Internet at: [www.idem.in.gov](http://www.idem.in.gov)

**Appendix A.1: Unlimited Emissions Calculations  
Entire Source**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

**Asphalt and Crushed Stone Plant Maximum Capacity**

Maximum Hourly Crushed Stone Production =	200	ton/hr									
Maximum Annual Crushed Stone Production =	1,752,000	ton/yr									
Maximum Hourly Asphalt Production =	120	ton/hr									
Maximum Annual Asphalt Production =	600,000	ton/yr									
Maximum Annual Slag Usage =	0	ton/yr		0	% sulfur						
Maximum Dryer Fuel Input Rate =	51.0	MMBtu/hr									
Natural Gas Usage =	447	MMCF/yr									
No. 2 Fuel Oil Usage =	3,191,143	gal/yr, and		0.50	% sulfur						
No. 4 Fuel Oil Usage =	3,191,143	gal/yr, and		0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage =	3,191,143	gal/yr, and		0.50	% sulfur						
Propane Usage =	0	gal/yr, and		0.00	gr/100 ft3 sulfur						
Butane Usage =	0	gal/yr, and		0.00	gr/100 ft3 sulfur						
Used/Waste Oil Usage =	0	gal/yr, and		0.00	% sulfur	0.00	% ash	0.00	% chlorine,	0.00	% lead
Unlimited PM Dryer/Mixer Emission Factor =	32.0	lb/ton of asphalt production									
Unlimited PM10 Dryer/Mixer Emission Factor =	4.5	lb/ton of asphalt production									
Unlimited PM2.5 Dryer/Mixer Emission Factor =	0.27	lb/ton of asphalt production									
Unlimited VOC Dryer/Mixer Emission Factor =	0.036	lb/ton of asphalt production									
Unlimited CO Dryer/Mixer Emission Factor =	0.4	lb/ton of asphalt production									
Unlimited Slag SO2 Dryer/Mixer Emission Factor =	0.74	lb/ton of slag processed									

**Unlimited/Uncontrolled Emissions**

Process Description	Unlimited/Uncontrolled Potential to Emit (tons/year)									
	Criteria Pollutants							Hazardous Air Pollutants		
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP	
<b>Ducted Emissions</b>										
Dryer Fuel Combustion (worst case)	12.47	14.86	14.86	125.25	87.76	1.23	18.76	0.69	0.40	(hexane)
Dryer/Mixer and Batch Tower (Process)	9600.00	1350.00	81.00	26.40	36.00	10.80	120.00	0.00	0.81	(xylene)
Dryer/Mixer Slag Processing	0	0	0	0.00	0	0	0	0	0	
Hot Oil Heater Fuel Combustion (worst case)	0.06	0.10	0.10	2.22	0.63	0.02	0.37	0.010	0.008	(hexane)
<b>Worst Case Emissions*</b>	<b>9600.06</b>	<b>1350.10</b>	<b>81.10</b>	<b>127.47</b>	<b>88.38</b>	<b>10.82</b>	<b>120.37</b>	<b>0.70</b>	<b>0.81</b>	(xylene)
<b>Fugitive Emissions (Asphalt Plant)</b>										
Asphalt Load-Out, Silo Filling, On-Site Yard	0.33	0.33	0.33	0	0	5.14	0.86	0.09	0.03	(formaldehyde)
Material Storage Piles	0.04	0.01	0.01	0	0	0	0	0	0	
Material Processing and Handling	1.94	0.92	0.14	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	9.52	3.48	3.48	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	8.31	2.12	0.21	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	0.00	0	0.00	0.00	(xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.011	0	0.00	0.001	(xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	negl	0	
<b>Fugitive Emissions (Crushed Stone Plant)</b>										
Material Storage Piles	0.36	0.13	0.13	0	0	0	0	0	0	
Material Processing and Handling	3.97	1.88	0.28	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	62.90	23.39	23.39	0	0	0	0	0	0	
Unpaved Roads	7.55	1.92	0.19	0	0	0	0	0	0	
<b>Total Fugitive Emissions</b>	<b>94.91</b>	<b>34.17</b>	<b>28.17</b>	<b>0.00</b>	<b>0.00</b>	<b>5.15</b>	<b>0.86</b>	<b>0.09</b>	<b>0.03</b>	(formaldehyde)
<b>Totals Unlimited/Uncontrolled PTE</b>	<b>9694.97</b>	<b>1384.28</b>	<b>109.27</b>	<b>127.47</b>	<b>88.38</b>	<b>15.97</b>	<b>121.23</b>	<b>0.79</b>	<b>0.81</b>	(xylene)

negl = negligible

Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.

\*Worst Case Emissions (tons/yr) = Worst Case Emissions from Dryer Fuel Combustion and Dryer/Mixer + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion

Fuel component percentages provided by the source.

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

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

The following calculations determine the unlimited/uncontrolled emissions created from the combustion of natural gas, fuel oil, propane, butane, or used/waste oil in the dryer/mixer at the source.

**Maximum Capacity**

Maximum Hourly Asphalt Production =	120	ton/hr
Maximum Annual Asphalt Production =	600,000	ton/yr
Maximum Fuel Input Rate =	51	MMBtu/hr
Natural Gas Usage =	447	MMCF/yr
No. 2 Fuel Oil Usage =	3,191,143	gal/yr, and
		0.50 % sulfur
No. 4 Fuel Oil Usage =	3,191,143	gal/yr, and
		0.50 % sulfur
Residual (No. 5 or No. 6) Fuel Oil Usage =	3,191,143	gal/yr, and
		0.50 % sulfur
Propane Usage =	0	gal/yr, and
		0.00 gr/100 ft3 sulfur
Butane Usage =	0	gal/yr, and
		0.00 gr/100 ft3 sulfur
Used/Waste Oil Usage =	0	gal/yr, and
		0.00 % sulfur
		0.00 % ash
		0.000 % chlorine
		0.000 % lead

**Unlimited/Uncontrolled Emissions**

Criteria Pollutant	Emission Factor (units)							Unlimited/Uncontrolled Potential to Emit (tons/yr)							
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil* (lb/kgal)	Residual (No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	(No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/Waste Oil (tons/yr)	Worse Case Fuel (tons/yr)
PM	1.9	2.0	7.0	7.815	0.5	0.6	0.0	0.42	3.19	11.17	12.47	0.000	0.000	0.00	12.47
PM10/PM2.5	7.6	3.3	8.3	9.315	0.5	0.6	0	1.70	5.27	13.24	14.86	0.000	0.000	0.00	14.86
SO2	0.6	71.0	75.0	78.5	0.000	0.000	0.0	0.13	113.29	119.67	125.25	0.000	0.000	0.00	125.25
NOx	100	20.0	20.0	55.0	13.0	15.0	19.0	22.34	31.91	31.91	87.76	0.00	0.00	0.00	87.76
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	1.23	0.32	0.32	0.45	0.00	0.00	0.00	1.23
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	18.76392	7.98	7.98	7.98	0.00	0.00	0.00	18.76
<b>Hazardous Air Pollutant</b>															
HCl							0.0							0.00	0.00
Antimony			5.25E-03	5.25E-03			negl			8.38E-03	8.38E-03			negl	8.4E-03
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	4.5E-05	8.94E-04	2.11E-03	2.11E-03			0.00E+00	2.1E-03
Beryllium	1.2E-05	4.2E-04	2.79E-05	2.79E-05			negl	2.7E-06	6.70E-04	4.44E-05	4.44E-05			negl	6.7E-04
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	2.5E-04	6.70E-04	6.35E-04	6.35E-04			0.00E+00	6.7E-04
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	3.1E-04	6.70E-04	1.35E-03	1.35E-03			0.00E+00	1.3E-03
Cobalt	8.4E-05	6.02E-03	6.02E-03	6.02E-03			2.1E-04	1.9E-05		9.61E-03	9.61E-03			0.00E+00	9.6E-03
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0	1.1E-04	2.01E-03	2.41E-03	2.41E-03			0.0E+00	0.00
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	8.5E-05	1.34E-03	4.79E-03	4.79E-03			0.00E+00	0.00
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				5.8E-05	6.70E-04	1.80E-04	1.80E-04				6.7E-04
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	4.7E-04	6.70E-04	1.35E-01	1.35E-01			0.00E+00	0.135
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl	5.4E-06	3.35E-03	1.09E-03	1.09E-03			negl	3.4E-03
1,1,1-Trichloroethane			2.36E-04	2.36E-04						3.77E-04	3.77E-04				3.8E-04
1,3-Butadiene															0.0E+00
Acetaldehyde															0.0E+00
Acrolein															0.0E+00
Benzene	2.1E-03		2.14E-04	2.14E-04				4.7E-04		3.41E-04	3.41E-04				4.7E-04
Bis(2-ethylhexyl)phthalate							2.2E-03							0.00E+00	0.0E+00
Dichlorobenzene	1.2E-03						8.0E-07	2.7E-04						0.00E+00	2.7E-04
Ethylbenzene			6.36E-05	6.36E-05						1.01E-04	1.01E-04				1.0E-04
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				1.7E-02	9.73E-02	5.27E-02	5.27E-02				0.097
Hexane	1.8E+00							0.40							0.402
Phenol							2.4E-03							0.00E+00	0.0E+00
Toluene	3.4E-03		6.20E-03	6.20E-03				7.6E-04		9.89E-03	9.89E-03				9.9E-03
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		1.80E-03	1.80E-03			0.00E+00	1.8E-03
Polycyclic Organic Matter		3.30E-03							5.27E-03						5.3E-03
Xylene			1.09E-04	1.09E-04						1.74E-04	1.74E-04				1.7E-04
<b>Total HAPs</b>							<b>0.42</b>	<b>0.11</b>	<b>0.23</b>	<b>0.23</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0.69</b>	

**Methodology**

Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 MMCF/1,000 MMBtu]  
 Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 gal/0.140 MMBtu]  
 Propane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 gal/0.095 MMBtu]  
 Butane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 gal/0.0974 MMBtu]  
 Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] \* [Emission Factor (lb/MMCF)] \* [ton/2000 lbs]  
 All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] \* [Emission Factor (lb/kgal)] \* [kgal/1000 gal] \* [ton/2000 lbs]  
 Sources of AP-42 Emission Factors for fuel combustion:  
 Natural Gas: AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4  
 No. 2, No. 4, and No. 6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-4, 1.3-9, 1.3-10, and 1.3-11  
 Propane and Butane: AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)  
 Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5

**Abbreviations**

PM = Particulate Matter  
 PM10 = Particulate Matter (<10 um)  
 PM2.5 = Particulate Matter (< 2.5 um)  
 SO2 = Sulfur Dioxide  
 NOx = Nitrous Oxides  
 VOC = Volatile Organic Compounds  
 CO = Carbon Monoxide  
 HAP = Hazardous Air Pollutant  
 HCl = Hydrogen Chloride  
 PAH = Polyaromatic Hydrocarbon

\*Since there are no specific AP-42 HAP emission factors for combustion of No. 4 fuel oil, it was assumed that HAP emissions from combustion of No. 4 fuel oil were equal to combustion of residual or No. 6 fuel oil.

**Appendix A.1: Unlimited Emissions Calculations  
Dryer/Mixer and Batch Tower**

**Company Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
Permit Number: 117-29047-03220  
Reviewer: Janet Mobley**

The following calculations determine the unlimited/uncontrolled emissions from the aggregate drying/mixing and the batch tower.

Maximum Hourly Asphalt Production =  ton/hr  
Maximum Annual Asphalt Production =  ton/yr

Criteria Pollutant	Uncontrolled Emission Factors (lb/ton)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			Worse Case PTE
	Batch-Mix Plant (dryer, hot screens, and mixer)			Batch-Mix Plant (dryer, hot screens, and mixer)			
	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	
PM*	32	32	32	9600	9600	9600	<b>9600</b>
PM10*	4.5	4.5	4.5	1350	1350	1350	<b>1350</b>
PM2.5*	0.27	0.27	0.27	81	81	81	<b>81.0</b>
SO2**	0.0046	0.088	0.088	1.4	26.4	26.4	<b>26.4</b>
NOx**	0.025	0.12	0.12	7.5	36.0	36.0	<b>36.0</b>
VOC**	0.0082	0.0082	0.036	2.5	2.5	10.8	<b>10.8</b>
CO***	0.4	0.4	0.4	120.0	120.0	120.0	<b>120.0</b>
<b>Hazardous Air Pollutant</b>							
Arsenic	4.60E-07	4.60E-07	4.60E-07	1.38E-04	1.38E-04	1.38E-04	<b>1.38E-04</b>
Beryllium	1.50E-07	1.50E-07	1.50E-07	4.50E-05	4.50E-05	4.50E-05	<b>4.50E-05</b>
Cadmium	6.10E-07	6.10E-07	6.10E-07	1.83E-04	1.83E-04	1.83E-04	<b>1.83E-04</b>
Chromium	5.70E-07	5.70E-07	5.70E-07	1.71E-04	1.71E-04	1.71E-04	<b>1.71E-04</b>
Lead	8.90E-07	8.90E-07	1.00E-05	2.67E-04	2.67E-04	3.00E-03	<b>3.00E-03</b>
Manganese	6.90E-06	6.90E-06	6.90E-06	2.07E-03	2.07E-03	2.07E-03	<b>2.07E-03</b>
Mercury	4.10E-07	4.10E-07	4.10E-07	1.23E-04	1.23E-04	1.23E-04	<b>1.23E-04</b>
Nickel	3.00E-06	3.00E-06	3.00E-06	9.00E-04	9.00E-04	9.00E-04	<b>9.00E-04</b>
Selenium	4.90E-07	4.90E-07	4.90E-07	1.47E-04	1.47E-04	1.47E-04	<b>1.47E-04</b>
Acetaldehyde	3.20E-04	3.20E-04	3.20E-04	0.10		0.10	<b>0.10</b>
Benzene	2.80E-04	2.80E-04	2.80E-04	0.08	0.08	0.08	<b>0.08</b>
Ethylbenzene	2.20E-03	2.20E-03	2.20E-03	0.66	0.66	0.66	<b>0.66</b>
Formaldehyde	7.40E-04	7.40E-04	7.40E-04	0.22	0.22	0.22	<b>0.22</b>
Quinone	2.70E-04	2.70E-04	2.70E-04	0.08		0.08	<b>0.08</b>
Toluene	1.00E-03	1.00E-03	1.00E-03	0.30	0.30	0.30	<b>0.30</b>
Total PAH Haps	1.10E-04	1.10E-04	2.30E-04	0.03	0.03	0.07	<b>0.07</b>
Xylene	2.70E-03	2.70E-03	2.70E-03	0.81	0.81	0.81	<b>0.81</b>

Total HAPs **2.33**

Worst Single HAP **0.81 (xylene)**

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

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-1, 11.1-2, 11.1-5, 11.1-6, 11.1-19, and 11.1-11

Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

\* PM, PM10, and PM2.5 AP-42 emission factors based on drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. According to AP-42 fuel type does not significantly effect PM, PM10, and PM2.5 emissions.

\*\* SO2, NOx, and VOC AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.

\*\*\* CO AP-42 emission factor determined by combining data from drum mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

**Abbreviations**

VOC - Volatile Organic Compounds

HAP = Hazardous Air Pollutant

HCl = Hydrogen Chloride

PAH = Polyaromatic Hydrocarbon

SO2 = Sulfur Dioxide

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

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

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

Maximum Annual Slag Usage\* =  ton/yr  % sulfur

	Emission Factor (lb/ton)**	Unlimited Potential to Emit (tons/yr)
Criteria Pollutant	Slag Processing	Slag Processing
SO2	0.74	0.0

**Methodology**

\* The maximum annual slag usage was provided by the source.

\*\* Testing results for Slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from slag containing 1.10% sulfur content. The source has requested a safety factor of 0.20 lb/ton be added to the tested value for use at this location to allow for a sulfur content up to 1.5%.

Unlimited Potential to Emit SO2 from Slag (tons/yr) = [(Maximum Annual Slag Usage (ton/yr)) \* [Emission Factor (lb/ton)] \* [ton/2000 lbs]

**Abbreviations**

SO2 = Sulfur Dioxide

**Appendix A.1: Unlimited Emissions Calculations**  
**Hot Oil Heater**  
**Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

**Company Name:** Calcar Quarry  
**Source Location:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

Maximum Hot Oil Heater Fuel Input Rate = 1.00 MMBtu/hr  
 Natural Gas Usage = 9 MMCF/yr  
 No. 2 Fuel Oil Usage = 62,571 gal/yr, and 0.50 % sulfur

**Unlimited/Uncontrolled Emissions**

Criteria Pollutant	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		
	Hot Oil Heater		Hot Oil Heater		Worse Case Fuel (tons/yr)
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	
PM	1.9	2.0	0.008	0.063	0.06
PM10/PM2.5	7.6	3.3	0.033	0.103	0.10
SO2	0.6	71.0	0.003	2.221	2.22
NOx	100	20.0	0.438	0.626	0.63
VOC	5.5	0.20	0.024	0.006	0.02
CO	84	5.0	0.368	0.156	0.37
<b>Hazardous Air Pollutant</b>					
Arsenic	2.0E-04	5.6E-04	8.8E-07	1.75E-05	1.8E-05
Beryllium	1.2E-05	4.2E-04	5.3E-08	1.31E-05	1.3E-05
Cadmium	1.1E-03	4.2E-04	4.8E-06	1.31E-05	1.3E-05
Chromium	1.4E-03	4.2E-04	6.1E-06	1.31E-05	1.3E-05
Cobalt	8.4E-05		3.7E-07		3.7E-07
Lead	5.0E-04	1.3E-03	2.2E-06	3.94E-05	3.9E-05
Manganese	3.8E-04	8.4E-04	1.7E-06	2.63E-05	2.6E-05
Mercury	2.6E-04	4.2E-04	1.1E-06	1.31E-05	1.3E-05
Nickel	2.1E-03	4.2E-04	9.2E-06	1.31E-05	1.3E-05
Selenium	2.4E-05	2.1E-03	1.1E-07	6.57E-05	6.6E-05
Benzene	2.1E-03		9.2E-06		9.2E-06
Dichlorobenzene	1.2E-03		5.3E-06		5.3E-06
Ethylbenzene					0.0E+00
Formaldehyde	7.5E-02	6.10E-02	3.3E-04	1.91E-03	1.9E-03
Hexane	1.8E+00		0.01		7.9E-03
Phenol					0.0E+00
Toluene	3.4E-03		1.5E-05		1.5E-05
Total PAH Haps	negl		negl		0.0E+00
Polycyclic Organic Matter		3.30E-03		1.03E-04	1.0E-04
<b>Total HAPs =</b>			<b>8.3E-03</b>	<b>2.2E-03</b>	<b>0.010</b>

**Methodology**

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

Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4  
 No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11

**Abbreviations**

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

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

**Company Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
Permit Number: 117-29047-03220  
Reviewer: Janet Mobley**

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

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Maximum Annual Asphalt Production =	600,000	tons/yr

Pollutant	Emission Factor (lb/ton asphalt)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			
	Load-Out	Silo Filling	On-Site Yard	Load-Out	Silo Filling	On-Site Yard	Total
Total PM*	5.2E-04	5.9E-04	NA	0.16	0.18	NA	0.33
Organic PM	3.4E-04	2.5E-04	NA	0.10	0.076	NA	0.18
TOC	0.004	0.012	0.001	1.25	3.66	0.330	5.2
CO	0.001	0.001	3.5E-04	0.40	0.354	0.106	0.86

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

<b>PM/HAPs</b>	<b>0.007</b>	<b>0.009</b>	<b>0</b>	<b>0.016</b>
<b>VOC/HAPs</b>	<b>0.018</b>	<b>0.046</b>	<b>0.005</b>	<b>0.070</b>
<b>non-VOC/HAPs</b>	<b>9.6E-05</b>	<b>9.9E-06</b>	<b>2.5E-05</b>	<b>1.3E-04</b>
<b>non-VOC/non-HAPs</b>	<b>0.09</b>	<b>0.05</b>	<b>0.02</b>	<b>0.17</b>

<b>Total VOCs</b>	<b>1.17</b>	<b>3.66</b>	<b>0.3</b>	<b>5.1</b>
<b>Total HAPs</b>	<b>0.03</b>	<b>0.06</b>	<b>0.005</b>	<b>0.09</b>
		<b>Worst Single HAP</b>		<b>0.027</b>
				<b>(formaldehyde)</b>

**Methodology**

The asphalt temperature and volatility factor were provided by the source.

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

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16

Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::

Total PM/PM10/PM2.5 Ef = 0.000181 + 0.00141(-V)e<sup>-(0.0251)(T+460)-20.43)</sup>

Organic PM Ef = 0.00141(-V)e<sup>-(0.0251)(T+460)-20.43)</sup>

TOC Ef = 0.0172(-V)e<sup>-(0.0251)(T+460)-20.43)</sup>

CO Ef = 0.00558(-V)e<sup>-(0.0251)(T+460)-20.43)</sup>

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

PM/PM10 Ef = 0.000332 + 0.00105(-V)e<sup>-(0.0251)(T+460)-20.43)</sup>

Organic PM Ef = 0.00105(-V)e<sup>-(0.0251)(T+460)-20.43)</sup>

TOC Ef = 0.0504(-V)e<sup>-(0.0251)(T+460)-20.43)</sup>

CO Ef = 0.00488(-V)e<sup>-(0.0251)(T+460)-20.43)</sup>

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

\*No emission factors available for PM10 or PM2.5, therefore IDEM assumes PM10 and PM2.5 are equivalent to Total PM.

**Abbreviations**

TOC = Total Organic Compounds

CO = Carbon Monoxide

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

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

Company Name: Calcar Quarry  
 Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
 Permit Number: 117-29047-03220  
 Reviewer: Janet Mobley

**Organic Particulate-Based Compounds (Table 11.1-15)**

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
					Load-out and Onsite Yard (% by weight of Total Organic PM)	Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)	Load-out	Silo Filling	Onsite Yard	Total
<b>PAH HAPs</b>										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	2.7E-04	3.6E-04	NA	6.2E-04
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	2.9E-05	1.1E-05	NA	3.9E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	7.2E-05	9.9E-05	NA	1.7E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	1.9E-05	4.3E-05	NA	6.2E-05
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	7.8E-06	0	NA	7.8E-06
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	2.3E-06	0	NA	2.3E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	1.9E-06	0	NA	1.9E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	2.4E-06	0	NA	2.4E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	8.0E-06	7.2E-06	NA	1.5E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	1.1E-04	1.6E-04	NA	2.7E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	3.8E-07	0	NA	3.8E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	5.1E-05	0	NA	5.1E-05
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	7.9E-04	7.7E-04	NA	1.6E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	4.8E-07	0	NA	4.8E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	2.4E-03	4.0E-03	NA	0.006
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	1.3E-03	1.4E-03	NA	2.7E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	2.3E-05	2.3E-05	NA	4.5E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	8.3E-04	1.4E-03	NA	2.2E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	1.5E-04	3.4E-04	NA	4.9E-04
<b>Total PAH HAPs</b>							<b>0.006</b>	<b>0.009</b>	<b>NA</b>	<b>0.015</b>
<b>Other semi-volatile HAPs</b>										
Phenol		PM/HAP	---	Organic PM	1.18%	0	1.2E-03	0	0	1.2E-03

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

**Methodology**

Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Speciation Profile (%)] \* [Organic PM (tons/yr)]  
 Speciation Profiles from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-15 and 11.1-16

**Abbreviations**

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

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

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

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Unlimited/Uncontrolled Potential to Emit (tons/yr)			
					Load-out and Onsite Yard (% by weight of TOC)	Silo Filling and Asphalt Storage Tank (% by weight of TOC)	Load-out	Silo Filling	Onsite Yard	Total
<b>VOC</b>		VOC	---	TOC	94%	100%	<b>1.17</b>	<b>3.66</b>	<b>0.31</b>	<b>5.14</b>
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	8.1E-02	9.5E-03	2.1E-02	0.112
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	5.7E-04	2.0E-03	1.5E-04	0.003
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	8.9E-03	4.0E-02	2.3E-03	0.051
<b>Total non-VOC/non-HAPS</b>					<b>7.30%</b>	<b>1.40%</b>	<b>0.091</b>	<b>0.051</b>	<b>0.024</b>	<b>0.17</b>
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	6.5E-04	1.2E-03	1.7E-04	2.0E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	1.2E-04	1.8E-04	3.2E-05	3.3E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	6.1E-04	1.4E-03	1.6E-04	2.2E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	1.6E-04	5.8E-04	4.3E-05	7.9E-04
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	2.6E-06	1.5E-04	6.9E-07	1.5E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	1.9E-04	8.4E-04	5.0E-05	1.1E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	1.4E-03	0	3.6E-04	1.7E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	3.5E-03	1.4E-03	9.2E-04	0.006
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	1.1E-03	2.5E-02	2.9E-04	0.027
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	1.9E-03	3.7E-03	5.0E-04	0.006
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	2.2E-05	1.1E-05	5.9E-06	4.0E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	9.9E-06	0	9.9E-06
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	9.1E-05	2.0E-04	2.4E-05	3.1E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	9.6E-05	0	2.5E-05	1.2E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	2.6E-03	2.3E-03	6.9E-04	0.006
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	0	1.6E-05	0	4.3E-06	2.1E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	5.1E-03	7.3E-03	1.4E-03	0.014
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	1.0E-03	2.1E-03	2.6E-04	3.3E-03
<b>Total volatile organic HAPs</b>					<b>1.50%</b>	<b>1.30%</b>	<b>0.019</b>	<b>0.048</b>	<b>0.005</b>	<b>0.071</b>

**Methodology**

Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Speciation Profile (%)] \* [TOC (tons/yr)]  
Speciation Profiles from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-15 and 11.1-16

**Abbreviations**

TOC = Total Organic Compounds  
HAP = Hazardous Air Pollutant  
VOC = Volatile Organic Compound  
MTBE = Methyl tert butyl ether

**Appendix A.1: Unlimited Emissions Calculations  
Material Storage Piles**

**Company Name: Calcar Quarry**  
**Source Address: 860 East US Highway 150, Paoli, Indiana 47454**  
**Permit Number: 117-29047-03220**  
**Reviewer: Janet Mobley**

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

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

where  $E_f$  = emission factor (lb/acre/day)  
 $s$  = silt content (wt %)  
 $p$  = 125 days of rain greater than or equal to 0.01 inches  
 $f$  = 15 % of wind greater than or equal to 12 mph

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10/PM2.5 (tons/yr)
Sand #23	2.6	3.01	0.02	0.011	0.004
Limestone					
#24	1.6	1.85	0.01	0.003	0.001
#5	1.6	1.85	0.02	0.007	0.002
#11f	1.6	1.85	0.02	0.007	0.002
#11c	1.6	1.85	0.02	0.007	0.002
#8	1.6	1.85	0.02	0.007	0.002
RAP	0.5	0.58	0.00	0.000	0.000
Gravel	1.6	1.85	0.00	0.000	0.000
Slag	3.8	4.40	0.00	0.000	0.000
<b>Totals</b>				<b>0.04</b>	<b>0.01</b>

**Methodology**

PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) \* (Maximum Pile Size (acres)) \* (ton/2000 lbs) \* (8760 hours/yr)

PTE of PM10/PM2.5 (tons/yr) = (Potential PM Emissions (tons/yr)) \* 35%

\*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)

\*\*Maximum anticipated pile size (acres) provided by the source.

RAP - recycled asphalt pavement

**Abbreviations**

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

PM2.5 = PM10

PTE = Potential to Emit

**Appendix A.1: Unlimited Emissions Calculations**  
**Material Processing, Handling, Crushing, Screening, and Conveying**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

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

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

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

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

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

Maximum Annual Asphalt Production =	600,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	570,000	tons/yr

Type of Activity	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)	Unlimited/Uncontrolled PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	0.65	0.31	0.05
Front-end loader dumping of materials into feeder bins	0.65	0.31	0.05
Conveyor dropping material into dryer/mixer or batch tower	0.65	0.31	0.05
<b>Total (tons/yr)</b>	<b>1.94</b>	<b>0.92</b>	<b>0.14</b>

**Methodology**

The percent asphalt cement/binder provided by the source.  
Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] \* [1 - Percent Asphalt Cement/Binder (weight %)]  
Unlimited Potential to Emit (tons/yr) = (Maximum Material Handling Throughput (tons/yr)) \* (Emission Factor (lb/ton)) \* (ton/2000 lbs)  
Raw materials may include limestone, sand, recycled asphalt pavement (RAP), gravel, slag, and other additives  
\*Worst case annual mean wind speed (Indianapolis, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2006

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

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

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10/PM2.5 (tons/yr)**
Crushing	0.0054	0.0024	1.54	0.68
Screening	0.025	0.0087	7.13	2.48
Conveying	0.003	0.0011	0.86	0.31
<b>Unlimited Potential to Emit (tons/yr) =</b>			<b>9.52</b>	<b>3.48</b>

**Methodology**

Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] \* [1 - Percent Asphalt Cement/Binder (weight %)]  
Unlimited Potential to Emit (tons/yr) = [Maximum Material Handling Throughput (tons/yr)] \* [Emission Factor (lb/ton)] \* [ton/2000 lbs]  
Raw materials may include stone/gravel, slag, and recycled asphalt pavement (RAP)  
Emission Factors from AP-42 Chapter 11.19.2 (dated 8/04), Table 11.19.2-2  
\*Uncontrolled emissions factors for PM/PM10 represent tertiary crushing of stone with moisture content ranging from 0.21 to 1.3 percent by weight (Table 11.19.2-2). The bulk moisture content of aggregate in the storage piles at a hot mix asphalt production plant typically stabilizes between 3 to 5 percent by weight (Source: AP-42 Section 11.1.1.1).  
\*\*Assumes PM10 = PM2.5

**Abbreviations**

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

**Appendix A.1: Unlimited Emissions Calculations**  
Unpaved Roads

Company Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
Permit Number: 117-29047-03220  
Reviewer: Janet Mobley

**Unpaved Roads at Industrial Site**

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

Maximum Annual Asphalt Production	=	600,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	=	5.0%	
Maximum Material Handling Throughput	=	570,000	tons/yr
Maximum Asphalt Cement/Binder Throughput	=	30,000	tons/yr
Maximum No. 2 Fuel Oil Usage	=	3,191,143	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Tri Axle Truck	Dump truck (16 CY)	20.0	14.00	34.00	4.1E+04	1.4E+06	400	0.076	3084.4
Tri Axle Truck	Dump truck (16 CY)	20.0	14.00	34.00	4.1E+04	1.4E+06	400	0.076	3084.4
Quad Axle Truck	Dump truck (16 CY)	20.5	16.00	36.50	1.9E+03	6.8E+04	400	0.076	142.0
Quad Axle Truck	Dump truck (16 CY)	20.5	16.00	36.50	1.9E+03	6.8E+04	400	0.076	142.0
Tractor Trailer	Tanker truck (6000 gal)	20.5	16.00	36.50	6.7E+02	2.5E+04	400	0.076	51.1
Tractor Trailer	Tanker truck (6000 gal)	20.5	16.00	36.50	6.7E+02	2.5E+04	400	0.076	51.1
<b>Total</b>					<b>8.7E+04</b>	<b>3.0E+06</b>			<b>6.6E+03</b>

Average Vehicle Weight Per Trip = 34.1 tons/trip  
Average Miles Per Trip = 0.076 miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	34.1	34.1	34.1	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor,  $E_{ext} = E_f \cdot [(365 - P)/365]$

Mitigated Emission Factor,  $E_{ext} = E_f \cdot [(365 - P)/365]$   
where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, $E_f$ =	7.71	1.96	0.20	lb/mile
Mitigated Emission Factor, $E_{ext}$ =	5.07	1.29	0.13	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Tri Axle Truck	Dump truck (16 CY)	11.89	3.03	0.30	7.82	1.99	0.20	3.91	1.00	0.10
Tri Axle Truck	Dump truck (16 CY)	11.89	3.03	0.30	7.82	1.99	0.20	3.91	1.00	0.10
Quad Axle Truck	Dump truck (16 CY)	0.547	0.140	0.01	0.360	0.092	0.01	0.180	0.046	0.00
Quad Axle Truck	Dump truck (16 CY)	0.547	0.140	0.01	0.360	0.092	0.01	0.180	0.046	0.00
Tractor Trailer	Tanker truck (6000 gal)	0.197	0.050	0.01	0.129	0.033	0.00	0.065	0.016	0.00
Tractor Trailer	Tanker truck (6000 gal)	0.197	0.050	0.01	0.129	0.033	0.00	0.065	0.016	0.00
<b>Totals</b>		<b>25.26</b>	<b>6.44</b>	<b>0.64</b>	<b>16.61</b>	<b>4.23</b>	<b>0.42</b>	<b>8.31</b>	<b>2.12</b>	<b>0.21</b>

**Methodology**

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

**Abbreviations**

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

**Appendix A.1: Unlimited Emissions Calculations  
Paved Roads**

**Company Name: Calcar Quarry**  
**Source Address: 860 East US Highway 150, Paoli, Indiana 47454**  
**Permit Number: 117-29047-03220**  
**Reviewer: Janet Mobley**

**Paved Roads at Industrial Site**

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Maximum Annual Asphalt Production	=	600,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	=	5.0%	
Maximum Material Handling Throughput	=	570,000	tons/yr
Maximum Asphalt Cement/Binder Throughput	=	30,000	tons/yr
Maximum No. 2 Fuel Oil Usage	=	3,191.143	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.40	2.5E+04	1.0E+06	300	0.057	1445.8
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	2.5E+04	4.3E+05	300	0.057	1445.8
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	8.3E+02	4.0E+04	300	0.057	47.3
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	8.3E+02	1.0E+04	300	0.057	47.3
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	3.4E+02	1.5E+04	300	0.057	19.2
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	3.4E+02	4.0E+03	300	0.057	19.2
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	1.4E+05	2.6E+06	300	0.057	7711.0
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	1.4E+05	2.0E+06	300	0.057	7711.0
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	2.5E+04	1.0E+06	300	0.057	1420.5
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	2.5E+04	4.3E+05	300	0.057	1420.5
<b>Total</b>					<b>3.7E+05</b>	<b>7.6E+06</b>			<b>2.1E+04</b>

Average Vehicle Weight Per Trip	=	20.3	tons/trip
Average Miles Per Trip	=	0.057	miles/trip

Unmitigated Emission Factor, Ef = [k \* (sL/2)<sup>0.65</sup> \* (W/3)<sup>1.5</sup> - C] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.082	0.016	0.0024	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
C =	0.00047	0.00047	0.00036	lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)
sL =	0.6	0.6	0.6	g/m <sup>2</sup> = Ubiquitous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E \* [1 - (p/4N)]

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

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	0.66	0.13	0.02	lb/mile
Mitigated Emission Factor, Eext =	0.60	0.12	0.02	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	0.48	0.09	0.01	0.44	0.08	0.01	0.22	0.04	0.01
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.48	0.09	0.01	0.44	0.08	0.01	0.22	0.04	0.01
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.016	0.003	4.5E-04	0.014	0.003	4.1E-04	0.007	1.4E-03	2.0E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.016	0.003	4.5E-04	0.014	0.003	4.1E-04	0.007	1.4E-03	2.0E-04
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	6.3E-03	1.2E-03	1.8E-04	5.8E-03	1.1E-03	1.7E-04	2.9E-03	5.6E-04	8.3E-05
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	6.3E-03	1.2E-03	1.8E-04	5.8E-03	1.1E-03	1.7E-04	2.9E-03	5.6E-04	8.3E-05
Aggregate/RAP Loader Full	Front-end loader (3 CY)	2.54	0.49	0.07	2.32	0.45	0.07	1.16	0.23	0.03
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	2.54	0.49	0.07	2.32	0.45	0.07	1.16	0.23	0.03
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.47	0.09	0.01	0.43	0.08	0.01	0.21	0.04	0.01
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.47	0.09	0.01	0.43	0.08	0.01	0.21	0.04	0.01
<b>Totals</b>		<b>7.01</b>	<b>1.36</b>	<b>0.20</b>	<b>6.41</b>	<b>1.25</b>	<b>0.18</b>	<b>3.20</b>	<b>0.62</b>	<b>0.09</b>

**Methodology**

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

**Abbreviations**

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

**Appendix A.1: Unlimited Emissions Calculations  
Cold Mix Asphalt Production and Stockpiles**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

The following calculations determine the amount of VOC and HAP emissions created from volatilization of solvent used as diluent in the liquid binder for cold mix asphalt production

Maximum Annual Asphalt Production =	600,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	0.0%	
Maximum Asphalt Cement/Binder Throughput =	0	tons/yr

**Volatile Organic Compounds**

	Maximum weight % of VOC solvent in binder*	Weight % VOC solvent in binder that evaporates	Maximum VOC Solvent Usage (tons/yr)	PTE of VOC (tons/yr)
Cut back asphalt rapid cure (assuming gasoline or naphtha solvent)	25.3%	95.0%	0.0	0.0
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	0.0	0.0
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	0.0	0.0
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	0.0	0.0
Other asphalt with solvent binder	25.9%	2.5%	0.0	0.0
<b>Worst Case PTE of VOC =</b>				<b>0.0</b>

**Hazardous Air Pollutants**

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0% Xylenes
<b>PTE of Total HAPs (tons/yr) =</b>	<b>0.00</b>
<b>PTE of Single HAP (tons/yr) =</b>	<b>0.00 Xylenes</b>

**Hazardous Air Pollutant (HAP) Content (% by weight) For Various Petroleum Solvents\***

Volatile Organic HAP	CAS#	Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Solvents				
		Gasoline	Kerosene	Diesel (#2) Fuel Oil	No. 2 Fuel Oil	No. 6 Fuel Oil
1,3-Butadiene	106-99-0	3.70E-5%				
2,2,4-Trimethylpentane	540-84-1	2.40%				
Acenaphthene	83-32-9		4.70E-5%		1.80E-4%	
Acenaphthylene	208-96-8		4.50E-5%		6.00E-5%	
Anthracene	120-12-7		1.20E-6%	5.80E-5%	2.80E-5%	5.00E-5%
Benzene	71-43-2	1.90%		2.90E-4%		
Benzo(a)anthracene	56-55-3			9.60E-7%	4.50E-7%	5.50E-4%
Benzo(a)pyrene	50-32-8			2.20E-6%	2.10E-7%	4.40E-5%
Benzo(g,h,i)perylene	191-24-2			1.20E-7%	5.70E-8%	
Biphenyl	92-52-4			6.30E-4%	7.20E-5%	
Chrysene	218-01-9			4.50E-7%	1.40E-6%	6.90E-4%
Ethylbenzene	100-41-4	1.70%		0.07%	3.40E-4%	
Fluoranthene	206-44-0		7.10E-6%	5.90E-5%	1.40E-5%	2.40E-4%
Fluorene	86-73-7		4.20E-5%	8.60E-4%	1.90E-4%	
Indeno(1,2,3-cd)pyrene	193-39-5			1.60E-7%		1.00E-4%
Methyl-tert-butylether	1634-04-4	0.33%				
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%	4.20E-5%
n-Hexane	110-54-3	2.40%				
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%	2.10E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-5%	2.30E-5%
Toluene	108-88-3	8.10%		0.18%	6.20E-4%	
Total Xylenes	1330-20-7	9.00%		0.50%	0.23%	
<b>Total Organic HAPs</b>		<b>26.08%</b>	<b>0.33%</b>	<b>1.29%</b>	<b>0.68%</b>	<b>0.19%</b>
<b>Worst Single HAP</b>		<b>9.00%</b>	<b>0.31%</b>	<b>0.50%</b>	<b>0.23%</b>	<b>0.07%</b>
		<b>Xylenes</b>	<b>Naphthalene</b>	<b>Xylenes</b>	<b>Xylenes</b>	<b>Chrysene</b>

**Methodology**

Maximum Asphalt Cement/Binder Throughput = [Annual Asphalt Production Limitation (tons/yr)] \* [Percent Asphalt Cement/Binder (weight %)]  
 Maximum VOC Solvent Usage (tons/yr) = [Maximum Asphalt Cement/Binder Throughput (tons/yr)] \* [Maximum Weight % of VOC Solvent in Binder]  
 PTE of VOC (tons/yr) = [Weight % VOC solvent in binder that evaporates] \* [Maximum VOC Solvent Usage (tons/yr)]  
 PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] \* [Worst Case Limited PTE of VOC (tons/yr)]  
 PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] \* [Worst Case Limited PTE of VOC (tons/yr)]  
 \*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at:  
<http://www.aehs.com/publications/catalog/contents/tp.htm>

**Abbreviations**

VOC = Volatile Organic Compounds  
 PTE = Potential to Emit

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

**Company Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
Permit Number: 117-29047-03220  
Reviewer: Janet Mobley**

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling emission factors from AP-42 Table 5.2-7 were used. The total potential emission of VOC is as follows:

$$\begin{aligned} \text{Gasoline Throughput} &= 20 \text{ gallons/day} \\ &= 7.3 \text{ kgal/yr} \end{aligned}$$

**Volatile Organic Compounds**

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.001
Tank breathing and emptying	1.0	0.004
Vehicle refueling (displaced losses - controlled)	1.1	0.004
Spillage	0.7	0.003
<b>Total</b>		<b>0.01</b>

**Hazardous Air Pollutants**

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0% Xylenes
<b>Limited PTE of Total HAPs (tons/yr) =</b>	<b>0.003</b>
<b>Limited PTE of Single HAP (tons/yr) =</b>	<b>0.001 Xylenes</b>

**Methodology**

The gasoline throughput was provided by the source.

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

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

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

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

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

**Abbreviations**

VOC = Volatile Organic Compounds

PTE = Potential to Emit

**Appendix A.1: Unlimited Emissions Calculations  
Crushed Stone Plant Material Storage Piles**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

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

$E_f = 1.7 * (s/1.5) * (365 - p) / 235 * (f/15)$ <p>where <math>E_f</math> = emission factor (lb/acre/day)  <math>s</math> = silt content (wt %)  <math>p</math> = <input type="text" value="125"/> days of rain greater than or equal to 0.01 inches  <math>f</math> = <input type="text" value="15"/> % of wind greater than or equal to 12 mph</p>
---

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10/PM2.5 (tons/yr)
Sand #24	2.6	3.01	0.09	0.049	0.017
Limestone					
#73	1.6	1.85	0.14	0.047	0.017
#Fill	1.6	1.85	0.14	0.047	0.017
#53	1.6	1.85	0.15	0.051	0.018
#11f	1.6	1.85	0.05	0.017	0.006
#11c	1.6	1.85	0.01	0.003	0.001
#11b-borrow	1.6	1.85	0.05	0.017	0.006
#8	1.6	1.85	0.23	0.078	0.027
#2 Stone	1.6	1.85	0.15	0.051	0.018
RAP	0.5	0.58	0.00	0.000	0.000
Gravel	1.6	1.85	0.00	0.000	0.000
Slag	3.8	4.40	0.00	0.000	0.000
<b>Totals</b>				<b>0.36</b>	<b>0.13</b>

**Methodology**

PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) \* (Maximum Pile Size (acres)) \* (ton/2000 lbs) \* (8760 hours/yr)

PTE of PM10/PM2.5 (tons/yr) = (Potential PM Emissions (tons/yr)) \* 35%

\*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)

\*\*Maximum anticipated pile size (acres) provided by the source.

RAP = recycled asphalt pavement

**Abbreviations**

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

PM2.5 = PM10

PTE = Potential to Emit

**Appendix A.1: Unlimited Emissions Calculations**  
**Crushed Stone Plant Material Processing, Handling, Crushing, Screening, and Conveying**

**Company Name:** Calcar Quarry  
**Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** F117-29047-03220  
**Reviewer:** Janet Mobley

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

To estimate potential fugitive dust emissions from processing and handling of raw materials (batch or continuous drop operations), AP-42 emission factors for Aggregate Handling,

$$Ef = k \cdot (0.0032)^{1.3} \cdot (M/2)^{1.4}$$

where: Ef = Emission factor (lb/ton)

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

Maximum Annual Crushed Stone Production = 1,752,000 tons/yr

Type of Activity	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)	Unlimited/Uncontrolled PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	1.99	0.94	0.14
Loading of materials into truck	1.99	0.94	0.14
<b>Total (tons/yr)</b>	<b>3.97</b>	<b>1.88</b>	<b>0.28</b>

**Methodology**

Unlimited Potential to Emit (tons/yr) = (Maximum Annual Crushed Stone Production (tons/yr)) \* (Emission Factor (lb/ton)) \* (ton/2000 lbs)  
Raw materials may include limestone, sand, recycled asphalt pavement (RAP), concrete, gravel, slag, and other additives  
\*Worst case annual mean wind speed (Indianapolis, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2006

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

To estimate potential fugitive dust emissions from raw material crushing, screening, and conveying, AP-42 emission factors for Crushed Stone

Operation	Operation	Maximum Capacity (tons/hr)	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10/PM2.5 (tons/yr)**
Jaw Crusher ID#1CR	Crushing	100	0.0054	0.0024	2.37	1.05
Standard Crusher ID#2CR	Crushing	100	0.0054	0.0024	2.37	1.05
Standard Crusher ID#3CR	Crushing	100	0.0054	0.0024	2.37	1.05
Short Head Crusher ID#4CR	Crushing	100	0.0054	0.0024	2.37	1.05
Secco Screen ID#1SC	Screening	100	0.025	0.0087	10.95	3.81
Secco Screen ID#2SC	Screening	100	0.025	0.0087	10.95	3.81
21 Belt Conveyors, ID#1-16BC, #18BC, #19BC, #20BC, #23BC and #24BC	Conveying	2100	0.003	0.0011	27.59	10.12
Radial Stacker ID#17RS	Conveying	100	0.003	0.0011	1.31	0.48
Radial Stacker ID#21RS	Conveying	100	0.003	0.0011	1.31	0.48
Radial Stacker ID#22RS	Conveying	100	0.003	0.0011	1.31	0.48
<b>Unlimited Potential to Emit (tons/yr) =</b>					<b>62.90</b>	<b>23.39</b>

**Methodology**

Unlimited Potential to Emit (tons/yr) = [Maximum Material Handling Throughput (tons/hr)] \* 8760 hr/yr \* [Emission Factor (lb/ton)] \* [ton/2000 lbs]  
Emission Factors from AP-42 Chapter 11.19.2 (dated 8/04), Table 11.19.2-2  
\*\*Assumes PM10 = PM2.5

**Abbreviations**

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

**Appendix A.1: Unlimited Emissions Calculations  
Fugitive Dust Emissions - Unpaved Roads  
Crushed Stone Plant**

**Company Name:** Calcar Quarry  
**Address City IN Zip:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** F117-29047-03220  
**Reviewer:** Janet Mobley

**Unpaved Roads at Industrial Site**

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

Vehicle Information (provided by source)

Type	Maximum number of vehicles	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
(enter plant) (1way trip)Tri-axle truck	8.0	3.0	24.0	68.0	1632.0	400	0.076	1.8	663.6
(leaving plant) (1way trip)Tri-axle truck	8.0	3.0	24.0	68.0	1632.0	400	0.076	1.8	663.6
(enter plant)(1way trip)Quad-axle truck	2.0	5.0	10.0	73.0	730.0	400	0.076	0.8	276.5
(leavingplant)1way trip)Quad-axle truck	2.0	5.0	10.0	73.0	730.0	400	0.076	0.8	276.5
(enter plant) (1way trip)TractorTrailor	1.0	5.0	5.0	73.0	365.0	400	0.076	0.4	138.3
(leavingplant)1way trip)Tractor Trailor	1.0	5.0	5.0	73.0	365.0	400	0.076	0.4	138.3
<b>Total</b>			<b>78.0</b>		<b>5454.0</b>			<b>5.9</b>	<b>2156.8</b>

Average Vehicle Weight Per Trip = 69.9 tons/trip  
 Average Miles Per Trip = 0.08 miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	69.9	69.9	69.9	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor,  $E_{ext} = E_f [(365 - P)/365]$

Mitigated Emission Factor,  $E_{ext} = E_f [(365 - P)/365]$   
 where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, $E_f =$	10.64	2.71	0.27	lb/mile
Mitigated Emission Factor, $E_{ext} =$	7.00	1.78	0.18	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Tri-axes (entering plant) (one-way trip)	3.53	0.90	0.09	2.32	0.59	0.06	1.16	0.30	0.03
Tri-axes (leaving plant) (one-way trip)	3.53	0.90	0.09	2.32	0.59	0.06	1.16	0.30	0.03
Quad-axes(enteringplant)(one-way trip)	1.47	0.37	0.04	0.97	0.25	0.02	0.48	0.12	0.01
Quad-axes(leaving plant)(one-way trip)	1.47	0.37	0.04	0.97	0.25	0.02	0.48	0.12	0.01
Tractor trailor(enteringplant)1-way trip)	0.74	0.19	0.02	0.48	0.12	0.01	0.24	0.06	0.01
Tractor trailor(leaving plant)(1-way trip)	0.74	0.19	0.02	0.48	0.12	0.01	0.24	0.06	0.01
	<b>11.48</b>	<b>2.92</b>	<b>0.29</b>	<b>7.55</b>	<b>1.92</b>	<b>0.19</b>	<b>3.77</b>	<b>0.96</b>	<b>0.10</b>

**Methodology**

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] \* [Maximum trips per day (trip/day)]  
 Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip)] / [5280 ft/mile]  
 Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] \* [Maximum one-way distance (mi/trip)]  
 Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]  
 Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]  
 Unmitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) \* (Unmitigated Emission Factor (lb/mile)) \* (ton/2000 lbs)  
 Mitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) \* (Mitigated Emission Factor (lb/mile)) \* (ton/2000 lbs)  
 Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) \* (1 - Dust Control Efficiency)

**Abbreviations**

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

**Appendix A.2: Limited Emissions Summary**  
**Entire Source**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

**Asphalt and Crushed Stone Plant Limitations**

Maximum Hourly Crushed Stone Production =	200	ton/hr								
Annual Crushed Stone Limitation =	1,000,000	ton/yr								
Maximum Hourly Asphalt Production =	120	ton/hr								
Annual Asphalt Production Limitation =	493,160	ton/yr								
Slag Usage Limitation =	0	ton/yr	1.50	% sulfur						
Natural Gas Limitation =	447	MMCF/yr								
No. 2 Fuel Oil Limitation =	2,726,161	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Limitation =	2,580,766	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Limitation =	2,465,700	gal/yr, and	0.50	% sulfur						
Propane Limitation =	0	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Limitation =	0	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Limitation =	0	gal/yr, and	1.00	% sulfur	0.50	% ash	0.200	% chlorine,	0.010	% lead
PM Dryer/Mixer Limitation =	0.738	lb/ton of asphalt production								
PM10 Dryer/Mixer Limitation =	0.303	lb/ton of asphalt production								
PM2.5 Dryer/Mixer Limitation =	0.319	lb/ton of asphalt production								
CO Dryer/Mixer Limitation =	0.4	lb/ton of asphalt production								
VOC Dryer/Mixer Limitation =	0.036	lb/ton of asphalt production								
Slag SO2 Dryer/Mixer Limitation =	0.000	lb/ton of slag processed								
Cold Mix Asphalt VOC Usage Limitation =	0.0	tons/yr								
HCl Limitation =	0	lb/kgal								

**Limited/Controlled Emissions**

Process Description	Limited/Controlled Potential Emissions (tons/year)								
	Criteria Pollutants							Hazardous Air Pollutants	
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	Total HAPs	Worst Case HAP
<b>Ducted Emissions</b>									
Dryer Fuel Combustion (worst case)	9.63	11.48	11.48	96.78	67.81	1.23	18.77	0.64	0.40 (hexane)
Dryer/Mixer and Batch Tower (Process)	181.98	74.63	78.61	21.70	29.59	8.88	98.63	1.91	0.67 (xylenes)
Dryer/Mixer Slag Processing	0	0	0	0.00	0	0	0	0	0
Hot Oil Heater Fuel Combustion (worst case)	0.06	0.10	0.10	2.22	0.63	0.02	0.37	0.01	0.008 (hexane)
<b>Worst Case Emissions*</b>	<b>182.04</b>	<b>74.73</b>	<b>78.71</b>	<b>99.00</b>	<b>68.43</b>	<b>8.90</b>	<b>99.00</b>	<b>1.92</b>	<b>0.67 (xylenes)</b>
<b>Fugitive Emissions (Asphalt Plant)</b>									
Asphalt Load-Out, Silo Filling, On-Site Yard	0.27	0.27	0.27	0	0	4.22	0.71	0.07	0.02 (formaldehyde)
Material Storage Piles	2.23	0.78	0.78	0	0	0	0	0	0
Material Processing and Handling	1.59	0.75	0.11	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	7.82	2.86	2.86	0	0	0	0	0	0
Unpaved and Paved Roads (worst case)	6.83	1.74	0.17	0	0	0	0	0	0
Cold Mix Asphalt Production	0	0	0	0	0	0.00	0	0.00	0.00 (xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.011	0	0.00	0.001 (xylenes)
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	negl	negl
<b>Fugitive Emissions (Crushed Stone Plant)</b>									
Material Storage Piles	0.36	0.13	0.13	0	0	0	0	0	0
Material Processing and Handling	2.27	1.07	0.16	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	41.80	15.70	15.70	0	0	0	0	0	0
Unpaved Roads	3.77	0.96	0.10	0	0	0	0	0	0
<b>Total Fugitive Emissions</b>	<b>66.96</b>	<b>24.27</b>	<b>20.29</b>	<b>0.00</b>	<b>0.00</b>	<b>4.24</b>	<b>0.71</b>	<b>0.07</b>	<b>0.02 (formaldehyde)</b>
<b>Totals Limited/Controlled Emissions</b>	<b>249.00</b>	<b>99.00</b>	<b>99.00</b>	<b>99.00</b>	<b>68.43</b>	<b>13.14</b>	<b>99.71</b>	<b>2.00</b>	<b>0.67 (xylenes)</b>

negl = negligible

Worst Case Fuel Combustion is based on the fuel with the highest emissions for each specific pollutant.

\*Worst Case Emissions (tons/yr) = Worst Case Emissions from Dryer Fuel Combustion and Dryer/Mixer + Dryer/Mixer Slag Processing + Worst Case Emissions from Hot Oil Heater Fuel Combustion  
 Fuel component percentages provided by the source.

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

Company Name: Calcar Quarry  
 Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
 Permit Number: 117-29047-03220  
 Reviewer: Janet Mobley

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

**Production and Fuel Limitations**

Maximum Hourly Asphalt Production =	120	ton/hr
Annual Asphalt Production Limitation =	493,160	ton/yr
Natural Gas Limitation =	447	MMCF/yr
No. 2 Fuel Oil Limitation =	2,726,161	gal/yr, and
No. 4 Fuel Oil Limitation =	2,580,766	gal/yr, and
Residual (No. 5 or No. 6) Fuel Oil Limitation =	2,465,700	gal/yr, and
Propane Limitation =	0	gal/yr, and
Butane Limitation =	0	gal/yr, and
Used/Waste Oil Limitation =	0	gal/yr, and

0.50	% sulfur
0.50	% sulfur
0.50	% sulfur
0.20	gr/100 ft3 sulfur
0.22	gr/100 ft3 sulfur
1.00	% sulfur

0.50	% ash
0.200	% chlorine
0.010	% lead

**Limited Emissions**

Criteria Pollutant	Emission Factor (units)							Limited Potential to Emit (tons/yr)							Worst Case Fuel (tons/yr)
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	No. 4 Fuel Oil* (lb/kgal)	Residual (No. 5 or No. 6) Fuel Oil (lb/kgal)	Propane (lb/kgal)	Butane (lb/kgal)	Used/Waste Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	No. 4 Fuel Oil (tons/yr)	Residual (No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/Waste Oil (tons/yr)	
PM	1.9	2.0	7.0	7.815	0.5	0.6	32.0	0.42	2.73	9.03	9.63	0.000	0.000	0.00	<b>9.63</b>
PM10	7.6	3.3	8.3	9.315	0.5	0.6	25.5	1.70	4.50	10.71	11.48	0.000	0.000	0.00	<b>11.48</b>
SO2	0.6	71.0	75.0	78.5	0.02	0.02	147.0	0.13	96.78	96.78	96.78	0.000	0.000	0.00	<b>96.78</b>
NOx	100	20.0	20.0	55.0	13.0	15.0	19.0	22.35	27.26	25.81	67.81	0.00	0.00	0.00	<b>67.81</b>
VOC	5.5	0.20	0.20	0.28	1.0	1.10	1.0	1.23	0.27	0.26	0.35	0.00	0.00	0.00	<b>1.23</b>
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	18.77	6.82	6.45	6.16	0.00	0.00	0.00	<b>18.77</b>
<b>Hazardous Air Pollutant</b>															
HCl							13.2							0.00	<b>0.00</b>
Antimony			5.25E-03	5.25E-03			negl			6.77E-03	6.47E-03			negl	<b>6.8E-03</b>
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	4.5E-05	7.63E-04	1.70E-03	1.63E-03			0.00E+00	<b>1.7E-03</b>
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	2.7E-06	5.72E-04	3.59E-05	3.43E-05			negl	<b>5.7E-04</b>
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	2.5E-04	5.72E-04	5.14E-04	4.91E-04			0.00E+00	<b>5.7E-04</b>
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	3.1E-04	5.72E-04	1.09E-03	1.04E-03			0.00E+00	<b>1.1E-03</b>
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04	1.9E-05		7.77E-03	7.42E-03			0.00E+00	<b>7.8E-03</b>
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55	1.1E-04	1.72E-03	1.95E-03	1.86E-03			0.0E+00	<b>0.00</b>
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	8.5E-05	1.14E-03	3.87E-03	3.70E-03			0.00E+00	<b>0.00</b>
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				5.8E-05	5.72E-04	1.46E-04	1.39E-04			0.00E+00	<b>5.7E-04</b>
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	4.7E-04	5.72E-04	1.09E-01	1.04E-01			0.00E+00	<b>0.109</b>
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl	5.4E-06	2.86E-03	8.81E-04	8.42E-04			negl	<b>2.9E-03</b>
1,1,1-Trichloroethane			2.36E-04	2.36E-04						3.05E-04	2.91E-04				<b>3.0E-04</b>
1,3-Butadiene															<b>0.0E+00</b>
Acetaldehyde															<b>0.0E+00</b>
Acrolein															<b>0.0E+00</b>
Benzene	2.1E-03		2.14E-04	2.14E-04				4.7E-04		2.76E-04	2.64E-04				<b>4.7E-04</b>
Bis(2-ethylhexyl)phthalate								2.2E-03						0.00E+00	<b>0.0E+00</b>
Dichlorobenzene	1.2E-03							8.0E-07	2.7E-04					0.00E+00	<b>2.7E-04</b>
Ethylbenzene			6.36E-05	6.36E-05						8.21E-05	7.84E-05				<b>8.2E-05</b>
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				1.7E-02	8.31E-02	4.26E-02	4.07E-02				<b>0.083</b>
Hexane	1.8E+00							0.40							<b>0.402</b>
Phenol							2.4E-03							0.00E+00	<b>0.0E+00</b>
Toluene	3.4E-03		6.20E-03	6.20E-03				7.6E-04		8.00E-03	7.64E-03				<b>8.0E-03</b>
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		1.46E-03	1.39E-03			0.00E+00	<b>1.5E-03</b>
Polycyclic Organic Matter		3.30E-03							4.50E-03						<b>4.5E-03</b>
Xylene			1.09E-04	1.09E-04						1.41E-04	1.34E-04				<b>1.4E-04</b>
<b>Total HAPs</b>							<b>0.42</b>	<b>0.10</b>	<b>0.19</b>	<b>0.18</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0.64</b>	

**Methodology**

Natural Gas: Limited Potential to Emit (tons/yr) = (Natural Gas Limitation (MMCF/yr)) \* (Emission Factor (lb/MMCF)) \* (ton/2000 lbs)  
 All Other Fuels: Limited Potential to Emit (tons/yr) = (Fuel Limitation (gals/yr)) \* (Emission Factor (lb/kgal)) \* (kgal/1000 gal) \* (ton/2000 lbs)  
 Sources of AP-42 Emission Factors for fuel combustion:

- Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
- No. 2, No. 4, and No. 6 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
- Propane and Butane: AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)
- Waste Oil: AP-42 Chapter 1.11 (dated 10/98), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5

\*Since there are no specific AP-42 HAP emission factors for combustion of No. 4 fuel oil, it was assumed that HAP emissions from combustion of No. 4 fuel oil were equal to combustion of residual or No. 6 fuel oil.

**Abbreviations**

- PM = Particulate Matter
- PM10 = Particulate Matter (<10 um)
- SO2 = Sulfur Dioxide
- NOx = Nitrous Oxides
- VOC = Volatile Organic Compounds
- CO = Carbon Monoxide

- HAP = Hazardous Air Pollutant
- HCl = Hydrogen Chloride
- PAH = Polyaromatic Hydrocarbon

**Appendix A.2: Limited Emissions Summary  
Dryer/Mixer and Batch Tower**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

The following calculations determine the limited emissions from the aggregate drying/mixing and the batch tower.

Maximum Hourly Asphalt Production = 120 ton/hr  
 Annual Asphalt Production Limitation = 493,160 ton/yr  
 PM Dryer/Mixer Limitation = 0.738 lb/ton of asphalt production  
 PM10 Dryer/Mixer Limitation = 0.303 lb/ton of asphalt production  
 PM2.5 Dryer/Mixer Limitation = 0.319 lb/ton of asphalt production  
 CO Dryer/Mixer Limitation = 0.400 lb/ton of asphalt production  
 VOC Dryer/Mixer Limitation = 0.036 lb/ton of asphalt production

Criteria Pollutant	Emission Factor or Limitation (lb/ton)			Limited/Controlled Potential to Emit (tons/yr)			Worst Case PTE
	Batch-Mix Plant (dryer, hot screens, and mixer)			Batch-Mix Plant (dryer, hot screens, and mixer)			
	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	
PM	0.738	0.738	0.738	182.0	182.0	182.0	182.0
PM10	0.303	0.303	0.303	74.6	74.6	74.6	74.6
PM2.5	0.319	0.319	0.319	78.6	78.6	78.6	78.6
SO2*	0.0046	0.088	0.088	1.1	21.7	21.7	21.7
NOx*	0.025	0.12	0.12	6.2	29.6	29.6	29.6
VOC	0.036	0.036	0.036	8.9	8.9	8.9	8.9
CO**	0.400	0.400	0.400	98.6	98.6	98.6	98.6
<b>Hazardous Air Pollutant</b>							
Arsenic	4.60E-07	4.60E-07	4.60E-07	1.13E-04	1.13E-04	1.13E-04	1.13E-04
Beryllium	1.50E-07	1.50E-07	1.50E-07	3.70E-05	3.70E-05	3.70E-05	3.70E-05
Cadmium	6.10E-07	6.10E-07	6.10E-07	1.50E-04	1.50E-04	1.50E-04	1.50E-04
Chromium	5.70E-07	5.70E-07	5.70E-07	1.41E-04	1.41E-04	1.41E-04	1.41E-04
Lead	8.90E-07	8.90E-07	1.00E-05	2.19E-04	2.19E-04	2.47E-03	2.47E-03
Manganese	6.90E-06	6.90E-06	6.90E-06	1.70E-03	1.70E-03	1.70E-03	1.70E-03
Mercury	4.10E-07	4.10E-07	4.10E-07	1.01E-04	1.01E-04	1.01E-04	1.01E-04
Nickel	3.00E-06	3.00E-06	3.00E-06	7.40E-04	7.40E-04	7.40E-04	7.40E-04
Selenium	4.90E-07	4.90E-07	4.90E-07	1.21E-04	1.21E-04	1.21E-04	1.21E-04
Acetaldehyde	3.20E-04	3.20E-04	3.20E-04	0.08	0.08	0.08	0.08
Benzene	2.80E-04	2.80E-04	2.80E-04	0.07	0.07	0.07	0.07
Ethylbenzene	2.20E-03	2.20E-03	2.20E-03	0.54	0.54	0.54	0.54
Formaldehyde	7.40E-04	7.40E-04	7.40E-04	0.18	0.18	0.18	0.18
Quinone	2.70E-04	2.70E-04	2.70E-04	0.07	0.07	0.07	0.07
Toluene	1.00E-03	1.00E-03	1.00E-03	0.25	0.25	0.25	0.25
Total PAH Haps	1.10E-04	1.10E-04	2.30E-04	0.03	0.03	0.06	0.06
Xylene	2.70E-03	2.70E-03	2.70E-03	0.67	0.67	0.67	0.67
<b>Total HAPs</b>							<b>1.91</b>
<b>Worst Single HAP</b>							<b>0.67 (xylene)</b>

**Methodology**

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

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-1, 11.1-2, 11.1-5, 11.1-6, 11.1-19, and 11.1-11

Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

\* SO2 and NOx AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.

\*\* CO AP-42 emission factor determined by combining data from batch mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

**Abbreviations**

VOC - Volatile Organic Compounds  
 HCl = Hydrogen Chloride  
 SO2 = Sulfur Dioxide

HAP = Hazardous Air Pollutant  
 PAH = Polyaromatic Hydrocarbon

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

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

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

Slag Usage Limitation = 

0
---

 ton/yr  
 SO2 Slag Limitation = 

0.000
-------

 lb/ton of slag processed      

1.50
------

 % sulfur

	Emission Factor or Limitation (lb/ton)*	Limited Potential to Emit (tons/yr)
Criteria Pollutant	Slag Processing	Slag Processing
SO2	0.000	0.0

**Methodology**

\* Testing results for Slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from slag containing 1.10% sulfur content. The source has requested a safety factor of 0.20 lb/ton be added to the tested value for use at this location to allow for a sulfur content up to 1.5%.

Limited Potential to Emit SO2 from Slag (tons/yr) = (Slag Usage Limitation (ton/yr)) \* [Limited Emission Factor (lb/ton)] \* [ton/2000 lbs]

**Abbreviations**

SO2 = Sulfur Dioxide

**Appendix A.2: Limited Emissions Summary**  
**Hot Oil Heater**  
**Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

**Company Name:** Calcar Quarry  
**Source Location:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:**

Since the Hot Oil Heater is small, the limited PTE is equal to the PTE at 8760 hr/yr.

Maximum Hot Oil Heater Fuel Input Rate = 1.00 MMBtu/hr  
 Natural Gas Usage = 9 MMCF/yr  
 No. 2 Fuel Oil Usage = 62,571 gal/yr, and 0.50 % sulfur

**Unlimited/Uncontrolled Emissions**

Criteria Pollutant	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		
	Hot Oil Heater		Hot Oil Heater		
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)	Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)	Worse Case Fuel (tons/yr)
PM	1.9	2.0	0.008	0.063	0.06
PM10/PM2.5	7.6	3.3	0.033	0.103	0.10
SO2	0.6	71.0	0.003	2.221	2.22
NOx	100	20.0	0.438	0.626	0.63
VOC	5.5	0.20	0.024	0.006	0.02
CO	84	5.0	0.368	0.156	0.37
<b>Hazardous Air Pollutant</b>					
Arsenic	2.0E-04	5.6E-04	8.8E-07	1.75E-05	1.8E-05
Beryllium	1.2E-05	4.2E-04	5.3E-08	1.31E-05	1.3E-05
Cadmium	1.1E-03	4.2E-04	4.8E-06	1.31E-05	1.3E-05
Chromium	1.4E-03	4.2E-04	6.1E-06	1.31E-05	1.3E-05
Cobalt	8.4E-05		3.7E-07		3.7E-07
Lead	5.0E-04	1.3E-03	2.2E-06	3.94E-05	3.9E-05
Manganese	3.8E-04	8.4E-04	1.7E-06	2.63E-05	2.6E-05
Mercury	2.6E-04	4.2E-04	1.1E-06	1.31E-05	1.3E-05
Nickel	2.1E-03	4.2E-04	9.2E-06	1.31E-05	1.3E-05
Selenium	2.4E-05	2.1E-03	1.1E-07	6.57E-05	6.6E-05
Benzene	2.1E-03		9.2E-06		9.2E-06
Dichlorobenzene	1.2E-03		5.3E-06		5.3E-06
Ethylbenzene					0
Formaldehyde	7.5E-02	6.10E-02	3.3E-04	1.91E-03	0.002
Hexane	1.8E+00		0.01		0.008
Phenol					0
Toluene	3.4E-03		1.5E-05		1.5E-05
Total PAH Haps	negl		negl		0
Polycyclic Organic Matter		3.30E-03		1.03E-04	1.0E-04
<b>Total HAPs =</b>			<b>8.3E-03</b>	<b>2.2E-03</b>	<b>0.010</b>

**Methodology**

Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 MMCF/1,000 MMBtu]  
 Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] \* [8,760 hrs/yr] \* [1 gal/0.140 MMBtu]  
 Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] \* [Emission Factor (lb/MMCF)] \* [ton/2000 lbs]  
 All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] \* [Emission Factor (lb/kgal)] \* [kgal/1000 gal] \* [ton/2000 lbs]  
 Sources of AP-42 Emission Factors for fuel combustion:  
 Natural Gas : AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4  
 No. 2 Fuel Oil: AP-42 Chapter 1.3 (dated 9/98), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11

**Abbreviations**

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

**Appendix A.2: Limited Emissions Summary  
Asphalt Load-Out, Silo Filling, and Yard Emissions**

**Company Name: Calcar Quarry  
Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
Permit Number: 117-29047-03220  
Reviewer: Janet Mobley**

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

Asphalt Temperature, T =	325	F
Asphalt Volatility Factor, V =	-0.5	
Annual Asphalt Production Limitation =	493,160	tons/yr

Pollutant	Emission Factor (lb/ton asphalt)			Limited Potential to Emit (tons/yr)			
	Load-Out	Silo Filling	On-Site Yard	Load-Out	Silo Filling	On-Site Yard	Total
Total PM*	5.2E-04	5.9E-04	NA	0.13	0.14	NA	<b>0.27</b>
Organic PM	3.4E-04	2.5E-04	NA	0.08	0.063	NA	<b>0.15</b>
TOC	0.004	0.012	0.001	1.03	3.00	0.271	<b>4.3</b>
CO	0.001	0.001	3.5E-04	0.33	0.291	0.087	<b>0.71</b>

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

<b>PM/HAPs</b>	<b>0.006</b>	<b>0.007</b>	<b>0</b>	<b>0.013</b>
<b>VOC/HAPs</b>	<b>0.015</b>	<b>0.038</b>	<b>0.004</b>	<b>0.057</b>
<b>non-VOC/HAPs</b>	<b>7.9E-05</b>	<b>8.1E-06</b>	<b>2.1E-05</b>	<b>1.1E-04</b>
<b>non-VOC/non-HAPs</b>	<b>0.07</b>	<b>0.04</b>	<b>0.02</b>	<b>0.14</b>

<b>Total VOCs</b>	<b>0.96</b>	<b>3.00</b>	<b>0.3</b>	<b>4.2</b>
<b>Total HAPs</b>	<b>0.02</b>	<b>0.05</b>	<b>0.004</b>	<b>0.07</b>
<b>Worst Single HAP</b>				<b>0.022</b>
				<b>(formaldehyde)</b>

**Methodology**

The asphalt temperature and volatility factor were provided by the source.

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

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16

Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14)::

Total PM/PM10 Ef =  $0.000181 + 0.00141(-V)e^{((0.0251)(T+460)-20.43)}$

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

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

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

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

PM/PM10 Ef =  $0.000332 + 0.00105(-V)e^{((0.0251)(T+460)-20.43)}$

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

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

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

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

\*No emission factors available for PM10 or PM2.5, therefore IDEM assumes PM10 and PM2.5 are equivalent to Total PM.

**Abbreviations**

TOC = Total Organic Compounds

CO = Carbon Monoxide

PM = Particulate

Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

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

Company Name: Calcar Quarry  
 Source Address: 860 East US Highway 150, Paoli, Indiana 47454  
 Permit Number: 117-29047-03220  
 Reviewer: Janet Mobley

**Organic Particulate-Based Compounds (Table 11.1-15)**

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Limited Potential to Emit (tons/yr)			
					Load-out and Onsite Yard (% by weight of Total Organic PM)	Silo Filling and Asphalt Storage Tank (% by weight of Total Organic PM)	Load-out	Silo Filling	Onsite Yard	Total
<b>PAH HAPs</b>										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	2.2E-04	2.9E-04	NA	5.1E-04
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	2.4E-05	8.8E-06	NA	3.2E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	5.9E-05	8.1E-05	NA	1.4E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	1.6E-05	3.5E-05	NA	5.1E-05
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	6.4E-06	0	NA	6.4E-06
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	1.8E-06	0	NA	1.8E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	1.6E-06	0	NA	1.6E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	1.9E-06	0	NA	1.9E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	6.6E-06	5.9E-06	NA	1.3E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	8.7E-05	1.3E-04	NA	2.2E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	3.1E-07	0	NA	3.1E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	4.2E-05	9.4E-05	NA	1.4E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	6.5E-04	6.3E-04	NA	1.3E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	4.0E-07	0	NA	4.0E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	2.0E-03	3.3E-03	NA	0.005
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	1.1E-03	1.1E-03	NA	2.2E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	1.8E-05	1.9E-05	NA	3.7E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	6.8E-04	1.1E-03	NA	1.8E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	1.3E-04	2.8E-04	NA	4.0E-04
<b>Total PAH HAPs</b>							<b>0.005</b>	<b>0.007</b>	<b>NA</b>	<b>0.012</b>
<b>Other semi-volatile HAPs</b>										
Phenol		PM/HAP	---	Organic PM	1.18%	0	9.9E-04	0	0	9.9E-04

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

**Methodology**

Limited Potential to Emit (tons/yr) = [Speciation Profile (%)] \* [Organic PM (tons/yr)]  
 Speciation Profiles from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-15 and 11.1-16

**Abbreviations**

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

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

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

Pollutant	CASRN	Category	HAP Type	Source	Speciation Profile		Limited Potential to Emit (tons/yr)			
					Load-out and Onsite Yard (% by weight of TOC)	Silo Filling and Asphalt Storage Tank (% by weight of TOC)	Load-out	Silo Filling	Onsite Yard	Total
<b>VOC</b>		VOC	---	TOC	94%	100%	<b>0.96</b>	<b>3.00</b>	<b>0.25</b>	<b>4.22</b>
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	6.7E-02	7.8E-03	1.8E-02	0.092
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	4.7E-04	1.7E-03	1.2E-04	0.002
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	7.3E-03	3.3E-02	1.9E-03	0.042
<b>Total non-VOC/non-HAPS</b>					<b>7.30%</b>	<b>1.40%</b>	<b>0.075</b>	<b>0.042</b>	<b>0.020</b>	<b>0.14</b>
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	5.3E-04	9.6E-04	1.4E-04	1.6E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	9.8E-05	1.5E-04	2.6E-05	2.7E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	5.0E-04	1.2E-03	1.3E-04	1.8E-03
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	1.3E-04	4.8E-04	3.5E-05	6.5E-04
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	2.2E-06	1.2E-04	5.7E-07	1.2E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	1.5E-04	6.9E-04	4.1E-05	8.9E-04
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	1.1E-03	0	3.0E-04	1.4E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	2.9E-03	1.1E-03	7.6E-04	0.005
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	9.0E-04	2.1E-02	2.4E-04	0.022
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	1.5E-03	3.0E-03	4.1E-04	0.005
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	1.8E-05	9.3E-06	4.9E-06	3.3E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	8.1E-06	0	8.1E-06
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	7.5E-05	1.6E-04	2.0E-05	2.6E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	7.9E-05	0	2.1E-05	1.0E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	2.2E-03	1.9E-03	5.7E-04	0.005
1,1,1-Trichloroethane	71-55-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichloroethene	79-01-6	VOC/HAP	---	TOC	0	0	0	0	0	0
Trichlorofluoromethane	75-69-4	VOC/HAP	---	TOC	0.0013%	0	1.3E-05	0	3.5E-06	1.7E-05
m/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	4.2E-03	6.0E-03	1.1E-03	0.011
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	8.2E-04	1.7E-03	2.2E-04	2.8E-03
<b>Total volatile organic HAPs</b>					<b>1.50%</b>	<b>1.30%</b>	<b>0.015</b>	<b>0.039</b>	<b>0.004</b>	<b>0.059</b>

**Methodology**

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

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

**Abbreviations**

TOC = Total Organic Compounds

HAP = Hazardous Air Pollutant

VOC = Volatile Organic Compound

MTBE = Methyl tert butyl ether

**Appendix A.2: Limited Emissions Summary  
Material Storage Piles**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

Note: Since the emissions from the storage piles are minimal, the limited emissions are equal to the unlimited emissions.

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

$$E_f = 1.7 \cdot (s/1.5)^3 \cdot (365-p) / 235 \cdot (f/15)$$

where  $E_f$  = emission factor (lb/acre/day)  
 $s$  = silt content (wt %)  
 $p$  = 125 days of rain greater than or equal to 0.01 inches  
 $f$  = 15 % of wind greater than or equal to 12 mph

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10/PM2.5 (tons/yr)
Sand	2.6	3.01	0.80	0.439	0.154
Limestone	1.6	1.85	1.30	0.439	0.154
RAP	0.5	0.58	1.40	0.148	0.052
Gravel	1.6	1.85	1.20	0.406	0.142
Slag	3.8	4.40	1.00	0.803	0.281
<b>Totals</b>				<b>2.23</b>	<b>0.78</b>

**Methodology**

PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) \* (Maximum Pile Size (acres)) \* (ton/2000 lbs) \* (8760 hours/yr)

PTE of PM10/PM2.5 (tons/yr) = (Potential PM Emissions (tons/yr)) \* 35%

\*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)

\*\*Maximum anticipated pile size (acres) provided by the source.

RAP = recycled asphalt pavement

**Abbreviations**

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

PM2.5 = PM10

PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary**  
**Material Processing, Handling, Crushing, Screening, and Conveying**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

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

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

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

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

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

Annual Asphalt Production Limitation =	493,160	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	468,502	tons/yr

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)	Limited PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	0.53	0.25	0.04
Front-end loader dumping of materials into feeder bins	0.53	0.25	0.04
Conveyor dropping material into dryer/mixer or batch tower	0.53	0.25	0.04
<b>Total (tons/yr)</b>	<b>1.59</b>	<b>0.75</b>	<b>0.11</b>

**Methodology**

The percent asphalt cement/binder provided by the source.

Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] \* [1 - Percent Asphalt Cement/Binder (weight %)]

Limited Potential to Emit (tons/yr) = (Maximum Material Handling Throughput (tons/yr)) \* (Emission Factor (lb/ton)) \* (ton/2000 lbs)

Raw materials may include limestone, sand, recycled asphalt pavement (RAP), gravel, slag, and other additives

\*Worst case annual mean wind speed (Indianapolis, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2006

**Material Screening and Conveying (AP-42 Section 19.2.2)**

To estimate potential fugitive dust emissions from raw material crushing, screening, and conveying, AP-42 emission factors for Crushed Stone Processing Operations, Section 19.2.2 (dated 8/04) are utilized.

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Limited PTE of PM (tons/yr)	Limited PTE of PM10/PM2.5 (tons/yr)**
Crushing	0.0054	0.0024	1.26	0.56
Screening	0.025	0.0087	5.86	2.04
Conveying	0.003	0.0011	0.70	0.26
<b>Limited Potential to Emit (tons/yr) =</b>			<b>7.82</b>	<b>2.86</b>

**Methodology**

Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] \* [1 - Percent Asphalt Cement/Binder (weight %)]

Limited Potential to Emit (tons/yr) = [Maximum Material Handling Throughput (tons/yr)] \* [Emission Factor (lb/ton)] \* [ton/2000 lbs]

Raw materials may include stone/gravel, slag, and recycled asphalt pavement (RAP)

Emission Factors from AP-42 Chapter 11.19.2 (dated 8/04), Table 11.19.2-2

\*Uncontrolled emissions factors for PM/PM10 represent tertiary crushing of stone with moisture content ranging from 0.21 to 1.3 percent by weight (Table 11.19.2-2). The bulk moisture content of aggregate in the storage piles at a hot mix asphalt production plant typically stabilizes between 3 to 5 percent by weight (Source: AP-42 Section 11.1.1.1).

\*\*Assumes PM10 = PM2.5

**Abbreviations**

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary  
Unpaved Roads**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

**Unpaved Roads at Industrial Site**

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

Annual Asphalt Production Limitation	493.160	tons/yr
Percent Asphalt Cement/Binder (weight %)	5.0%	
Maximum Material Handling Throughput	468.502	tons/yr
Maximum Asphalt Cement/Binder Throughput	24.658	tons/yr
No. 2 Fuel Oil Limitation	2,726.161	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Tri Axle Truck	Dump truck (16 CY)	20.0	14.00	34.00	3.3E+04	1.1E+06	400	0.076	2535.2
Tri Axle Truck	Dump truck (16 CY)	20.0	14.00	34.0	3.3E+04	1.1E+06	400	0.076	2535.2
Quad Axle Truck	Dump truck (16 CY)	20.5	16.00	36.5	1.5E+03	5.6E+04	400	0.076	116.8
Quad Axle Truck	Dump truck (16 CY)	20.5	16.00	36.5	1.5E+03	5.6E+04	400	0.076	116.8
Tractor Trailer	Tanker truck (6000 gal)	20.5	16.00	36.5	5.8E+02	2.1E+04	400	0.076	43.6
Tractor Trailer	Tanker truck (6000 gal)	20.5	16.00	36.5	5.8E+02	2.1E+04	400	0.076	43.6
<b>Total</b>					<b>7.1E+04</b>	<b>2.4E+06</b>			<b>5.4E+03</b>

Average Vehicle Weight Per Trip =  $\frac{34.1}{0.076}$  tons/trip  
 Average Miles Per Trip =  $\frac{34.1}{0.076}$  miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	34.1	34.1	34.1	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor,  $E_{ext} = E_f \cdot [(365 - P)/365]$

Mitigated Emission Factor,  $E_{ext} = E_f \cdot [(365 - P)/365]$   
 where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, $E_f$	7.71	1.96	0.20	lb/mile
Mitigated Emission Factor, $E_{ext}$	5.07	1.29	0.13	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	9.77	2.49	0.25	6.42	1.64	0.16	3.21	0.82	0.08
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	9.77	2.49	0.25	6.42	1.64	0.16	3.21	0.82	0.08
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.450	0.115	0.01	0.296	0.075	7.5E-03	0.148	0.038	3.8E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.450	0.115	0.01	0.296	0.075	7.5E-03	0.148	0.038	3.8E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.168	0.043	4.3E-03	0.111	0.028	2.8E-03	0.055	0.014	1.4E-03
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.168	0.043	4.3E-03	0.111	0.028	2.8E-03	0.055	0.014	1.4E-03
Aggregate/RAP Loader Full	Front-end loader (3 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Totals</b>		<b>20.78</b>	<b>5.30</b>	<b>0.53</b>	<b>13.66</b>	<b>3.48</b>	<b>0.35</b>	<b>6.83</b>	<b>1.74</b>	<b>0.17</b>

**Methodology**

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

**Abbreviations**

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

**Appendix A.2: Limited Emissions Summary**  
**Paved Roads**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

**Paved Roads at Industrial Site**

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Annual Asphalt Production Limitation	493,160	tons/yr
Percent Asphalt Cement/Binder (weight %)	5.0%	
Maximum Material Handling Throughput	468,502	tons/yr
Maximum Asphalt Cement/Binder Throughput	24,658	tons/yr
No. 2 Fuel Oil Limitation	2,726,161	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	34.0	51.00	1.4E+04	7.0E+05	400	0.076	1043.9
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	1.4E+04	2.3E+05	400	0.076	1043.9
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	6.8E+02	3.3E+04	400	0.076	51.9
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	6.8E+02	8.2E+03	400	0.076	51.9
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	2.9E+02	1.3E+04	300	0.057	16.4
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	2.9E+02	3.5E+03	300	0.057	16.4
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	1.1E+05	2.1E+06	300	0.057	6338.0
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	1.1E+05	1.7E+06	300	0.057	6338.0
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	2.1E+04	8.4E+05	300	0.057	1167.5
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	2.1E+04	3.5E+05	300	0.057	1167.5
<b>Total</b>					<b>2.9E+05</b>	<b>6.0E+06</b>			<b>1.7E+04</b>

Average Vehicle Weight Per Trip = 20.4 tons/trip  
Average Miles Per Trip = 0.059 miles/trip

Unmitigated Emission Factor, Ef = [k \* (sL/2)^0.65 \* (W/3)^1.5 - C] (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5
where k =	0.082	0.016	0.0024
W =	20.4	20.4	20.4
C =	0.00047	0.00047	0.00038
sL =	0.6	0.6	0.6

lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)

tons = average vehicle weight (provided by source)

lb/mi = emission factor for vehicle exhaust, brake wear, and tire wear (AP-42 Table 13.2.1-2)

g/m<sup>2</sup> = Ubiquitous Baseline Silt Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E \* [1 - (p/4N)]

Mitigated Emission Factor, Eext = Ef \* [1 - (p/4N)]

where p = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.1-2)

N = 365 days per year

	PM	PM10	PM2.5	lb/mile
Unmitigated Emission Factor, Ef =	0.67	0.13	0.02	
Mitigated Emission Factor, Eext =	0.61	0.12	0.02	
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	0.35	0.07	0.01	0.32	0.06	0.01	0.16	0.03	0.00
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	0.35	0.07	0.01	0.32	0.06	0.01	0.16	0.03	0.00
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.017	0.003	5.0E-04	0.016	0.003	4.5E-04	0.008	1.5E-03	2.3E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.017	0.003	5.0E-04	0.016	0.003	4.5E-04	0.008	1.5E-03	2.3E-04
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	5.4E-03	1.1E-03	1.6E-04	5.0E-03	9.7E-04	1.4E-04	2.5E-03	4.8E-04	7.2E-05
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	5.4E-03	1.1E-03	1.6E-04	5.0E-03	9.7E-04	1.4E-04	2.5E-03	4.8E-04	7.2E-05
Aggregate/RAP Loader Full	Front-end loader (3 CY)	2.11	0.41	0.06	1.93	0.38	0.06	0.96	0.19	0.03
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	2.11	0.41	0.06	1.93	0.38	0.06	0.96	0.19	0.03
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.39	0.08	0.01	0.36	0.07	0.01	0.18	0.03	0.01
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.39	0.08	0.01	0.36	0.07	0.01	0.18	0.03	0.01
<b>Totals</b>		<b>5.74</b>	<b>1.12</b>	<b>0.16</b>	<b>5.25</b>	<b>1.02</b>	<b>0.15</b>	<b>2.62</b>	<b>0.51</b>	<b>0.08</b>

**Methodology**

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

**Abbreviations**

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

**Appendix A.2: Limited Emissions Summary  
Cold Mix Asphalt Production and Stockpiles**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

The following calculations determine the amount of VOC and HAP emissions created from volatilization of solvent used as diluent in the liquid binder for cold mix asphalt production

Cold Mix Asphalt VOC Usage Limitation =  tons/yr

**Volatile Organic Compounds**

	Maximum weight % of VOC solvent in binder	Weight % VOC solvent in binder that evaporates	VOC Solvent Usage Limitation (tons/yr)	Limited PTE of VOC (tons/yr)	Liquid Binder Adjustment Ratio
Cut back asphalt rapid cure (assuming gasoline or naphtha solvent)	25.3%	95.0%	0.0	0.0	0.00
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	0.0	0.0	0.00
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	0.0	0.0	0.00
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	0.0	0.0	0.00
Other asphalt with solvent binder	25.9%	2.5%	0.0	0.0	0.00
<b>Worst Case Limited PTE of VOC =</b>				<b>0.0</b>	

**Hazardous Air Pollutants**

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0% Xylenes
<b>Limited PTE of Total HAPs (tons/yr) =</b>	<b>0.00</b>
<b>Limited PTE of Single HAP (tons/yr) =</b>	<b>0.00 Xylenes</b>

**Hazardous Air Pollutant (HAP) Content (% by weight) For Various Petroleum Solvents\***

Volatile Organic HAP	CAS#	Hazardous Air Pollutant (HAP) Content (% by weight)* For Various Petroleum Solvents				
		Gasoline	Kerosene	Diesel (#2) Fuel Oil	No. 2 Fuel Oil	No. 6 Fuel Oil
1,3-Butadiene	106-99-0	3.70E-5%				
2,2,4-Trimethylpentane	540-84-1	2.40%				
Acenaphthene	83-32-9		4.70E-5%		1.80E-4%	
Acenaphthylene	208-96-8		4.50E-5%		6.00E-5%	
Anthracene	120-12-7		1.20E-6%	5.80E-5%	2.80E-5%	5.00E-5%
Benzene	71-43-2	1.90%		2.90E-4%		
Benzo(a)anthracene	56-55-3			9.60E-7%	4.50E-7%	5.50E-4%
Benzo(a)pyrene	50-32-8			2.20E-6%	2.10E-7%	4.40E-5%
Benzo(g,h,i)perylene	191-24-2			1.20E-7%	5.70E-8%	
Biphenyl	92-52-4			6.30E-4%	7.20E-5%	
Chrysene	218-01-9			4.50E-7%	1.40E-6%	6.90E-4%
Ethylbenzene	100-41-4	1.70%		0.07%	3.40E-4%	
Fluoranthene	206-44-0		7.10E-6%	5.90E-5%	1.40E-5%	2.40E-4%
Fluorene	86-73-7		4.20E-5%	8.60E-4%	1.90E-4%	
Indeno(1,2,3-cd)pyrene	193-39-5			1.60E-7%		1.00E-4%
Methyl-tert-butylether	1634-04-4	0.33%				
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%	4.20E-5%
n-Hexane	110-54-3	2.40%				
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%	2.10E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-5%	2.30E-5%
Toluene	108-88-3	8.10%		0.18%	6.20E-4%	
Total Xylenes	1330-20-7	9.00%		0.50%	0.23%	
<b>Total Organic HAPs</b>		<b>26.08%</b>	<b>0.33%</b>	<b>1.29%</b>	<b>0.68%</b>	<b>0.19%</b>
<b>Worst Single HAP</b>		<b>9.00%</b>	<b>0.31%</b>	<b>0.50%</b>	<b>0.23%</b>	<b>0.07%</b>
		<b>Xylenes</b>	<b>Naphthalene</b>	<b>Xylenes</b>	<b>Xylenes</b>	<b>Chrysene</b>

**Methodology**

Limited PTE of VOC (tons/yr) = [Weight % VOC solvent in binder that evaporates] \* [VOC Solvent Usage Limitation (tons/yr)]  
 Limited PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] \* [Worst Case Limited PTE of VOC (tons/yr)]  
 Limited PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] \* [Worst Case Limited PTE of VOC (tons/yr)]  
 \*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: <http://www.aehs.com/publications/catalog/contents/tph.htm>

**Abbreviations**

VOC = Volatile Organic Compounds  
 PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary  
Gasoline Fuel Transfer and Dispensing Operation**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

Note: Since the emissions from the gasoline fuel transfer and dispensing operation are minimal, the limited emissions are equal to the unlimited emissions.

To calculate evaporative emissions from the gasoline dispensing fuel transfer and dispensing operation handling emission factors from AP-42 Table 5.2-7 were used. The total potential emission of VOC is as follows:

$$\begin{aligned} \text{Gasoline Throughput} &= 20 \text{ gallons/day} \\ &= 7.3 \text{ kgal/yr} \end{aligned}$$

**Volatile Organic Compounds**

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.001
Tank breathing and emptying	1.0	0.004
Vehicle refueling (displaced losses - controlled)	1.1	0.004
Spillage	0.7	0.003
<b>Total</b>		<b>0.01</b>

**Hazardous Air Pollutants**

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%	
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0%	Xylenes
<b>Limited PTE of Total HAPs (tons/yr) =</b>	<b>0.003</b>	
<b>Limited PTE of Single HAP (tons/yr) =</b>	<b>0.001</b>	<b>Xylenes</b>

**Methodology**

The gasoline throughput was provided by the source.

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

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

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

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

\*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2.

Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at:

<http://www.aehs.com/publications/catalog/contents/tph.htm>

**Abbreviations**

VOC = Volatile Organic Compounds

PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary  
Crushed Stone Plant Material Storage Piles**

**Company Name:** Calcar Quarry  
**Source Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** 117-29047-03220  
**Reviewer:** Janet Mobley

Note: Since the emissions from the storage piles are minimal, the limited emissions are equal to the unlimited emissions.

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

$$E_f = 1.7 * (s/1.5) * (365-p) / 235 * (f/15)$$

where  $E_f$  = emission factor (lb/acre/day)  
 $s$  = silt content (wt %)  
 $p$  = 125 days of rain greater than or equal to 0.01 inches  
 $f$  = 15 % of wind greater than or equal to 12 mph

Material	Silt Content (wt %)*	Emission Factor (lb/acre/day)	Maximum Anticipated Pile Size (acres)**	PTE of PM (tons/yr)	PTE of PM10/PM2.5 (tons/yr)
Sand #24	2.6	3.01	0.09	0.049	0.017
Limestone					
#73	1.6	1.85	0.14	0.047	0.017
#Fill	1.6	1.85	0.14	0.047	0.017
#53	1.6	1.85	0.15	0.051	0.018
#11f	1.6	1.85	0.05	0.017	0.006
#11c	1.6	1.85	0.01	0.003	0.001
#11b-borrow	1.6	1.85	0.05	0.017	0.006
#8	1.6	1.85	0.23	0.078	0.027
#2 Stone	1.6	1.85	0.15	0.051	0.018
RAP	0.5	0.58	0.00	0.000	0.000
Gravel	1.6	1.85	0.00	0.000	0.000
Slag	3.8	4.40	0.00	0.000	0.000
<b>Totals</b>				<b>0.36</b>	<b>0.13</b>

**Methodology**

PTE of PM (tons/yr) = (Emission Factor (lb/acre/day)) \* (Maximum Pile Size (acres)) \* (ton/2000 lbs) \* (8760 hours/yr)

PTE of PM10/PM2.5 (tons/yr) = (Potential PM Emissions (tons/yr)) \* 35%

\*Silt content values obtained from AP-42 Table 13.2.4-1 (dated 1/95)

\*\*Maximum anticipated pile size (acres) provided by the source.

RAP = recycled asphalt pavement

**Abbreviations**

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

PM2.5 = PM10

PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary**  
**Crushed Stone Plant Material Processing, Handling, Crushing, Screening, and Conveying**

**Company Name:** Calcar Quarry  
**Address:** 860 East US Highway 150, Paoli, Indiana 47454  
**Permit Number:** F117-29047-03220  
**Reviewer:** Janet Mobley

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

To estimate potential fugitive dust emissions from processing and handling of raw materials (batch or continuous drop operations), AP-42 emission factors for Aggregate Handling,

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

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

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

Annual Crushed Stone Limitation = 1,000,000 tons/yr

Type of Activity	Limited PTE of PM (tons/yr)	Limited PTE of PM10 (tons/yr)	Limited PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	1.13	0.54	0.08
Loading of materials into truck	1.13	0.54	0.08
<b>Total (tons/yr)</b>	<b>2.27</b>	<b>1.07</b>	<b>0.16</b>

**Methodology**

Unlimited Potential to Emit (tons/yr) = (Maximum Annual Crushed Stone Production (tons/yr)) \* (Emission Factor (lb/ton)) \* (ton/2000 lbs)  
 Raw materials may include limestone, sand, recycled asphalt pavement (RAP), concrete, gravel, slag, and other additives  
 \*Worst case annual mean wind speed (Indianapolis, IN) from "Comparative Climatic Data", National Climatic Data Center, NOAA, 2006

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

To estimate potential fugitive dust emissions from raw material crushing, screening, and conveying, AP-42 emission factors for Crushed Stone

Operation	Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Limited PTE of PM (tons/yr)	Limited PTE of PM10/PM2.5 (tons/yr)**
Jaw Crusher ID#1CR	Crushing	0.0054	0.0024	2.70	1.20
Standard Crusher ID#2CR	Crushing	0.0054	0.0024	2.70	1.20
Standard Crusher ID#3CR	Crushing	0.0054	0.0024	2.70	1.20
Short Head Crusher ID#4CR	Crushing	0.0054	0.0024	2.70	1.20
Secco Screen ID#1SC	Screening	0.025	0.0087	12.50	4.35
Secco Screen ID#2SC	Screening	0.025	0.0087	12.50	4.35
21 Belt Conveyors, ID#1-16BC, #18BC, #19BC, #20BC, #23BC and #24BC	Conveying	0.003	0.0011	1.50	0.55
Radial Stacker ID#17RS	Conveying	0.003	0.0011	1.50	0.55
Radial Stacker ID#21RS	Conveying	0.003	0.0011	1.50	0.55
Radial Stacker ID#22RS	Conveying	0.003	0.0011	1.50	0.55
<b>Limited Potential to Emit (tons/yr) =</b>				<b>41.80</b>	<b>15.70</b>

**Methodology**

Unlimited Potential to Emit (tons/yr) = [Maximum Material Handling Throughput (tons/hr)] \* 8760 hr/yr \* [Emission Factor (lb/ton)] \* (ton/2000 lbs)  
 Emission Factors from AP-42 Chapter 11.19.2 (dated 8/04), Table 11.19.2-2  
 \*\*Assumes PM10 = PM2.5

**Abbreviations**

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

**Appendix A.2: Limited Emissions Summary  
Fugitive Dust Emissions - Unpaved Roads  
Crushed Stone Plant**

**Company Name: Calcar Quarry  
Address City IN Zip: 860 East US Highway 150, Paoli, Indiana 47454  
Permit Number: F117-29047-03220  
Reviewer: Janet Mobley**

**Unpaved Roads at Industrial Site**

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

Vehicle Information (provided by source)

Type	Maximum number of vehicles	Number of one-way trips per day per vehicle	Maximum trips per day (trip/day)	Maximum Weight Loaded (tons/trip)	Total Weight driven per day (ton/day)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/day)	Maximum one-way miles (miles/yr)
(enter plant) (1way trip)Tri-axle truck	8.0	3.0	24.0	68.0	1632.0	400	0.076	1.8	663.6
(leaving plant) (1way trip)Tri-axle truck	8.0	3.0	24.0	68.0	1632.0	400	0.076	1.8	663.6
(enter plant)(1way trip)Quad-axle truck	2.0	5.0	10.0	73.0	730.0	400	0.076	0.8	276.5
(leavingplant)1way trip)Quad-axle truck	2.0	5.0	10.0	73.0	730.0	400	0.076	0.8	276.5
(enter plant) (1way trip)TractorTrailer	1.0	5.0	5.0	73.0	365.0	400	0.076	0.4	138.3
(leavingplant)1way trip)Tractor Trailer	1.0	5.0	5.0	73.0	365.0	400	0.076	0.4	138.3
<b>Total</b>			<b>78.0</b>		<b>5454.0</b>			<b>5.9</b>	<b>2156.8</b>

Average Vehicle Weight Per Trip =  $\frac{69.9}{0.08}$  tons/trip  
Average Miles Per Trip =  $\frac{69.9}{0.08}$  miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	69.9	69.9	69.9	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor,  $E_{ext} = E \cdot [(365 - P)/365]$

Mitigated Emission Factor,  $E_{ext} = E \cdot [(365 - P)/365]$

where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, $E_f =$	10.64	2.71	0.27	lb/mile
Mitigated Emission Factor, $E_{ext} =$	7.00	1.78	0.18	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Tri-axes (entering plant) (one-way trip)	3.53	0.90	0.09	2.32	0.59	0.06	1.16	0.30	0.03
Tri-axes (leaving plant) (one-way trip)	3.53	0.90	0.09	2.32	0.59	0.06	1.16	0.30	0.03
Quad-axes(enteringplant)(one-way trip)	1.47	0.37	0.04	0.97	0.25	0.02	0.48	0.12	0.01
Quad-axes(leaving plant)(one-way trip)	1.47	0.37	0.04	0.97	0.25	0.02	0.48	0.12	0.01
Tractor trailer(enteringplant)1-way trip)	0.74	0.19	0.02	0.48	0.12	0.01	0.24	0.06	0.01
Tractor trailer(leaving plant)(1-way trip)	0.74	0.19	0.02	0.48	0.12	0.01	0.24	0.06	0.01
	<b>11.48</b>	<b>2.92</b>	<b>0.29</b>	<b>7.55</b>	<b>1.92</b>	<b>0.19</b>	<b>3.77</b>	<b>0.96</b>	<b>0.10</b>

**Methodology**

Total Weight driven per day (ton/day) = [Maximum Weight Loaded (tons/trip)] \* [Maximum trips per day (trip/day)]  
 Maximum one-way distance (mi/trip) = [Maximum one-way distance (feet/trip) / 5280 ft/mile]  
 Maximum one-way miles (miles/day) = [Maximum trips per year (trip/day)] \* [Maximum one-way distance (mi/trip)]  
 Average Vehicle Weight Per Trip (ton/trip) = SUM[Total Weight driven per day (ton/day)] / SUM[Maximum trips per day (trip/day)]  
 Average Miles Per Trip (miles/trip) = SUM[Maximum one-way miles (miles/day)] / SUM[Maximum trips per year (trip/day)]  
 Unmitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) \* (Unmitigated Emission Factor (lb/mile)) \* (ton/2000 lbs)  
 Mitigated PTE (tons/yr) = (Maximum one-way miles (miles/yr)) \* (Mitigated Emission Factor (lb/mile)) \* (ton/2000 lbs)  
 Controlled PTE (tons/yr) = (Mitigated PTE (tons/yr)) \* (1 - Dust Control Efficiency)

**Abbreviations**

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



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*  
**Governor**

*Thomas W. Easterly*  
**Commissioner**

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

## SENT VIA U.S. MAIL: CONFIRMED DELIVERY AND SIGNATURE REQUESTED

TO: Steven B Adams  
Calcar Quarry  
PO Box 347  
Paoli, IN 47454

DATE: March 29, 2011

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

SUBJECT: Final Decision  
FESOP - Renewal  
117 - 29047 - 03220

Enclosed is the final decision and supporting materials for the air permit application referenced above. Please note that this packet contains the original, signed, permit documents.

The final decision is being sent to you because our records indicate that you are the contact person for this application. However, if you are not the appropriate person within your company to receive this document, please forward it to the correct person.

A copy of the final decision and supporting materials has also been sent via standard mail to:  
Cade Knies, Mgr  
OAQ Permits Branch Interested Parties List

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178, or toll-free at 1-800-451-6027 (ext. 3-0178), and ask to speak to the permit reviewer who prepared the permit. If you think you have received this document in error, please contact Joanne Smiddie-Brush of my staff at 1-800-451-6027 (ext 3-0185), or via e-mail at [jbrush@idem.IN.gov](mailto:jbrush@idem.IN.gov).

Final Applicant Cover letter.dot 11/30/07



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

*Mitchell E. Daniels Jr.*  
**Governor**

*Thomas W. Easterly*  
**Commissioner**

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

March 29, 2011

TO: Paoli Public Library

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

Subject: **Important Information for Display Regarding a Final Determination**

**Applicant Name: Calcar Quarry**  
**Permit Number: 117 - 29047 - 03220**

You previously received information to make available to the public during the public comment period of a draft permit. Enclosed is a copy of the final decision and supporting materials for the same project. Please place the enclosed information along with the information you previously received. To ensure that your patrons have ample opportunity to review the enclosed permit, **we ask that you retain this document for at least 60 days.**

The applicant is responsible for placing a copy of the application in your library. If the permit application is not on file, or if you have any questions concerning this public review process, please contact Joanne Smiddie-Brush, OAQ Permits Administration Section at 1-800-451-6027, extension 3-0185.

Enclosures  
Final Library.dot 11/30/07

# Mail Code 61-53

IDEM Staff	LPOGOST 3/28/2011 Calcar Quarry 117 - 29047 - 03220 /final)		Type of Mail:  <b>CERTIFICATE OF MAILING ONLY</b>	AFFIX STAMP HERE IF USED AS CERTIFICATE OF MAILING
Name and address of Sender		Indiana Department of Environmental Management Office of Air Quality – Permits Branch 100 N. Senate Indianapolis, IN 46204		

Line	Article Number	Name, Address, Street and Post Office Address	Postage	Handing Charges	Act. Value (If Registered)	Insured Value	Due Send if COD	R.R. Fee	S.D. Fee	S.H. Fee	Rest. Del. Fee	Remarks
1		Steven B Adams Calcar Quarry PO Box 347 Paoli IN 47454 (Source CAATS) Via confirmed delivery										
2		Cade Knies Mgr Calcar Quarry 1503 S Meridian Rd Jasper IN 47454 (RO CAATS)										
3		Mr. Wendell Hibdon Plumbers & Steam Fitters Union, Local 136 2300 St. Joe Industrial Park Dr Evansville IN 47720 (Affected Party)										
4		Mr. Alec Kalla 8733 W. Summit Circle Drive French Lick IN 47432 (Affected Party)										
5		Paoli Public Library 30 East Court Paoli IN 47454 (Library)										
6		Orange County Commissioners 205 East Main Street Paoli IN 47454 (Local Official)										
7		Paoli Town Council 110 N. Gospel St. Paoli IN 47454 (Local Official)										
8		Orange County Health Department 205 E Main Street Paoli IN 47454-1591 (Health Department)										
9		Mr. John Blair 800 Adams Ave Evansville IN 47713 (Affected Party)										
10												
11												
12												
13												
14												
15												

Total number of pieces Listed by Sender	Total number of Pieces Received at Post Office	Postmaster, Per (Name of Receiving employee)	The full declaration of value is required on all domestic and international registered mail. The maximum indemnity payable for the reconstruction of nonnegotiable documents under Express Mail document reconstructing insurance is \$50,000 per piece subject to a limit of \$50, 000 per occurrence. The maximum indemnity payable on Express mil merchandise insurance is \$500. The maximum indemnity payable is \$25,000 for registered mail, sent with optional postal insurance. See <b>Domestic Mail Manual R900, S913, and S921</b> for limitations of coverage on inured and COD mail. See <b>International Mail Manual</b> for limitations o coverage on international mail. Special handling charges apply only to Standard Mail (A) and Standard Mail (B) parcels.
---	--	--	--