



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

NOTICE OF 30-DAY PERIOD FOR PUBLIC COMMENT

Preliminary Findings Regarding the Significant Permit Revision Greenhouse Gas (GHG)
Reopening of a Federally Enforceable State Operating Permit (FESOP)

for Phend & Brown, Inc. in Kosciusko County

Reopening No. 085-31423-00110

Phend & Brown, Inc. was issued a Federally Enforceable State Operating Permit (FESOP) Renewal No. F085-23356-00110 on October 24, 2007 for a stationary asphalt pavement production plant located at 76 West 600 North, Leesburg, Indiana. IDEM has determined that it is necessary to reopen the FESOP for this source to address greenhouse gas (GHGs) emissions. The source will be issued a Significant Permit Revision (SPR) to its existing FESOP because this source will limit its CO₂e emissions to less than the Title V subject to regulation threshold of 100,000 tons per year.

A copy of IDEM's preliminary findings is available at:

Warsaw Community Library
310 E Main St
Warsaw, IN 46580

and

IDEM Northern Regional Office
300 N. Michigan Street, Suite 450
South Bend, IN 46601-1295

A copy of the preliminary findings is available on the Internet at: <http://www.in.gov/ai/appfiles/idem-caats/>.

How can you participate in this process?

The date that this notice is published in a newspaper marks the beginning of a 30-day public comment period. If the 30th day of the comment period falls on a day when IDEM offices are closed for business, all comments must be postmarked or delivered in person on the next business day that IDEM is open.

You may request that IDEM hold a public hearing about this draft permit. If adverse comments concerning the **air pollution impact** of this draft permit are received, with a request for a public hearing, IDEM will decide whether or not to hold a public hearing. IDEM could also decide to hold a public meeting instead of, or in addition to, a public hearing. If a public hearing or meeting is held, IDEM will make a separate announcement of the date, time, and location of that hearing or meeting. At a hearing, you would have an opportunity to submit written comments and make verbal comments. At a meeting, you would have an opportunity to submit written comments, ask questions, and discuss any air pollution concerns with IDEM staff.

Comments and supporting documentation, or a request for a public hearing should be sent in writing to IDEM at the address below. If you comment via e-mail, please include your full U.S. mailing address so that you can be added to IDEM's mailing list to receive notice of future action related to this permit. If you do not want to comment at this time, but would like to receive notice of future action related to this permit

application, please contact IDEM at the address below. Please refer to permit number 085-31423-00110 in all correspondence.

Comments should be sent to:

Brian Williams
IDEM, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, Indiana 46204-2251
(800) 451-6027, ask for extension (4-5375)
Or dial directly: (317) 234-5375
Fax: (317)-232-6749 attn: Brian Williams
E-mail: bwilliam@idem.in.gov

All comments will be considered by IDEM when we make a decision to issue or deny the permit. Comments that are most likely to affect final permit decisions are those based on the rules and laws governing this permitting process (326 IAC 2), air quality issues, and technical issues. IDEM does not have legal authority to regulate zoning, odor or noise. For such issues, please contact your local officials.

For additional information about air permits and how you can participate, please see IDEM's **Guide for Citizen Participation** and **Permit Guide** on the Internet at: www.idem.in.gov.

What will happen after IDEM makes a decision?

Following the end of the public comment period, IDEM will issue a Notice of Decision stating whether the permit has been issued or denied. If the permit is issued, it may be different than the draft permit because of comments that were received during the public comment period. If comments are received during the public notice period, the final decision will include a document that summarizes the comments and IDEM's response to those comments. If you have submitted comments or have asked to be added to the mailing list, you will receive a Notice of the Decision. The notice will provide details on how you may appeal IDEM's decision, if you disagree with that decision. The final decision will also be available on the Internet at the address indicated above, at the local library indicated above, and the IDEM public file room on the 12th floor of the Indiana Government Center North, 100 N. Senate Avenue, Indianapolis, Indiana 46204-2251 and the IDEM Northern Regional Office at the address indicated above.

If you have any questions please contact Brian Williams or my staff at the above address.



Iryn Calilung, Section Chief
Permits Branch
Office of Air Quality

BMW



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Mr. Daniel Brown
Phend & Brown, Inc.
P.O. Box 150
Milford, IN 46542

Re: 085-31423-00110
First Significant Permit Revision GHG
Reopening to F085-23356-00110

Dear Mr. Brown:

Phend & Brown, Inc. was issued a Federally Enforceable State Operating Permit (FESOP) Renewal No. F085-23356-00110 on October 24, 2007 for a stationary asphalt pavement production plant located at 76 West 600 North, Leesburg, Indiana.

On January 5, 2011, the Office of Air Quality (OAQ) provided notice to this source that the Greenhouse Gas (GHG) Tailoring Rule (75 FR 31514) set a date of July 1, 2012 for sources that have the potential to emit (PTE) greenhouse gases (GHGs) equal to or greater than 100,000 tons per year of carbon dioxide equivalent emissions (CO₂e) to apply for a Title V permit or revise their current FESOP to add limits on GHGs. This notice specified that companies could request IDEM to reopen their permit to add limits on GHGs. On January 30, 2012, IDEM OAQ received a request from this source to reopen its FESOP to add limits on GHGs, pursuant to the provisions of 326 IAC 2-8-8.

Pursuant to 326 IAC 2-7-1(39), starting July 1, 2011, GHGs emissions are subject to regulation at a source with a potential to emit of 100,000 tons per year or more of CO₂e. Therefore, CO₂e emissions have been calculated for this source. Based on the calculations, the PTE greenhouse gases from this entire source is equal to or greater than 100,000 tons of CO₂e per year (see TSD Appendix A for detailed calculations). This source would have been subject to the provisions of 326 IAC 2-7. However, this source will be issued a Significant Permit Revision (SPR) to its existing FESOP because the source will limit its CO₂e emissions to less than the Title V subject to regulation threshold of 100,000 tons per year. The attached Technical Support Document (TSD) provides additional explanation of the changes to the permit.

Pursuant to the provisions of 326 IAC 2-8-11.1, these changes to the permit are required to be reviewed in accordance with the SPR procedures of 326 IAC 2-8-11.1(f). Pursuant to the provisions of 326 IAC 2-8-11.1, a SPR to this permit is hereby approved as described in the attached TSD.

All other conditions of the permit shall remain unchanged and in effect. Attached please find the entire revised permit.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Brian Williams, of my staff, at 317-234-5375 or 1-800-451-6027, and ask for extension 4-5375.

Sincerely,

Iryn Calilung, Section Chief

Phend & Brown, Inc.
Leesburg, Indiana
Permit Reviewer: Brian Williams

Page 2 of 2
FESOP SPR GHG Reopening No. 085-31423-00110

Permits Branch
Office of Air Quality

Attachments: Technical Support Document and revised permit

IC/BMW

cc: File - Kosciusko County
Kosciusko County Health Department
U.S. EPA, Region V
Compliance and Enforcement Branch
Billing, Licensing and Training Section



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DRAFT

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

**Phend & Brown, Inc.
76 West CR 600 North
Leesburg, Indiana 46538**

(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.: F085-23356-00110	
Original signed by: Nisha Sizemore, Chief Permits Branch Office of Air Quality	Issuance Date: October 24, 2007 Expiration Date: October 24, 2017
First Administrative Amendment No.: 085-27253-00110, issued on December 18, 2008 Significant Permit Revision No.: 085-27950-00110, issued on May 11, 2010 Second Administrative Amendment No.: 085-30329-00110, issued on April 20, 2011	
First Significant Permit Revision Greenhouse Gas Reopening No.: 085-31423-00110	
Issued by: Iryn Calilung, Section Chief Permits Branch Office of Air Quality	Issuance Date: Expiration Date: October 24, 2017

TABLE OF CONTENTS

A. SOURCE SUMMARY.....	5
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. GENERAL CONDITIONS	9
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]	
C. SOURCE OPERATION CONDITIONS.....	19
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]	
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]	
Testing Requirements [326 IAC 2-8-4(3)]	
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 Fugitive Particulate Matter Emission Limitations [326 IAC 2-8-4] [326 IAC 2-2]
- D.1.2 PSD Minor Limit [326 IAC 2-2]
- D.1.3 FESOP Limits [326 IAC 2-8-4] [326 IAC 2-2] [326 IAC 8-1-6]
- D.1.4 Sulfur Dioxide (SO₂) [326 IAC 7-1.1] [326 IAC 7-2-1]
- D.1.4 Sulfur Dioxide (SO₂), Nitrogen Oxide (NO_x), and Carbon Dioxide Equivalent (CO_{2e})
Emissions [326 IAC 2-8-4] [326 IAC 2-2]
- D.1.6 Shingle Limits [326 IAC 2-8-4] [326 IAC 2-4.1]
- D.1.7 Particulate Emission Limitations [326 IAC 6-3-2]
- D.1.8 Hydrogen Chloride (HCl) Emissions [326 IAC 2-8-4] [326 IAC 2-4.1]
- D.1.9 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements

- D.1.10 Hydrogen Chloride (HCl) Emissions and Chlorine Content
- D.1.11 Testing Requirements [326 IAC 2-1.1-11]
- D.1.12 Sulfur Content
- D.1.13 SO₂, NO_x, and CO_{2e} emissions
- D.1.14 Asbestos Content
- D.1.15 Particulate Control

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

- D.1.16 Visible Emissions Notations
- D.1.17 Parametric Monitoring
- D.1.18 Broken or Failed Bag Detection

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

- D.1.19 Record Keeping Requirement
- D.1.20 Reporting Requirements

D.2. FACILITY CONDITIONS..... 39

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

- D.2.1 Volatile Organic Compound (VOC) [326 IAC 2-8-4]
- D.2.2 Volatile Organic Compounds (VOC) [326 IAC 8-5-2]

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

- D.2.3 Record Keeping Requirements
- D.2.4 Reporting Requirements

D.3. EMISSIONS UNIT OPERATION CONDITIONS 42

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

- D.3.1 Fugitive Particulate Matter Emission Limitations [326 IAC 2-8-4] [326 IAC 2-2]
- D.3.2 Particulate Emission Limitations [326 IAC 6-3-2]
- D.3.3 Preventive Maintenance Plan [326 IAC 2-8-4(9)]

Compliance Determination Requirements

- D.3.4 Particulate Control

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

- D.3.5 Visible Emissions Notations

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

- D.3.6 Record Keeping Requirement
- D.3.7 Reporting Requirement

E.1. EMISSIONS UNIT OPERATION CONDITIONS 46

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 47

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

Certification Form 49
Emergency Occurrence Form 50
Quarterly Report Forms 52
Quarterly Deviation and Compliance Monitoring Report Form 61

Attachment A: Fugitive Dust Control Plan

Attachment B: NSPS Subpart I - Standards of Performance for Hot Mix Asphalt Facilities

Attachment C: NSPS Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants

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 sand, gravel, and asphalt pavement production plant.

Source Address:	76 West CR 600 North, Leesburg, Indiana 46538
General Source Phone Number:	(574) 658-4166
SIC Code:	2951 and 1442
County Location:	Kosciusko
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Federally Enforceable State Operating Permit Program Minor Source, under PSD and Emission Offset Rules Minor Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

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

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

- (a) One (1) asphalt rotary drum dryer/mixer, with a maximum capacity of 370 tons per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 160 million British thermal units per hour (MMBtu/hr), using natural gas and waste oil as back-up fuels, processing slag and certified asbestos-free factory second and/or post consumer waste shingles, and one (1) baghouse dust collecting system for air pollution control, exhausting at one (1) stack, identified as SV1; Shingle grinding occurs at this source.

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

- (b) one (1) 5' x 12' deck scalping screen.
- (c) one (1) conveyor system to transfer aggregate from virgin aggregate feeder to rotary aggregate dryer, with a maximum capacity of 370 tons per hour and one (1) conveyor to transfer reclaimed asphalt (RAP) from the recycle feeder to the rotary mixer, with a maximum capacity of 200 tons per hour.
- (d) One (1) RAP feeder, approved for construction in 2010.
- (e) One (1) Maxigrind Beast Grinder, identified as G-1, approved for construction in 2010, with a maximum capacity of 200 tons of shingles per hour, using wet suppression for particulate control.

(f) Two Crushers:

(A) One (1) aggregate, RAP, and concrete crushing operation, approved for construction in 2010, consisting of the following:

- (1) One (1) impact crusher, identified as Crushtek 1310i, with a maximum capacity of 385 tons per hour, and equipped with two (2) conveyors.
- (2) One (1) 4' x 6' deck screen plant, identified as Mark II, with a maximum capacity of 185 tons per hour, and equipped with one (1) screen, conveyor, and feeder.
- (3) One (1) 5' x 10' deck screen plant, identified as Commander 510, with a maximum capacity of 300 tons per hour, and equipped with one (1) screen, conveyor, and feeder.
- (4) One (1) 6' x 15' deck screen plant, identified as Frontier, with a maximum capacity of 400 tons per hour, and equipped with one (1) screen and four (4) conveyors.
- (5) Two (2) radial stacker conveyors, identified as C-1 and C-2, with a maximum capacity of 470 tons per hour, each.
- (6) One (1) stacker conveyor, identified as C-3, with a maximum capacity of 160 tons per hour.
- (7) One (1) stacker conveyor, identified as C-4, with a maximum capacity of 700 tons per hour.
- (8) One (1) stacker conveyor, identified as C-5, with a maximum capacity of 295 tons per hour.

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

(B) One (1) crusher to the RAP feed system to crush oversized lumps of recycled material, approved for construction in 2011, consisting of the following:

- (1) One (1) in-line crusher, identified as 40 RAP crusher, with a maximum capacity of 70 tons per hour, powered by a 60 hp electric motor, and equipped with one 24" x 30' belt conveyor.
- (2) One (1) 6' x 12' double deck scalping screen

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

(g) production of cold-mix (stock pile mix) asphalt concrete.

(h) One (1) sand and gravel plant, constructed in the 1970's, consisting of the following:

- (1) Two (2) 5' x 12' primary rinse deck screens, identified as PS-1 and PS-2, with a combined maximum capacity of 400 tons per hour.

- (2) One (1) jaw crusher, identified as Jaw Crusher, with a maximum capacity of 72 tons per hour.
- (3) One (1) 5' x 12' final rinse deck screen, identified as FS-1, with a maximum capacity of 150 tons per hour.
- (4) One (1) cone crusher, identified as Cone Crusher, with a maximum capacity of 80 tons per hour.
- (5) One (1) conveyor, identified as C-6, with a maximum capacity of 400 tons per hour.
- (6) Three (3) conveyors, identified as C-7 through C-9, with a maximum capacity of 75 tons per hour, each.
- (7) Two (2) conveyors, identified as C-10 and C-11, with a maximum capacity of 50 tons per hour, each.
- (8) One (1) conveyors, identified as C-12, with a maximum capacity of 100 tons per hour.
- (9) One (1) conveyors, identified as C-13, with a maximum capacity of 10 tons per hour.
- (10) One (1) conveyors, identified as C-14, with a maximum capacity of 200 tons per hour.
- (11) One (1) sand screw, identified as SS-1, with a maximum capacity of 200 tons per hour.
- (12) One (1) sand screw, identified as SS-2, with a maximum capacity of 20 tons per hour.
- (13) One (1) sand screw, identified as SS-3, with a maximum capacity of 15 tons per hour.

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 as defined in 326 IAC 2-7-1 (21):

- (a) one (1) distillate No. 2 fuel oil fired liquid asphalt tank heater, with a maximum capacity of 1.4 million British thermal units per hour, exhausting at one (1) stack, identified as SV2;
- (b) aggregate storage piles with a total storage capacity of 34,350 tons;
- (c) one (1) 10,000 gallon No. 4 fuel oil storage tank identified as SV3 and constructed in 1973;
- (d) one (1) 6,000 gallon No. 4 fuel oil storage tank identified as SV3 and constructed in 2001;
- (e) two (2) 11,500 gallon asphalt cement storage tanks identified as SV4 and SV5 and constructed in 1970;

- (f) one (1) 10,000 gallon emulsion asphalt storage tank identified as SV6 and constructed in 1970;
- (g) one (1) 1,000 gallon No. 2 fuel oil storage tank identified as SV7 and constructed in 1970;
- (h) unpaved roads with public access;
- (i) reclaimed asphalt pavement storage piles with a storage capacity of 11,250 tons;
- (j) eight (8) virgin aggregate feeder bins;
- (k) one (1) reclaimed asphalt pavement bin;
- (l) one (1) enclosed bucket elevator;
- (m) Cleaners and solvents characterized as follows:
 - (1) having a vapor pressure equal to or less than 2 kiloPascals; 15 millimeters of mercury; or 0.3 pounds per square inch measured at 38 °C (100 °F); or
 - (2) having a vapor pressure equal to or less than 0.7 kiloPascals; 5 millimeters of mercury; or 0.1 pounds per square inch measured at 20 °C (68 °F);
 - (3) the use of which for all cleaners and solvents combined does not exceed 145 gallons per 12 months;
- (n) one (1) 500 gallon used motor oil storage tank;
- (o) two (2) hot mix storage bins, each with maximum capacity of 200 tons with conveyance;
- (p) one (1) 15,000 gallon asphalt cement storage tank identified as SV9 and constructed in 2002; and
- (q) one (1) 1,200 gallon asphalt cement calibration tank identified as SV10 and constructed in 2002.
- (r) One (1) electric fuel pre-heater.
- (s) Slag storage piles.
- (t) Crushed concrete storage piles.
- (u) Factory second and/or post consumer waste shingle storage piles.

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, F085-23356-00110, 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:
- (i) it contains a certification by an "authorized individual", as defined by 326 IAC 2-1.1-1(1), and
 - (ii) 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 Northern 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
Northern Regional Office phone: (574) 245-4870; fax: (574) 245-4877.

- (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 F085-23356-00110 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) and greenhouse gases (GHGs), from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period.
 - (2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
 - (3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.
 - (4) The potential to emit greenhouse gases (GHGs) from the entire source shall be limited to less than one hundred thousand (100,000) tons of CO₂ equivalent emissions (CO₂e) 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 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 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 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) asphalt rotary drum dryer/mixer, with a maximum capacity of 370 tons per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 160 million British thermal units per hour (MMBtu/hr), using natural gas and waste oil as back-up fuels, processing slag and certified asbestos-free factory second and/or post consumer waste shingles, and one (1) baghouse dust collecting system for air pollution control, exhausting at one (1) stack, identified as SV1; Shingle grinding occurs at this source.

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

- (b) one (1) 5' x 12' deck scalping screen.
- (c) one (1) conveyor system to transfer aggregate from virgin aggregate feeder to rotary aggregate dryer, with a maximum capacity of 370 tons per hour and one (1) conveyor to transfer reclaimed asphalt (RAP) from the recycle feeder to the rotary mixer, with a maximum capacity of 200 tons per hour.
- (d) One (1) RAP feeder, approved for construction in 2010.
- (e) One (1) Maxigrind Beast Grinder, identified as G-1, approved for construction in 2010, with a maximum capacity of 200 tons of shingles per hour, using wet suppression for particulate control.
- (f) Two Crushers:
- (A) One (1) aggregate, RAP, and concrete crushing operation, approved for construction in 2010, consisting of the following:
- (1) One (1) impact crusher, identified as Crushtek 1310i, with a maximum capacity of 385 tons per hour, and equipped with two (2) conveyors.
 - (2) One (1) 4' x 6' deck screen plant, identified as Mark II, with a maximum capacity of 185 tons per hour, and equipped with one (1) screen, conveyor, and feeder.
 - (3) One (1) 5' x 10' deck screen plant, identified as Commander 510, with a maximum capacity of 300 tons per hour, and equipped with one (1) screen, conveyor, and feeder.
 - (4) One (1) 6' x 15' deck screen plant, identified as Frontier, with a maximum capacity of 400 tons per hour, and equipped with one (1) screen and four (4) conveyors.
 - (5) Two (2) radial stacker conveyors, identified as C-1 and C-2, with a maximum capacity of 470 tons per hour, each.
 - (6) One (1) stacker conveyor, identified as C-3, with a maximum capacity of 160 tons per hour.
 - (7) One (1) stacker conveyor, identified as C-4, with a maximum capacity

of 700 tons per hour.

- (8) One (1) stacker conveyor, identified as C-5, with a maximum capacity of 295 tons per hour.

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

- (B) One (1) crusher to the RAP feed system to crush oversized lumps of recycled material, approved for construction in 2011, consisting of the following:

- (1) One (1) in-line crusher, identified as 40 RAP crusher, with a maximum capacity of 70 tons per hour, powered by a 60 hp electric motor, and equipped with one 24" x 30' belt conveyor.
- (2) One (1) 6' x12' double deck scalping screen

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.)

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

D.1.1 Fugitive Particulate Matter Emission Limitations [326 IAC 2-8-4] [326 IAC 2-2]

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

The fugitive particulate emissions from the the asphalt load-out and on-site yard, material storage piles, material processing and handling, material crushing, screening, and conveying, and unpaved and paved roads shall be controlled according to the Fugitive Dust Control Plan, which is included as Attachment A to the permit.

Compliance with these limits, combined with the limited potential to emit PM from all other emission units at this source, shall limit the source-wide total potential to emit PM to less than 250 tons per 12 consecutive month period shall render 326 IAC 2-2 (PSD) not applicable. In addition, 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 100 tons per 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.1.2 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 780,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM emissions from the dryer/mixer shall not exceed 0.111 pounds of PM per ton of asphalt produced.

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

D.1.3 FESOP Limits [326 IAC 2-8-4] [326 IAC 2-2] [326 IAC 8-1-6]

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

- (a) The asphalt production rate shall not exceed 780,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (b) PM10 emissions from the dryer/mixer shall not exceed 0.0501 pounds of PM10 per ton of asphalt produced.
- (c) PM2.5 emissions from the dryer/mixer shall not exceed 0.0501 pounds of PM2.5 per ton of asphalt produced.
- (d) CO emissions from the dryer/mixer shall not exceed 0.13 pounds of CO per ton of asphalt produced.
- (e) VOC emissions from the dryer/mixer shall not exceed 0.032 pounds of VOC per ton of asphalt produced.

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

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

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

Pursuant to 326 IAC 7-1.1-2 (Sulfur Dioxide Emission Limitations), the Permittee shall comply with the following:

- (a) The sulfur dioxide (SO₂) emissions from the dryer/mixer burner shall not exceed 1.60 pounds per MMBtu heat input when using residual oil.
- (b) Pursuant to 326 IAC 7-2-1, compliance shall be demonstrated on a calendar month average.

D.1.5 Sulfur Dioxide (SO₂), Nitrogen Oxide (NO_x), and Carbon Dioxide Equivalent (CO₂e) Emissions [326 IAC 2-8-4] [326 IAC 2-2]

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

- (a) Sulfur Content Specifications
 - (1) The sulfur content of the re-refined waste oil shall not exceed 1.2 percent by weight.
 - (2) The sulfur content of the No. 4 fuel oil shall not exceed 0.5 percent by weight.
 - (3) SO₂ emissions from the blast furnace slag used in the dryer/mixer shall not exceed 0.74 pounds of SO₂ per ton of blast furnace slag processed or the emission factor determined from the most recent valid stack test.
 - (4) SO₂ emissions from the steel slag used in the dryer/mixer shall not exceed 0.0014 pounds of SO₂ per ton of steel slag processed.

- (5) The sulfur content of the blast furnace slag shall not exceed 1.5 percent by weight.
- (6) The sulfur content of the steel slag shall not exceed 0.66 percent by weight.

(b) Single Fuel 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 1,032.88 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 2,063,738.7 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (3) Re-refined waste oil usage shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (4) SO₂ emissions from the processing of blast furnace slag and steel slag in the dryer/mixer shall not exceed 18.50 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(c) Multiple Fuel and Slag Usage Limitations

When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of blast furnace and steel slag in the aggregate mix, emissions from the dryer/mixer shall be limited as follows:

- (1) SO₂ emissions from the dryer/mixer shall not exceed 95.89 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (2) NO_x emissions from the dryer/mixer shall not exceed 98.12 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (3) CO₂ equivalent emissions from the dryer/mixer shall not exceed 62,435.89 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 SO₂, NO_x, and GHGs from all other emission units at this source, shall limit the source-wide total potential to emit SO₂ and NO_x to less than 100 tons per 12 consecutive month period, each and GHGs to less than 100,000 tons of CO₂ equivalent emissions (CO₂e) per 12 consecutive month period and shall render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

D.1.6 Shingle Limits [326 IAC 2-8-4] [326 IAC 2-4.1]

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

The Permittee shall only grind and process certified asbestos-free factory second and/or post consumer waste shingles as an additive in its aggregate mix.

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

D.1.7 Particulate Emission Limitations [326 IAC 6-3-2]

(a) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of 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)
G-1	Grinder	200	58.51
Crushtek 1310i	Crusher	385	65.87
Model 40 RAP crusher	Crusher	70	47.76
Mark II	Screen Plant	185	57.67
Commander 510	Screen Plant	300	63.00
Frontier	Screen Plant	400	66.31
C-1	Conveyor	470	68.22
C-2	Conveyor	470	68.22
C-3	Conveyor	160	56.12
C-4	Conveyor	700	73.06
C-5	Conveyor	295	62.81

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

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

(b) Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emission may exceed the emission limits shown in the table above, provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

D.1.8 Hydrogen Chloride (HCl) Emissions [326 IAC 2-8-4]

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

The usage of re-refined waste oil in the dryer/mixer burner shall be limited such that the emissions of Hydrogen Chloride (HCl) are less than 9.99 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

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

D.1.9 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.1.10 Hydrogen Chloride (HCl) Emissions and Chlorine Content

- (a) Compliance with the HCl limits in condition D.1.8 shall be demonstrated using the following equations.

$$E_{HCl} = Q_{wo} * EF_{HCl} * (1ton / 2000lbs) \quad (\text{Equation 1})$$

$$EF_{HCl} = 66 * C_{Cl} \quad (AP - 42, Table 1.11 - 3) \quad (\text{Equation 2})$$

Where,

E_{HCl} = Emission of Hydrogen Chloride in tons

Q_{wo} = Waste Oil Consumption, Kgal

EF_{HCl} = Emission Factor of Hydrogen Chloride, lb/1000 gallons

C_{Cl} = Percentage of chlorine content in waste oil determined by the most recent sampling & analysis

- (b) In order to comply with Condition D.1.8, the Permittee shall demonstrate the chlorine content of the waste oil combusted in the dryer/mixer utilizing one of the following options:

- (1) Providing vendor analysis of fuel delivered, accompanied by a vendor certification, or;
- (2) Analyzing the oil sample to determine the chlorine content of the oil via the procedures in 40 CFR 60, Appendix A-8, Method 26A.
 - (A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.

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.

D.1.11 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

- (a) In order to demonstrate compliance with Condition D.1.2(b), the Permittee shall perform PM testing of the dryer/mixer not later than five (5) years from the date of the most recent valid compliance demonstration, utilizing methods approved by the Commissioner. This test shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. 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 PM10 and PM2.5 testing on the dryer/mixer not later than 180 days after final promulgation of the new or revised condensable PM test method(s) referenced in the U.S. EPA’s Final Rule for Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5), signed on May 8th, 2008 or five (5) years from the date of the most recent valid compliance demonstration, whichever is later. This testing shall be conducted utilizing methods as approved by the Commissioner. These tests shall be repeated at least once every five (5) years from the date of the most recent valid compliance demonstration. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Section C – Performance Testing contains the Permittee’s obligation with regard to the performance testing required by this condition. PM10 and PM2.5 includes filterable and condensable PM.
- (c) In order to demonstrate compliance with Condition D.1.5(a)(3), when using blast furnace slag, the Permittee shall perform SO2 testing of the dryer/mixer not later than 180 days after initial use of blast furnace slag in the aggregate mix, utilizing methods approved by the Commissioner. Testing shall only be performed if the company has not previously performed SO2 testing while using blast furnace slag in the aggregate mix at one of their other Indiana facilities. 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.

D.1.12 Sulfur Content

- (a) Pursuant to 326 IAC 2-8-4, compliance with Conditions D.1.5(a)(5) and D.1.5(a)(6) shall be determined utilizing one of the following options:
 - (1) Providing vendor analysis of the blast furnace and steel slag delivered, if accompanied by a vendor certification; or
 - (2) Analyzing a sample of the blast furnace and steel slag delivery to determine the sulfur content of the slag, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

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

- (b) Pursuant to 326 IAC 3-7-4, compliance with Conditions D.1.4(a), D.1.5(a)(1), and D.1.5(a)(2) shall be demonstrated utilizing one of the following options:

- (1) Providing vendor analysis of fuel delivered, if accompanied by a vendor certification, or;
- (2) Analyzing the oil sample to determine the sulfur content of the oil via the procedures in 40 CFR 60, Appendix A, Method 19.
 - (A) Oil samples may be collected from the fuel tank immediately after the fuel tank is filled and before any oil is combusted; and
 - (B) If a partially empty fuel tank is refilled, a new sample and analysis would be required upon filling.
- (c) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the 160 MMBtu per hour burner for the aggregate dryer, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

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

D.1.13 SO₂, NO_x, and CO_{2e} Emissions

- (a) Compliance with the SO₂ limit in Condition D.1.5(b)(4) shall be demonstrated using the following equation:

$$S = \frac{[X(E_f) + Y(E_s)]}{2,000 \text{ lbs/ton}}$$

Where:

S = tons of sulfur dioxide emissions from slag usage from previous 12 consecutive month period;

X = tons of blast furnace slag used in dryer/mixer in previous 12 months; and

Y = tons of steel slag used in dryer/mixer in previous 12 months;

E_f = 0.74 pounds per ton of blast furnace slag processed or the emission factor determined from the most recent valid stack test

E_s = 0.0014 pounds per ton of steel slag processed

- (b) When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of blast furnace and steel slag in the aggregate mix, emissions from the dryer/mixer, compliance with the SO₂, NO_x, and CO_{2e} limits in Condition D.1.5(c), shall be demonstrated using the following equations to determine the tons of SO₂, NO_x, and CO_{2e} emitted per twelve (12) consecutive month period:

- (1) Sulfur Dioxide (SO₂) emissions calculation:

$$SO_2 = S + \left[\frac{[G(E_G) + R(E_R) + W(E_W)]}{2,000 \text{ lbs/ton}} \right]$$

Where:

SO₂ = tons of sulfur dioxide emissions for twelve (12) month consecutive period;

S = tons of sulfur dioxide emissions from slag usage from previous 12 consecutive month period as determined in Condition D.1.13(a);

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

R = gallons of No. 4 fuel oil used in previous twelve (12) months;

W = gallons of re-refined waste oil used in previous twelve (12) months;

$E_G = 0.6$ pounds per million cubic feet of natural gas
 $E_R = 0.075$ pounds per gallon of No. 4 fuel oil
 $E_W = 0.1764$ pounds per gallon of re-refined waste oil

(2) Nitrogen Oxides (NO_x) emissions calculation:

$$NO_x = \frac{[G(E_G) + R(E_R) + W(E_W)]}{2,000 \text{ lbs/ton}}$$

Where:

NO_x = tons of nitrogen oxides emissions for twelve (12) month consecutive period;

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

R = gallons of No. 4 fuel oil used in previous twelve (12) months; and

W = gallons of re-refined waste oil used in previous twelve (12) months.

$E_G = 190$ pounds per million cubic feet of natural gas

$E_R = 0.047$ pounds per gallon of No. 4 fuel oil

$E_W = 0.019$ pounds per gallon of re-refined waste oil

(3) Carbon Dioxide Equivalent (CO₂e) emissions calculation:

$$CO_2 = \frac{[G(E_G) + R(E_R) + W(E_W)]}{2,000}$$

$$CH_4 = \frac{[G(E_G) + R(E_R) + W(E_W)]}{2,000}$$

$$N_2O = \frac{[G(E_G) + R(E_R) + W(E_W)]}{2,000}$$

$$CO_{2e} = \sum [(CO_2 \times CO_2 \text{ GWP}) + (CH_4 \times CH_4 \text{ GWP}) + (N_2O \times N_2O \text{ GWP})]$$

Where:

CO₂ = tons of CO₂ emissions for previous twelve (12) consecutive month period;

CH₄ = tons of CH₄ emissions for previous twelve (12) consecutive month period;

N₂O = tons of N₂O emissions for previous twelve (12) consecutive month period;

CO₂e = tons of CO₂e equivalent emissions for previous twelve (12) consecutive month period;

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

R = gallons of No. 4 fuel oil used in previous twelve (12) months; and

W = gallons of re-refined waste oil used in previous twelve (12) months.

CO₂:

$E_G = 120,161.84$ pounds per million cubic feet of natural gas

$E_R = 24.15346$ pounds per gallon of No. 4 fuel oil

$E_W = 22.02415$ pounds per gallon of re-refined waste oil

CH₄:

$E_G = 2.49$ pounds per million cubic feet of natural gas

$E_R = 0.00097$ pounds per gallon of No. 4 fuel oil

$E_W = 0.00089$ pounds per gallon of re-refined waste oil

N₂O:

E_G = 2.20 pounds per million cubic feet of natural gas

E_R = 0.00026 pounds per gallon of No. 4 fuel oil

E_W = 0.00018 pounds per gallon of re-refined waste oil

Global Warming Potentials (GWP)

Carbon dioxide (CO₂) = 1

Methane (CH₄) = 21

Nitrous oxide (N₂O) = 310

D.1.14 Asbestos Content

- (a) Pursuant to 326 IAC 2-8-4, compliance with Condition D.1.6 shall be determined utilizing one of the following options:
- (1) Providing shingle supplier certification that the factory second and/or post consumer shingles do not contain asbestos; or
 - (2) Analyzing a sample of the factory second shingles delivery to determine the asbestos content of the factory second and/or post consumer shingles, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

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

D.1.15 Particulate Control

- (a) In order to comply with Conditions D.1.2 and D.1.3, the baghouse for particulate control shall be in operation and control emissions from the dryer/mixer at all times that the dryer/mixer is in operation.
- (b) In order to comply with Condition D.1.7, the wet suppression system for particulate control shall be in operation and control emissions from the grinder at all times the grinder is in operation.
- (c) In the event that bag failure is observed in a multi-compartment baghouse, if operations will continue for ten (10) days or more after the failure is observed before the failed units will be repaired or replaced, the Permittee shall promptly notify the IDEM, OAQ of the expected date the failed units will be repaired or replaced. The notification shall also include the status of the applicable compliance monitoring parameters with respect to normal, and the results of any response actions taken up to the time of notification.

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

D.1.16 Visible Emissions Notations

- (a) Visible emission notations of the dryer/mixer baghouse stack exhaust, and the grinding, crushing, conveying, material transfer points, and screening 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) When an abnormal emission is 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.

D.1.17 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 1.0 and 8.0 inches of water or a range established during the latest stack test, 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. 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.1.18 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)]

D.1.19 Record Keeping Requirements

- (a) To document the compliance status with Conditions D.1.2(a) and D.1.3(a), the Permittee shall maintain monthly records of the amount of asphalt produced through the dryer/mixer.
- (b) To document the compliance status with Conditions D.1.4, D.1.5, D.1.6, and D.1.8, the Permittee shall maintain records in accordance with (1) through (10) below. Records maintained for (1) through (10) shall be taken monthly and shall be complete and sufficient to establish compliance with the limits established in Conditions D.1.4, D.1.5,

D.1.6, and D.1.8.

- (1) Calendar dates covered in the compliance determination period or calendar quarter;
- (2) Actual blast furnace and steel slag usage, sulfur content and equivalent sulfur dioxide emission rates for all blast furnace and steel slag used at the source since the last compliance determination period;
- (3) A certification, signed by the owner or operator, that the records of the slag supplier certifications represent all of the slag used during the period; and
- (4) If the slag supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:
 - (i) Slag supplier certifications;
 - (ii) The name of the slag supplier; and
 - (iii) A statement from the slag supplier that certifies the sulfur content of the slag.
- (5) A certification, signed by the owner or operator, that the records of the shingle supplier certifications represent all of the shingles used; and
- (6) If the shingle supplier certification is used to demonstrate compliance the following, as a minimum, shall be maintained:
 - (i) Shingle supplier certifications;
 - (ii) The name of the shingle supplier(s); and
 - (iii) A statement from the shingle supplier(s) that certifies the asbestos content of the shingles from their company.
- (7) Actual fuel usage, sulfur content, heat content, and equivalent sulfur dioxide, nitrogen oxide, and carbon dioxide equivalent rates for each fuel used at the source since the last compliance determination period;
- (8) Actual re-refined waste oil usage, chlorine content, and equivalent hydrogen chloride emission rate for re-refined waste oil used at the source since the last compliance determination period;
- (9) 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 or calendar quarter; and
- (10) 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 fuel oil.

- (iv) A statement from the fuel supplier that certifies the chlorine content of the waste oil each time a shipment is delivered.
- (c) To document the compliance status with Condition D.1.16, the Permittee shall maintain a daily record of visible emission notations of the dryer/mixer baghouse stack exhausts and the grinding, crushing, conveying, material transfer points, and screening. 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).
- (d) To document the compliance status with Condition D.1.17, the Permittee shall maintain a daily record of the pressure drop across the baghouse controlling the dryer/mixer. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).
- (e) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.

D.1.20 Reporting Requirements

A quarterly summary of the information to document compliance status with Conditions D.1.2(a), D.1.3(a), D.1.5(b), D.1.5(c), and D.1.8 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 D.2

FACILITY CONDITIONS

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

(g) cold-mix (stockpile mix) asphalt storage piles.

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

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

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

- (a) The VOC solvent used as diluent in the liquid binder used in cold mix asphalt production from the plant shall be limited such that no more than 48.2 tons of VOC are emitted per twelve (12) consecutive months. This shall be achieved by limiting the total VOC solvent of any one selected binder to not exceed the stated limit for that binder during the last twelve (12) months. When more than one binder is used, the formula below must be applied so that the total VOC emitted does not exceed 48.2 tons per twelve (12) consecutive month period.
- (b) Liquid binders used in the production of cold mix asphalt shall be defined as follows:
- (1) Cut back asphalt medium cure, containing a maximum of 28.6% of the liquid binder by weight of VOC solvent and 70% by weight of VOC solvent evaporating.
 - (2) Cut back asphalt slow cure, containing a maximum of 20% of the liquid binder by weight of VOC solvent and 25% by weight of VOC solvent evaporating.
 - (3) Emulsified asphalt with solvent, containing a maximum of 15% of liquid binder by weight of VOC solvent and 46.4% by weight of the VOC solvent in the liquid blend evaporating. The percent oil distillate in emulsified asphalt with solvent liquid, as determined by ASTM, must be 7% or less of the total emulsion by volume
 - (4) Other asphalt with solvent binder, containing a maximum 25.9% of the liquid binder of VOC solvent and 2.5% by weight of the VOC solvent evaporating
- (c) The liquid binder used in cold mix asphalt production shall be limited as follows:
- (1) Cutback asphalt medium cure liquid binder usage shall not exceed 68.9 tons of VOC solvent per twelve (12) consecutive month period, with compliance determined at the end of each month.
 - (2) Cutback asphalt slow cure liquid binder usage shall not exceed 192.9 tons of VOC solvent per twelve (12) consecutive month period, with compliance determined at the end of each month.
 - (3) Emulsified asphalt with solvent liquid binder usage shall not exceed 103.9 tons of VOC solvent per twelve (12) consecutive month period, with compliance determined at the end of each month.
 - (4) Other asphalt with solvent liquid binder shall not exceed 1928.7 tons of VOC solvent per twelve (12) consecutive month period, with compliance determined at

the end of each month.

- (5) The VOC solvent allotments in subpart (c)(1) through (c)(4) of this condition shall be adjusted when more than one type of binder is used per twelve (12) month consecutive period with compliance determined at the end of each month. In order to determine the tons of VOC emitted per each type of binder, use the following formula and divide the tons of VOC solvent used for each type of binder by the corresponding adjustment factor listed in the table that follows.

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

Type of binder	adjustment factor
cutback asphalt medium cure	1.429
cutback asphalt slow cure	4.0
emulsified asphalt	2.155
other asphalt	40.0

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

D.2.2 Volatile Organic Compound Rules for Asphalt Pavers [326 IAC 8-5-2]

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

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

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

D.2.3 Record Keeping Requirements

- (a) To document the compliance status with Condition D.2.1(b), the Permittee shall maintain records in accordance with (1) through (4) below. Records maintained for (1) through (4) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC emission limits established in Condition D.2.1(b).
- (1) Calendar dates covered in the compliance determination period;
 - (2) Cutback asphalt binder usage in the production of cold mix asphalt since the last compliance determination period;
 - (3) VOC solvent content by weight of the cutback asphalt binder used in the

production of cold mix asphalt since the last compliance determination period;
and

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

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

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

D.2.4 Reporting Requirements

A quarterly summary of the information to document compliance status with Condition D.2.1(b) 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 D.3 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (h) One (1) sand and gravel plant, constructed in the 1970's, consisting of the following:
 - (1) Two (2) 5' x 12' primary rinse deck screens, identified as PS-1 and PS-2, with a combined maximum capacity of 400 tons per hour.
 - (2) One (1) jaw crusher, identified as Jaw Crusher, with a maximum capacity of 72 tons per hour.
 - (3) One (1) 5' x 12' final rinse deck screen, identified as FS-1, with a maximum capacity of 150 tons per hour.
 - (4) One (1) cone crusher, identified as Cone Crusher, with a maximum capacity of 80 tons per hour.
 - (5) One (1) conveyor, identified as C-6, with a maximum capacity of 400 tons per hour.
 - (6) Three (3) conveyors, identified as C-7 through C-9, with a maximum capacity of 75 tons per hour, each.
 - (7) Two (2) conveyors, identified as C-10 and C-11, with a maximum capacity of 50 tons per hour, each.
 - (8) One (1) conveyors, identified as C-12, with a maximum capacity of 100 tons per hour.
 - (9) One (1) conveyors, identified as C-13, with a maximum capacity of 10 tons per hour.
 - (10) One (1) conveyors, identified as C-14, with a maximum capacity of 200 tons per hour.
 - (11) One (1) sand screw, identified as SS-1, with a maximum capacity of 200 tons per hour.
 - (12) One (1) sand screw, identified as SS-2, with a maximum capacity of 20 tons per hour.
 - (13) One (1) sand screw, identified as SS-3, with a maximum capacity of 15 tons per hour.

(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.3.1 Fugitive Particulate Matter Emission Limitations [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 to the sand and gravel plant shall not exceed 607,000 tons per

twelve (12) consecutive month period, with compliance determined at the end of each month.

- (b) The visible emissions from the screening and conveying operations shall not exceed an average of ten (10) percent opacity in twenty-four (24) consecutive readings in a six (6) minute period. Compliance with this limitation shall be determined by 40 CFR 60, Appendix A, Method 9.
- (c) The visible emissions from the crushing operations shall not exceed an average of fifteen (15) percent opacity in twenty-four (24) consecutive readings in a six (6) minute period. Compliance with this limitation shall be determined by 40 CFR 60, Appendix A, Method 9.
- (d) The fugitive particulate emissions from the the sand and gravel plant material storage piles, material processing and handling, material crushing, screening, and conveying, and unpaved and paved roads shall be controlled according to the Fugitive Dust Control Plan, which is included as Attachment A to the permit.

Compliance with these limits, combined with the limited potential to emit PM from all other emission units at this source, shall limit the source-wide total potential to emit PM to less than 250 tons per 12 consecutive month period shall render 326 IAC 2-2 (PSD) not applicable. In addition, 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 100 tons per 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.3.2 Particulate Emission Limitations [326 IAC 6-3-2]

- (a) Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations for Manufacturing Processes), particulate emissions from each of 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)
PS-1 and PS-2	Primary Rinse Screens	400	66.31, combined
JC-1	Jaw Crusher	72	48.04
FS-1	Final Rinse Screen	150	55.44
CC-1	Cone Crusher	80	49.06
C-6	Conveyor	400	66.31
C-7 through C-9	Conveyors	75	48.43, each
C-10 and C-11	Conveyors	50	44.58, each
C-12	Conveyor	100	51.28
C-13	Conveyor*	10	19.18
C-14	Conveyor	200	58.51
SS-1	Sand Screw	200	58.51
SS-2	Sand Screw*	20	30.51
SS-3	Sand Screw*	15	25.16

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 sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

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

- (b) Pursuant to 326 IAC 6-3-2(e)(3), when the process weight exceeds 200 tons per hour, the maximum allowable emission may exceed the emission limits shown in the table above, provided the concentration of particulate matter in the gas discharged to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases.

D.3.3 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.3.4 Particulate Control

In order to comply with Conditions D.3.1 and D.3.2, the Permittee shall use a wet process or continuous wet suppressions at all times that the sand and gravel plant is in operation.

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

D.3.5 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 Requirements [326 IAC 2-8-4(3)]

D.3.6 Record Keeping Requirements

- (a) To document the compliance status with Condition D.3.1(a), the Permittee shall maintain monthly records of the amount of material processed through the sand and gravel plant.
- (b) To document the compliance status with Condition D.3.5, 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.3.7 Reporting Requirements

A quarterly summary of the information to document compliance status with Condition D.3.1(a) 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) asphalt rotary drum dryer/mixer, with a maximum capacity of 370 tons per hour, equipped with one (1) No. 4 fuel oil fired aggregate dryer burner with a maximum rated capacity of 160 million British thermal units per hour (MMBtu/hr), using natural gas and waste oil as back-up fuels, processing slag and certified asbestos-free factory second and/or post consumer waste shingles, and one (1) baghouse dust collecting system for air pollution control, exhausting at one (1) stack, identified as SV1; Shingle grinding occurs at this source.

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

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

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

E.1.1 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:

- (f) Two RAP crushers:
- (A) One (1) aggregate, RAP, and concrete crushing operation, approved for construction in 2010, consisting of the following:
- (1) One (1) impact crusher, identified as Crushtek 1310i, with a maximum capacity of 385 tons per hour, and equipped with two (2) conveyors.
 - (2) One (1) 4' x 6' deck screen plant, identified as Mark II, with a maximum capacity of 185 tons per hour, and equipped with one (1) screen, conveyor, and feeder.
 - (3) One (1) 5' x 10' deck screen plant, identified as Commander 510, with a maximum capacity of 300 tons per hour, and equipped with one (1) screen, conveyor, and feeder.
 - (4) One (1) 6' x 15' deck screen plant, identified as Frontier, with a maximum capacity of 400 tons per hour, and equipped with one (1) screen and four (4) conveyors.
 - (5) Two (2) radial stacker conveyors, identified as C-1 and C-2, with a maximum capacity of 470 tons per hour, each.
 - (6) One (1) stacker conveyor, identified as C-3, with a maximum capacity of 160 tons per hour.
 - (7) One (1) stacker conveyor, identified as C-4, with a maximum capacity of 700 tons per hour.
 - (8) One (1) stacker conveyor, identified as C-5, with a maximum capacity of 295 tons per hour.

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

- (B) One (1) crusher to the RAP feed system to crush oversized lumps of recycled material, approved for construction in 2011, consisting of the following:
- (1) One (1) in-line crusher, identified as 40 RAP crusher, with a maximum capacity of 70 tons per hour, powered by a 60 hp electric motor, and equipped with one 24" x 30' belt conveyor.
 - (2) One (1) 6' x 12' double deck scalping screen

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

E.2.3 Testing Requirements [326 IAC 2-8-5(a)(1), (4)] [326 IAC 2-1.1-11]

The Permittee shall perform the stack testing required under NSPS 40 CFR 60, Subpart OOO, utilizing methods as approved by the Commissioner to document compliance with Conditions E.2.1 and E.2.2. These tests shall be repeated at least once every five (5) years from the date of the last valid compliance demonstration. Testing shall be conducted in accordance with Section C - Performance Testing.

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

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

Source Name: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110

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: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110

This form consists of 2 pages

Page 1 of 2

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

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

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

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

Page 2 of 2

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

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

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

FESOP Quarterly Report

Source Name: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110
Facility: Dryer/mixer burner
Parameter: Re-refined waste oil usage limit to limit HCl emissions
Limit: the usage of re-refined waste oil in the dryer/mixer burner shall be limited such that the emissions of HCl are less than 9.99 tons per twelve (12) consecutive month period, with compliance determined at the end of each month. For purposes of determining compliance with this limit, the equations in condition D.1.10 shall be used.

YEAR: _____

Month	Column 1			Column 2	Column 1 + Column 2
	Re-refined waste oil usage. This Month (gallons)	% CI	HCl emissions (tons). This Month	HCl emissions previous 11 Months. (tons)	12 Month Total HCl emissions (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: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110
Facility: Drum dryer/mixer
Parameter: Hot mix asphalt production
Limit: The asphalt production rate shall not exceed 780,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

YEAR: _____

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

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

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

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

FESOP Quarterly Report

Page 1 of 2

Source Name: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110
Facility: Dryer/mixer burner
Parameter: Fuel and Slag Usage / SO2 Emissions
Emission Limits: 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 1,032.88 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 2,063,738.7 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (3) Re-refined waste oil usage shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (4) SO2 emissions from the processing of blast furnace slag and steel slag in the dryer/mixer shall not exceed 18.50 tons per twelve (12) consecutive month period with compliance determined at the end of each month. Compliance with this limit shall be demonstrated using the equation in Condition D.1.13.

Quarter: _____ **Year:** _____

FESOP Fuel and Slag Usage / SO2 Emissions Quarterly Reporting Form

Month	Fuel Types / Slag (units)	Column 1	Column 2	Column 1 + Column 2	Total SO2 Emissions (tons per 12 month consecutive period)
		Usage This Month	Usage Previous 11 Months	Usage 12 Month Total	
Month 1	Natural gas (mmcf)				
	No. 4 fuel oil (gallons)				
	Waste oil (gallons)				
	Steel Slag (tons)				
	Blast Furnace Slag (tons)				
Month 2	Natural gas (mmcf)				
	No. 4 fuel oil (gallons)				
	Waste oil (gallons)				
	Steel Slag (tons)				
	Blast Furnace Slag (tons)				
Month 3	Natural gas (mmcf)				
	No. 4 fuel oil (gallons)				
	Waste oil (gallons)				
	Steel Slag (tons)				
	Blast Furnace Slag (tons)				

- 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: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110
Facility: Dryer/mixer burner
Parameter: Fuel and Slag Usage / SO₂, NO_x, and CO_{2e} Emissions
Emission Limits: When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of blast furnace and steel slag in the aggregate mix, emissions from the dryer/mixer shall be limited as follows:

- (1) SO₂ emissions from the dryer/mixer shall not exceed 95.89 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (2) NO_x emissions from the dryer/mixer shall not exceed 98.12 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (3) CO₂ equivalent emissions from the dryer/mixer shall not exceed 62,435.89 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limits shall be demonstrated using the equations in Condition D.1.13.

Quarter: _____ **Year:** _____

FESOP Fuel and Slag Usage / SO₂, NO_x, and CO₂e Emissions Quarterly Reporting Form Page 2 of 2

Month	Fuel Types / Slag (units)	Column 1	Column 2	Column 1 + Column 2	Total SO ₂ Emissions (tons per 12 month consecutive period)	Total NO _x Emissions (tons per 12 month consecutive period)	Total CO ₂ e Emissions (tons per 12 month consecutive period)
		Usage This Month	Usage Previous 11 Months	Usage 12 Month Total			
Month 1	Natural gas (mmcf)						
	No. 4 fuel oil (gallons)						
	Waste oil (gallons)						
	Steel Slag (tons)						
	Blast Furnace Slag (tons)						
Month 2	Natural gas (mmcf)						
	No. 4 fuel oil (gallons)						
	Waste oil (gallons)						
	Steel Slag (tons)						
	Blast Furnace Slag (tons)						
Month 3	Natural gas (mmcf)						
	No. 4 fuel oil (gallons)						
	Waste oil (gallons)						
	Steel Slag (tons)						
	Blast Furnace Slag (tons)						

- 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: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110
Facility: Sand and Gravel Plant
Parameter: Annual Material Throughput
Limit: The annual throughput to the sand and gravel plant shall not exceed 607,000 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Material Throughput This Month (tons)	Material Throughput Previous 11 Months (tons)	12 Month Total Material 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: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110
Facility: Cold-mix asphalt storage piles
Parameter: VOC Usage
Limit:

- (a) Cutback asphalt medium cure liquid binder usage shall not exceed 68.9 tons of VOC solvent per twelve (12) consecutive month period with compliance determined at the end of each month.
- (b) Cutback asphalt slow cure liquid binder usage shall not exceed 192.9 tons of VOC solvent per twelve (12) consecutive month period with compliance determined at the end of each month.
- (c) Emulsified asphalt with solvent liquid binder usage shall not exceed 103.9 tons of VOC solvent per twelve (12) consecutive month period with compliance determined at the end of each month.
- (d) Other asphalt with solvent liquid binder shall not exceed 1928.7 tons of VOC solvent per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR:

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

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

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

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

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

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

Multiple Liquid Binder Solvent Quarterly Report

Source Name: Phend & Brown, Inc.
 Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
 FESOP Permit No.: F085-23356-00110
 Facility: Cold-mix asphalt storage piles
 Parameter: VOC Usage
 Limit: The VOC solvent used as diluent in the liquid binder used in cold mix asphalt production from the plant shall be limited such that no more than 48.2 tons of VOC are emitted per twelve (12) consecutive months.

YEAR: _____

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

No deviation occurred in this quarter.

Deviation/s occurred in this quarter.

Deviation has been reported on: _____

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

**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: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110

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 "No deviations occurred this reporting period".</p>	
<input type="checkbox"/> NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
<input type="checkbox"/> THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

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

Form Completed by: _____

Title / Position: _____

Date: _____

Phone: _____

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

Attachment A

Asphalt Plant Site Fugitive Dust Control Plan

**Phend & Brown, Inc.
76 West 600 North, Leesburg, Indiana 46538**

- (a) Fugitive particulate matter (dust) emissions from paved roads, unpaved roads, and parking lots shall be controlled by one or more of the following measures:
 - (1) Paved roads and parking lots:
 - (A) Cleaning by vacuum sweeping on an as needed basis (monthly at minimum), or
 - (B) Power brooming while wet either from rain or application of water.
 - (2) Unpaved roads and parking lots:
 - (A) Paving with asphalt.
 - (B) Treating with emulsified asphalt, calcium chloride solution or similar dust palliative material on an as needed basis.
 - (C) Treating with water on an as needed basis.
 - (D) Double chip and seal the road surface and maintained on an as needed basis.
- (b) Fugitive particulate matter (dust) emissions from aggregate stockpiles shall be controlled by one or more of the following measures:
 - (1) Treating around the stockpile area with emulsified asphalt, calcium chloride solution or similar dust palliative material on an as needed basis.
 - (2) Treating around the stockpile area with water on an as needed basis.
 - (3) Treating the stockpiles with water on an as needed basis.
- (c) Fugitive particulate matter (dust) emissions from outdoor conveying of aggregates shall be controlled by one or more of the following measures:
 - (1) Apply water at the feed and/or the intermediate points on an as needed basis.
- (d) Fugitive particulate matter (dust) emissions from the transferring of aggregates shall be controlled by one or more of the following measures:
 - (1) Minimize the vehicular distance between the transfer points.
 - (2) Enclose the transfer points.
 - (3) Apply water on transfer points on an as needed basis.
- (e) Fugitive particulate matter (dust) emissions from transporting of aggregate by truck, front-end loader, etc. shall be controlled by one or more of the following measures:
 - (1) Maintain vehicle bodies in a condition to prevent leakage.
 - (2) Spray the aggregates with water.
 - (3) Maintain a 10 mile per hour (MPH) speed limit in the yard.

- (f) Fugitive particulate matter (dust) emissions from the loading and unloading of aggregate shall be controlled by one or more of the following measures:
- (1) Reduce free fall distance to a minimum.
 - (2) Reduce the rate of discharge of the aggregate.
 - (3) Spray the aggregate with water on an as needed basis.

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

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

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]

**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) Fluorospars.
- (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 ± 250 pascals ± 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 ± 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 H₂O (0.05 in. H₂O)] 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

For * * *	The owner or operator must meet a PM limit of * * *	And the owner or operator must meet an opacity limit of * * *	The owner or operator must demonstrate compliance with these limits by conducting * * *
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) ^a	7 percent for dry control devices ^b	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) ^a	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).

^aExceptions to the PM limit apply for individual enclosed storage bins and other equipment. See §60.672(d) through (f).

^bThe stack opacity limit and associated opacity testing requirements do not apply for affected facilities using wet scrubbers.

Table 3 to Subpart 000—Fugitive Emission Limits

Table 3 to Subpart 000—Fugitive Emission Limits

<p style="text-align: center;">For * * *</p>	<p style="text-align: center;">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) * * *</p>	<p style="text-align: center;">The owner or operator must meet the following fugitive emissions limit for crushers at which a capture system is not used * * *</p>	<p style="text-align: center;">The owner or operator must demonstrate compliance with these limits by conducting * * *</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>

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

Technical Support Document (TSD) for a Significant Permit Revision (SPR)
Greenhouse Gases (GHGs) Reopening to a Federally Enforceable State
Operating Permit (FESOP)

Source Description and Location

Source Name:	Phend & Brown, Inc.
Source Location:	76 West 600 North, Leesburg, IN 46538
County:	Kosciusko
SIC Code:	2951 (Asphalt Paving Mixtures and Blocks), 1442 (Construction Sand and Gravel)
Operation Permit No.:	F 085-23356-00110
Operation Permit Issuance Date:	October 24, 2007
Significant Permit Revision No.:	085-31423-00110
Permit Reviewer:	Brian Williams

Phend & Brown, Inc. was issued a Federally Enforceable State Operating Permit (FESOP) Renewal No. F085-23356-00110 on October 24, 2007 for a stationary asphalt pavement production plant.

On January 5, 2012, the Office of Air Quality (OAQ) provided notice to this source that the Greenhouse Gas (GHG) Tailoring Rule (75 FR 31514) set a date of July 1, 2012 for sources that have the potential to emit (PTE) greenhouse gases (GHGs) equal to or greater than 100,000 tons per year of carbon dioxide equivalent emissions (CO₂e) to apply for a Title V permit or revise their current FESOP to add limits on GHGs. This notice specified that companies could request IDEM to reopen their permit to add limits on GHGs. On January 30, 2012, IDEM OAQ received a request from this source to reopen its FESOP to add limits on GHGs, pursuant to the provisions of 326 IAC 2-8-8.

Existing Approvals

The source was issued FESOP Renewal No. 085-23346-00110 on October 24, 2007. The source has since received the following approvals:

- (a) First Administrative Amendment No. 085-27253-00110, issued on December 18, 2008;
- (b) Significant Permit Revision No. 085-27950-00110, issued on May 11, 2010; and
- (c) Second Administrative Amendment No. 085-30329-00110, issued on April 20, 2011.

County Attainment Status

The source is located in Kosciusko County.

Pollutant	Designation
SO ₂	Better than national standards.
CO	Unclassifiable or attainment effective November 15, 1990.
O ₃	Unclassifiable or attainment as of June 15, 2004, for the 8-hour ozone standard. ¹
PM ₁₀	Unclassifiable effective November 15, 1990.
PM _{2.5}	Unclassifiable or attainment effective April 5, 2005.
NO ₂	Cannot be classified or better than national standards.
Pb	Not designated.
¹ Unclassifiable or attainment effective October 18, 2000, for the 1-hour ozone standard which was revoked effective June 15, 2005.	

- (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. Kosciusko 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) **PM_{2.5}**
 Kosciusko County has been classified as attainment for PM_{2.5}. On May 8, 2008 U.S. EPA promulgated the requirements for Prevention of Significant Deterioration (PSD) for PM_{2.5} emissions. These rules became effective on July 15, 2008. On May 4, 2011 the air pollution control board issued an emergency rule establishing the direct PM_{2.5} significant level at ten (10) tons per year. This rule became effective, June 28, 2011. Therefore, direct PM_{2.5} and SO₂ emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability – Entire Source section.

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

Fugitive Emissions

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

Description of Proposed Revision

Pursuant to 326 IAC 2-7-1(39), starting July 1, 2011, GHGs emissions are subject to regulation at a source with a potential to emit of 100,000 tons per year or more of CO₂e. Therefore, CO₂e emissions have been calculated for this source. Based on the calculations, the PTE greenhouse gases from the entire source is equal to or greater than 100,000 tons of CO₂e per year (see TSD Appendix A for detailed calculations). This source would have been subject to the provisions of 326 IAC 2-7. However, this source will be issued a Significant Permit Revision (SPR) to its existing FESOP because this source will limit its CO₂e emissions to less than the Title V subject to regulation threshold of 100,000 tons per year.

No new emission units are included in this proposed revision.

Emission Calculations

See Appendix A of this TSD for detailed emission calculations.

PTE of the Entire Source After Issuance of the FESOP Revision

The table below summarizes the potential to emit of the entire source after issuance of this revision, reflecting all limits, of the emission units. Any control equipment is considered federally enforceable only after issuance of this FESOP permit revision, 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 Revision (tons/year)									
	PM	PM10*	PM2.5	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
Ducted Emissions										
Fuel Combustion (worst case)	24.0	19.13	19.13	77.39	98.12	2.84	43.38	62,435.9	11.28	9.9 HCl
Dryer/Mixer (Process)	43.25	19.54	19.54	22.62	21.45	12.48	50.70	12,968	4.16	1.21 Formaldehyde
Dryer/Mixer Slag Processing	0	0	0	18.50	0	0	0	0	0	0
Hot Oil Heaters Fuel Combustion	0.09	0.14	0.14	3.11	0.88	0.01	0.22	989.93	0.003	0.003 Formaldehyde
Worst Case Emissions	43.34	19.68	19.68	99.0	99.0	12.49	50.92	63,425.8	11.28	9.9 HCl
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	0.43	0.43	0.43	0	0	6.68	1.12	0	0.11	0.03 Formaldehyde
Material Storage Piles	7.75	2.71	2.71	0	0	0	0	0	0	0
Material Processing and Handling	2.52	1.19	0.18	0	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	12.37	4.52	4.52	0	0	0	0	0	0	0
Paved and Unpaved Roads (worst case)	69.96	17.07	1.71	0	0	0	0	0	0	0
Cold Mix Asphalt Production	0	0	0	0	0	48.22	0	0	12.58	4.34 Xylenes
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl.	0	0	negl.	negl.

Process/ Emission Unit	Potential To Emit of the Entire Source After Issuance of Revision (tons/year)									
	PM	PM10*	PM2.5	SO ₂	NO _x	VOC	CO	GHGs as CO ₂ e**	Total HAPs	Worst Single HAP
Material Storage Piles (S&G Plant)	7.0	2.45	2.45	0	0	0	0	0	0	0
Material Processing and Handling (S&G Plant)	1.38	0.65	0.10	0	0	0	0	0	0	0
Material Crushing, Screening, and Conveying (S&G Plant)	10.14	3.70	3.70	0	0	0	0	0	0	0
Unpaved Roads (S&G Plant)	97.11	24.75	2.47	0	0	0	0	0	0	0
Total Fugitive Emissions	205.7	57.48	18.28	0	0	54.90	1.12	0	12.69	4.34 Xylenes
Total PTE of Entire Source	249.0	77.16	37.96	99.0	99.0	67.39	52.04	63,425.8	24.0	9.9 HCl
Title V Major Source Thresholds**	NA	100	100	100	100	100	100	100,000	25	10
PSD Major Source Thresholds**	250	250	250	250	250	250	250	100,000	NA	NA
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". **The 100,000 CO ₂ e threshold represents the Title V and PSD subject to regulation thresholds for GHGs in order to determine whether a source's emissions are a regulated NSR pollutant under Title V and PSD.										

FESOP and PSD Minor Status for GHGs

- (a) This revision to an existing Title V minor stationary source will not change the minor status, because the potential to emit GHGs from the entire source will still be limited to less than the Title V major source threshold levels. Therefore, the source will still be subject to the provisions of 326 IAC 2-8 (FESOP).
- (b) This modification to an existing PSD minor stationary source will not change the PSD minor status, because the potential to emit of GHGs from the entire source will continue to be less than the PSD major source threshold levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Pursuant to 326 IAC 2-8-4 and 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) Single Fuel and Slag Usage Limitations

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

- (i) Natural gas usage shall not exceed 1,032.88 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 2,063,738.7 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (iii) Re-refined waste oil usage shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (iv) SO₂ emissions from the processing of blast furnace slag and steel slag in the dryer/mixer shall not exceed 18.50 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

(2) Multiple Fuel and Slag Usage Limitations

When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of blast furnace and steel slag in the aggregate mix, emissions from the dryer/mixer shall be limited as follows:

- (i) SO₂ emissions from the dryer/mixer shall not exceed 95.89 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (ii) NO_x emissions from the dryer/mixer shall not exceed 98.12 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (iii) CO₂ equivalent emissions from the dryer/mixer shall not exceed 62,435.89 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Note: The fuel usage of re-refined waste oil and re-refined waste oil equivalents in the dryer/mixer burner was previously limited to not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. To determine compliance with this limit the source used fuel equivalencies. However, due to the addition of the CO₂ equivalent emission limit, the source must use an equation based approach to demonstrate compliance. Therefore, IDEM has revised the existing fuel and slag usage limits to be consistent with the new CO₂ equivalent emission limits. This is a title 1 change.

Compliance with these limits, combined with the potential to emit SO₂, NO_x, and GHGs from all other emission units at this source, shall limit the source-wide total potential to emit SO₂ and NO_x to less than 100 tons per 12 consecutive month period, each and GHGs to less than 100,000 tons of CO₂ equivalent emissions (CO₂e) per 12 consecutive month period and shall render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

**Federal Rule and State Rule Applicability Determination and Compliance Determination,
Monitoring and Testing Requirements**

The existing applicable federal, state and compliance requirements will not change as a result of this reopening. The source shall continue to comply with the applicable requirements and permit conditions as contained in FESOP No: 085-23346-00110, issued on October 24, 2007 except as indicated below under Proposed Changes.

Proposed Changes

For this permit reopening, IDEM, OAQ has made the following changes to the permit:

- (a) IDEM has revised Section C - Overall Source Limit to reflect that in order to remain a FESOP, the potential to emit greenhouse gases shall be limited to less than 100,000 tons per year of CO₂ equivalent emissions (CO₂e).
- (b) IDEM has added applicable requirements (standards, limitations, compliance determination, record keeping and reporting) to limit CO₂e emissions to be less than 100,000 tons per year in order to render 326 IAC 2-2 (PSD) and 326 IAC 2-7 (Part 70 Permits) not applicable. All subsequent conditions were renumbered as necessary.
- (c) IDEM has revised the existing fuel usage and slag emission limitations and compliance determination requirements to be consistent with the new CO₂e emission limits.

The permit has been revised as follows with deleted language as ~~strikeouts~~ and new language **bolded**:

...

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

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

- (a) Pursuant to 326 IAC 2-8:
 - (1) The potential to emit any regulated pollutant, except particulate matter (PM) **and greenhouse gases (GHGs)**, from the entire source shall be limited to less than one hundred (100) tons per twelve (12) consecutive month period.
 - (2) The potential to emit any individual hazardous air pollutant (HAP) from the entire source shall be limited to less than ten (10) tons per twelve (12) consecutive month period; and
 - (3) The potential to emit any combination of HAPs from the entire source shall be limited to less than twenty-five (25) tons per twelve (12) consecutive month period.
 - (4) **The potential to emit greenhouse gases (GHGs) from the entire source shall be limited to less than one hundred thousand (100,000) tons of CO₂ equivalent emissions (CO₂e) per twelve (12) consecutive month period.**

...

D.1.3 FESOP Limits [326 IAC 2-8-4] [326 IAC 2-2] [326 IAC 8-1-6]

...

- ~~(f) SO₂ emissions from the processing of blast furnace slag and steel slag in the dryer/mixer shall not exceed 18.50 tons per twelve (12) consecutive month period with compliance determined at the end of each month.~~
- ~~(g) SO₂ emissions from the blast furnace slag used in the dryer/mixer shall not exceed 0.74 pounds of SO₂ per ton of blast furnace slag processed or the emission factor determined~~

~~from the most recent valid stack test.~~

~~(h) SO₂ emissions from the steel slag used in the dryer/mixer shall not exceed 0.0014 pounds of SO₂ per ton of steel slag processed.~~

~~(i) The sulfur content of the blast furnace slag shall not exceed 1.5 percent by weight.~~

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

Compliance with these limits, combined with the potential to emit PM₁₀, PM_{2.5}, CO, **and** VOC₇, ~~and SO₂~~ from all other emission units at this source, shall limit the source-wide total potential to emit of PM₁₀, PM_{2.5}, CO, **and** VOC₇, ~~and SO₂~~ to less than 100 tons per twelve (12) consecutive month period, each, and shall render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

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

D.1.5 Sulfur Dioxide (SO₂), ~~and~~ Nitrogen Oxide (NO_x), **and Carbon Dioxide Equivalent (CO₂e)** Emissions [326 IAC 2-8-4] [326 IAC 2-2]

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

(a) Sulfur Content Specifications

(a1) The sulfur content of the re-refined waste oil shall not exceed 1.2 percent by weight.

(b2) The sulfur content of the No. 4 fuel oil shall not exceed 0.5 percent by weight.

(3) SO₂ emissions from the blast furnace slag used in the dryer/mixer shall not exceed 0.74 pounds of SO₂ per ton of blast furnace slag processed or the emission factor determined from the most recent valid stack test.

(4) SO₂ emissions from the steel slag used in the dryer/mixer shall not exceed 0.0014 pounds of SO₂ per ton of steel slag processed.

(5) The sulfur content of the blast furnace slag shall not exceed 1.5 percent by weight.

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

~~(c) The usage of re-refined waste oil and re-refined waste oil equivalents in the dryer/mixer burner shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.~~

~~(d) For the purposes of determining compliance, every MMcf of Natural Gas burned in the dryer/mixer burner shall be equivalent to 3.4 gallons of re-refined waste oil based on SO₂ emissions, such that the total gallons of re-refined waste oil and re-refined waste oil equivalent input does not exceed the limit specified.~~

~~(e) For the purposes of determining compliance, every 1,000 gallons of No. 4 fuel oil burned in the dryer/mixer burner shall be equivalent to 425.2 gallons of re-refined waste oil based on SO₂ emissions, such that the total gallons of re-refined waste oil and re-refined waste oil equivalent input does not exceed the limit specified.~~

- ~~(f) The usage of natural gas and natural gas equivalents in the dryer/mixer burner shall not exceed 1,032.88 MMcf per twelve (12) consecutive month period, with compliance determined at the end of each month.~~
- ~~(g) For the purposes of determining compliance, every 1,000 gallons of re-refined waste oil burned in the dryer/mixer burner shall be equivalent to 0.1 MMcf of natural gas based on NOx emissions, such that the total MMcf of natural gas and natural gas equivalent input does not exceed the limit specified.~~
- ~~(h) For the purposes of determining compliance, every 1,000 gallons of No. 4 fuel oil burned in the dryer/mixer burner shall be equivalent to 0.247 MMcf of natural gas based on NOx emissions, such that the total MMcf of natural gas and natural gas equivalent input does not exceed the limit specified.~~

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

(b) Single Fuel 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 1,032.88 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 2,063,738.7 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.**
- (3) Re-refined waste oil usage shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.**
- (4) SO₂ emissions from the processing of blast furnace slag and steel slag in the dryer/mixer shall not exceed 18.50 tons per twelve (12) consecutive month period with compliance determined at the end of each month.**

(c) Multiple Fuel and Slag Usage Limitations

When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of blast furnace and steel slag in the aggregate mix, emissions from the dryer/mixer shall be limited as follows:

- (1) SO₂ emissions from the dryer/mixer shall not exceed 95.89 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.**
- (2) NO_x emissions from the dryer/mixer shall not exceed 98.12 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.**

- (3) CO2 equivalent emissions from the dryer/mixer shall not exceed 62,435.89 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 SO2, NOx, and GHGs from all other emission units at this source, shall limit the source-wide total potential to emit SO2 and NOx to less than 100 tons per 12 consecutive month period, each and GHGs to less than 100,000 tons of CO₂ equivalent emissions (CO₂e) per 12 consecutive month period and shall render 326 IAC 2-7 (Part 70 Permits) and 326 IAC 2-2 (Prevention of Significant Deterioration (PSD)) not applicable.

...
D.1.11 Testing Requirements [326 IAC 2-7-6(1), (6)] [326 IAC 2-1.1-11]

- ...
(c) In order to demonstrate compliance with Condition ~~D.1.3(g)~~ **D.1.5(a)(3)**, when using blast furnace slag, the Permittee shall perform SO2 testing of the dryer/mixer not later than 180 days after initial use of blast furnace slag in the aggregate mix, utilizing methods approved by the Commissioner. Testing shall only be performed if the company has not previously performed SO2 testing while using blast furnace slag in the aggregate mix at one of their other Indiana facilities. 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.

D.1.12 ~~Sulfur Dioxide Emissions and Sulfur Content~~

- ~~(a) Compliance with the SO2 limit in Condition D.1.3(f) shall be demonstrated using the following equation:~~

$$S = \frac{X(E_f) + Y(E_s)}{2,000}$$

Where:

~~S = tons of sulfur dioxide emissions from slag usage from previous 12 consecutive month period;~~

~~X = tons of blast furnace slag used in dryer/mixer in previous 12 months; and~~

~~Y = tons of steel slag used in dryer/mixer in previous 12 months;~~

Emission Factors:

~~E_f = 0.74 pounds per ton of blast furnace slag processed or the emission factor determined from the most recent valid stack test~~

~~E_s = 0.0014 pounds per ton of steel slag processed~~

- ~~(ba) Pursuant to 326 IAC 2-8-4, compliance with Conditions ~~D.1.3(i)~~ **D.1.5(a)(5)** and ~~D.1.3(j)~~ **D.1.5(a)(6)** shall be determined utilizing one of the following options:~~

- ...
(~~eb~~) Pursuant to 326 IAC 3-7-4, compliance with Conditions D.1.4(a), D.1.5(a)(**1**), and D.1.5(~~ba~~)(**2**) shall be demonstrated utilizing one of the following options:

- (~~ec~~) Compliance may also be determined by conducting a stack test for sulfur dioxide emissions from the 160 MMBtu per hour burner for the aggregate dryer, using 40 CFR 60, Appendix A, Method 6 in accordance with the procedures in 326 IAC 3-6.

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

D.1.13 SO₂, NO_x, and CO_{2e} Emissions

- (a) Compliance with the SO₂ limit in Condition D.1.5(b)(4) shall be demonstrated using the following equation:

Where:

S = tons of sulfur dioxide emissions from slag usage from previous 12 consecutive month period;

X = tons of blast furnace slag used in dryer/mixer in previous 12 months; and

Y = tons of steel slag used in dryer/mixer in previous 12 months;

E_f = 0.74 pounds per ton of blast furnace slag processed or the emission factor determined from the most recent valid stack test

E_s = 0.0014 pounds per ton of steel slag processed

- (b) When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of blast furnace and steel slag in the aggregate mix, emissions from the dryer/mixer, compliance with the SO₂, NO_x, and CO_{2e} limits in Condition D.1.5(c), shall be demonstrated using the following equations to determine the tons of SO₂, NO_x, and CO_{2e} emitted per twelve (12) consecutive month period:

- (1) Sulfur Dioxide (SO₂) emissions calculation:

Where:

SO₂ = tons of sulfur dioxide emissions for twelve (12) month consecutive period;

S = tons of sulfur dioxide emissions from slag usage from previous 12 consecutive month period as determined in Condition D.1.13(a);

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

R = gallons of No. 4 fuel oil used in previous twelve (12) months;

W = gallons of re-refined waste oil used in previous twelve (12) months;

E_G = 0.6 pounds per million cubic feet of natural gas

E_R = 0.075 pounds per gallon of No. 4 fuel oil

E_W = 0.1764 pounds per gallon of re-refined waste oil

- (2) Nitrogen Oxides (NO_x) emissions calculation:

Where:

NO_x = tons of nitrogen oxides emissions for twelve (12) month consecutive period;

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

R = gallons of No. 4 fuel oil used in previous twelve (12) months; and

W = gallons of re-refined waste oil used in previous twelve (12) months.

E_G = 190 pounds per million cubic feet of natural gas

$E_R = 0.047$ pounds per gallon of No. 4 fuel oil
 $E_W = 0.019$ pounds per gallon of re-refined waste oil

(3) Carbon Dioxide Equivalent (CO₂e) emissions calculation:

Where:

CO_2 = tons of CO₂ emissions for previous twelve (12) consecutive month period;
 CH_4 = tons of CH₄ emissions for previous twelve (12) consecutive month period;
 N_2O = tons of N₂O emissions for previous twelve (12) consecutive month period;
 CO_{2e} = tons of CO₂e equivalent emissions for previous twelve (12) consecutive month period;
 G = million cubic feet of natural gas used in previous twelve (12) months;
 R = gallons of No. 4 fuel oil used in previous twelve (12) months; and
 W = gallons of re-refined waste oil used in previous twelve (12) months.

CO₂:

$E_G = 120,161.84$ pounds per million cubic feet of natural gas
 $E_R = 24.15346$ pounds per gallon of No. 4 fuel oil
 $E_W = 22.02415$ pounds per gallon of re-refined waste oil

CH₄:

$E_G = 2.49$ pounds per million cubic feet of natural gas
 $E_R = 0.00097$ pounds per gallon of No. 4 fuel oil
 $E_W = 0.00089$ pounds per gallon of re-refined waste oil

N₂O:

$E_G = 2.20$ pounds per million cubic feet of natural gas
 $E_R = 0.00026$ pounds per gallon of No. 4 fuel oil
 $E_W = 0.00018$ pounds per gallon of re-refined waste oil

Global Warming Potentials (GWP)

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

D.1.134 Asbestos Content

...
D.1.145 Particulate Control

...
D.1.156 Visible Emissions Notations

...
D.1.167 Parametric Monitoring

...
D.1.178 Broken or Failed Bag Detection

...
D.1.189 Record Keeping Requirements

- ...
- ~~(b) To document the compliance status with Condition D.1.3(f) the Permittee shall keep monthly records of the amount of blast furnace and steel slag processed through the dryer/mixer.~~
 - (eb) To document the compliance status with Conditions ~~D.1.3(i), D.1.3(j)~~, D.1.4, D.1.5, D.1.6, and D.1.8, the Permittee shall maintain records in accordance with (1) through (10) below. Records maintained for (1) through (10) shall be taken monthly and shall be complete and sufficient to establish compliance with the limits established in Conditions ~~D.1.3(i), D.1.3(j)~~, D.1.4, D.1.5, D.1.6, and D.1.8.
 - (1) Calendar dates covered in the compliance determination period or calendar quarter;
 - (2) ~~Sulfur content for all slag used at the source since the last compliance determination period;~~ **Actual blast furnace and steel slag usage, sulfur content and equivalent sulfur dioxide emission rates for all blast furnace and steel slag used at the source since the last compliance determination period;**
 - ...
 - (7) Actual fuel usage, sulfur content, heat content, and equivalent sulfur dioxide, and nitrogen oxide, **and carbon dioxide equivalent** rates for each fuel used at the source since the last compliance determination period;
 - ...
 - (ec) To document the compliance status with Condition D.1.156, the Permittee shall maintain a daily record of visible emission notations of the dryer/mixer baghouse stack exhausts and the grinding, crushing, conveying, material transfer points, and screening. 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).
 - (ed) To document the compliance status with Condition D.1.167, the Permittee shall maintain a daily record of the pressure drop across the baghouse controlling the dryer/mixer. The Permittee shall include in its daily record when a pressure drop reading is not taken and the reason for the lack of a pressure drop reading (e.g. the process did not operate that day).
 - (fe) Section C - General Record Keeping Requirements contains the Permittee's obligations with regard to the records required by this condition.

D.1.1920 Reporting Requirements

A quarterly summary of the information to document compliance status with Conditions D.1.2(a), D.1.3(a), ~~D.1.3(f)~~, D.1.5(**cb**), D.1.5(**fc**), and D.1.8 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).

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

FESOP Quarterly Report

Source Name: _____ Phend & Brown, Inc. _____
Source Address: _____ 76 West CR 600 North, Leesburg, Indiana 46538 _____
FESOP Permit No.: _____ F085-23356-00110 _____
Facility: _____ Dryer/mixer burner _____
Parameter: _____ Re-refined waste oil and equivalent usage limit to limit SO₂ _____
Limit: _____ the usage of re-refined waste oil with a sulfur content of 1.2% and re-refined waste oil equivalents in the dryer/mixer burner shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month. For purposes of determining compliance with this limit, the fuel equivalency ratios in condition D.1.5(d) and (e) shall be used.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Re-refined waste oil and equivalent usage. This Month (gallons)	Re-refined waste oil and equivalent usage Previous 11 Months. (gallons)	12 Month Total Re-refined waste oil and equivalent usage. (gallons)
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: _____ Phend & Brown, Inc. _____
Source Address: _____ 76 West CR 600 North, Leesburg, Indiana 46538 _____
FESOP Permit No.: _____ F085-23356-00110 _____
Facility: _____ Dryer/mixer burner _____
Parameter: _____ Natural Gas and equivalent usage limit to limit NO_x emissions. _____
Limit: _____ The usage of natural gas and natural gas equivalents in the dryer/mixer burner _____

shall not exceed 1,032.88 MMcf per twelve (12) consecutive month period, with compliance determined at the end of each month. For purposes of determining compliance with this limit, the fuel equivalency ratios in condition D.1.5(g) and (h) shall be used.

YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	Natural Gas and equivalent usage. This Month (MMcf)	Natural Gas and equivalent usage Previous 11 Months. (MMcf)	12 Month Total Natural Gas and equivalent usage. (MMcf)
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: _____ Phend & Brown, Inc. _____
 Source Address: _____ 76 West CR 600 North, Leesburg, Indiana 46538 _____
 FESOP Permit No.: _____ F085-23356-00110 _____
 Facility: _____ Drum dryer/mixer _____
 Parameter: _____ SO2 emissions _____
 Limit: _____ SO2 emissions from the processing of blast furnace slag and steel slag in the dryer/mixer shall not exceed 18.50 tons per twelve (12) consecutive month period with compliance determined at the end of each month. SO2 emissions shall be determined using the equation in Condition D.1.12.

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: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110
Facility: Dryer/mixer burner
Parameter: Fuel and Slag Usage / SO2 Emissions
Emission Limits: 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 1,032.88 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 2,063,738.7 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (3) Re-refined waste oil usage shall not exceed 750,000 gallons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (4) SO2 emissions from the processing of blast furnace slag and steel slag in the dryer/mixer shall not exceed 18.50 tons per twelve (12) consecutive month period with compliance determined at the end of each month. Compliance with this limit shall be demonstrated using the equation in Condition D.1.13.

Quarter: _____ Year: _____

FESOP Fuel and Slag Usage / SO2 Emissions Quarterly Reporting Form

Month	Fuel Types / Slag (units)	Column 1	Column 2	Column 1 + Column 2	Total SO2 Emissions (tons per 12 month consecutive period)
		Usage This Month	Usage Previous 11 Months	Usage 12 Month Total	
Month 1	Natural gas (mmcf)				
	No. 4 fuel oil (gallons)				
	Waste oil (gallons)				
	Steel Slag (tons)				
	Blast Furnace Slag (tons)				
Month 2	Natural gas (mmcf)				
	No. 4 fuel oil (gallons)				
	Waste oil (gallons)				
	Steel Slag (tons)				
	Blast Furnace Slag (tons)				
Month 3	Natural gas (mmcf)				
	No. 4 fuel oil (gallons)				
	Waste oil (gallons)				
	Steel Slag (tons)				
	Blast Furnace Slag (tons)				

- 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: Phend & Brown, Inc.
Source Address: 76 West CR 600 North, Leesburg, Indiana 46538
FESOP Permit No.: F085-23356-00110
Facility: Dryer/mixer burner
Parameter: Fuel and Slag Usage / SO₂, NO_x, and CO_{2e} Emissions
Emission Limits: When combusting more than one fuel per twelve (12) consecutive month period in the dryer/mixer burner and in conjunction with the use of blast furnace and steel slag in the aggregate mix, emissions from the dryer/mixer shall be limited as follows:

- (1) SO₂ emissions from the dryer/mixer shall not exceed 95.89 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (2) NO_x emissions from the dryer/mixer shall not exceed 98.12 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.
- (3) CO₂ equivalent emissions from the dryer/mixer shall not exceed 62,435.89 tons per twelve (12) consecutive month period, with compliance determined at the end of each month.

Compliance with these limits shall be demonstrated using the equations in Condition D.1.13.

Quarter: _____ Year: _____

FESOP Fuel and Slag Usage / SO₂, NO_x, and CO_{2e} Emissions Quarterly Reporting Form Page 2 of 2

Month	Fuel Types / Slag (units)	Column 1	Column 2	Column 1 + Column 2	Total SO ₂ Emissions (tons per 12 month consecutive period)	Total NO _x Emissions (tons per 12 month consecutive period)	Total CO _{2e} Emissions (tons per 12 month consecutive period)
		Usage This Month	Usage Previous 11 Months	Usage 12 Month Total			
Month 1	Natural gas (mmcf)						
	No. 4 fuel oil (gallons)						
	Waste oil (gallons)						
	Steel Slag (tons)						
	Blast Furnace Slag (tons)						
Month 2	Natural gas (mmcf)						
	No. 4 fuel oil (gallons)						
	Waste oil (gallons)						
	Steel Slag (tons)						
	Blast Furnace Slag (tons)						
Month 3	Natural gas (mmcf)						
	No. 4 fuel oil (gallons)						
	Waste oil (gallons)						
	Steel Slag (tons)						
	Blast Furnace Slag (tons)						

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

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

...

Conclusion and Recommendation

Unless otherwise stated, information used in this review was derived from the greenhouse gas reopening request and additional information submitted by the applicant. A greenhouse gas reopening request for the purposes of this review was received on January 30, 2012

The operation of this proposed revision shall be subject to the conditions of the attached proposed FESOP Significant Permit Revision Greenhouse Gas Reopening No. 085-31423-00110. The staff recommends to the Commissioner that this FESOP Significant Permit Revision Greenhouse Gas Reopening be approved.

IDEM Contact

- (a) Questions regarding this proposed permit can be directed to Brian Williams 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) 234-5375 or toll free at 1-800-451-6027 extension 4-5375
- (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.in.gov/idem

**Appendix A.1: Unlimited Emissions Calculations
Entire Source - Drum Mix**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

Asphalt Plant Maximum Capacity - Drum Mix

Maximum Hourly Asphalt Production =	370	ton/hr									
Maximum Annual Asphalt Production =	3,241,200	ton/yr									
Maximum Annual Blast Furnace Slag Usage =	810,300	ton/yr	1.5	% sulfur							
Maximum Annual Steel Slag Usage =	810,300	ton/yr	0.66	% sulfur							
Maximum Dryer Fuel Input Rate =	160.0	MMBtu/hr									
Natural Gas Usage =	1,402	MMCF/yr									
No. 2 Fuel Oil Usage =	0	gal/yr, and	0.50	% sulfur							
No. 4 Fuel Oil Usage =	10,011,429	gal/yr, and	0.50	% sulfur							
Residual (No. 5 or No. 6) Fuel Oil Usage =	0	gal/yr, and	0.50	% sulfur							
Propane Usage =	0	gal/yr, and	0.20	gr/100 ft3 sulfur							
Butane Usage =	0	gal/yr, and	0.22	gr/100 ft3 sulfur							
Used/Waste Oil Usage =	10,011,429	gal/yr, and	1.20	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead	
Unlimited PM Dryer/Mixer Emission Factor =	28.0	lb/ton of asphalt production									
Unlimited PM10 Dryer/Mixer Emission Factor =	6.5	lb/ton of asphalt production									
Unlimited PM2.5 Dryer/Mixer Emission Factor =	1.5	lb/ton of asphalt production									
Unlimited VOC Dryer/Mixer Emission Factor =	0.032	lb/ton of asphalt production									
Unlimited CO Dryer/Mixer Emission Factor =	0.13	lb/ton of asphalt production									
Unlimited Blast Furnace Slag SO2 Dryer/Mixer Emission Factor =	0.74	lb/ton of slag processed									
Unlimited Steel Slag SO2 Dryer/Mixer Emission Factor =	0.0014	lb/ton of slag processed									

Unlimited/Uncontrolled Emissions

Process Description	Unlimited/Uncontrolled Potential to Emit (tons/year)										
	Criteria Pollutants							Greenhouse Gas Pollutants	Hazardous Air Pollutants		
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	CO ₂ e	Total HAPs	Worst Case HAP	
Ducted Emissions											
Dryer Fuel Combustion (worst case)	320.37	255.29	255.29	883.01	235.27	5.01	58.87	121,306.53	138.11	132.15 (hydrogen chloride)	
Dryer/Mixer (Process)	45,376.80	10,533.90	2,430.90	93.99	89.13	51.86	210.68	53,888.19	17.27	5.02 (formaldehyde)	
Dryer/Mixer Slag Processing (worst case)	0	0	0	299.81	0	0	0	0.00	0	0	
Hot Oil Heater Fuel Combustion (worst case)	0.09	0.14	0.14	3.11	0.88	0.01	0.22	989.93	0.003	0.003 (hexane)	
Worst Case Emissions*	45,376.89	10,534.04	2,431.04	1,185.93	236.14	51.87	210.90	122,296.46	138.11	132.15 (hydrogen chloride)	
Fugitive Emissions (Asphalt Plant)											
Asphalt Load-Out, Silo Filling, On-Site Yard	1.80	1.80	1.80	0	0	27.76	4.67	0	0.46	0.14 (formaldehyde)	
Material Storage Piles	7.75	2.71	2.71	0	0	0	0	0	0	0	
Material Processing and Handling	10.47	4.95	0.75	0	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	51.42	18.78	18.78	0	0	0	0	0	0	0	
Unpaved and Paved Roads (worst case)	278.30	70.93	7.09	0	0	0	0	0	0	0	
Cold Mix Asphalt Production	0	0	0	0	0	32,444.41	0	0	8,462.70	2,920.00 (xylenes)	
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0.00	0	0	0.00	0.00 (xylenes)	
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	0	negl	0	
Fugitive Emissions (Sand & Gravel Plant)											
Material Storage Piles	7.00	2.45	2.45	0	0	0	0	0	0	0	
Material Processing and Handling	25.22	11.93	1.81	0	0	0	0	0	0	0	
Material Crushing, Screening, and Conveying	80.51	28.67	28.67	0	0	0	0	0	0	0	
Unpaved Roads	1779.84	453.62	45.36	0	0	0	0	0	0	0	
Total Fugitive Emissions	2,242.31	595.84	109.43	0.00	0.00	32,472.17	4.67	0.00	8,463.17	2,920.00 (xylenes)	
Totals Unlimited/Uncontrolled PTE	47,619.20	11,129.89	2,540.47	1,185.93	236.14	32,524.04	215.57	122,296.46	8,601.28	2,920.00 (xylenes)	

negl = negligible

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

*Worst Case Emissions (tons/yr) = Worst Case Emissions from Dryer Fuel Combustion and Dryer/Mixer + Worst Case Emissions From 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: Phend & Brown, Inc.
 Source Address: 76 West 600 North, Leesburg, IN 46538
 Permit Number: 085-31423-00110
 Reviewer: Brian Williams

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 =	370	ton/hr
Maximum Annual Asphalt Production =	3,241,200	ton/yr
Maximum Fuel Input Rate =	160	MMBtu/hr
Natural Gas Usage =	1,402	MMCF/yr
No. 2 Fuel Oil Usage =	0	gal/yr, and
No. 4 Fuel Oil Usage =	10,011,429	gal/yr, and
Residual (No. 5 or No. 6) Fuel Oil Usage =	0	gal/yr, and
Propane Usage =	0	gal/yr, and
Butane Usage =	0	gal/yr, and
Used/Waste Oil Usage =	10,011,429	gal/yr, and
	0.50	% sulfur
	0.50	% sulfur
	0.50	% sulfur
	0.20	gr/100 ft3 sulfur
	0.22	gr/100 ft3 sulfur
	1.20	% sulfur
	1.00	% ash
	0.400	% chlorine
	0.010	% 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)	Residual (No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/Waste Oil (tons/yr)	Worse Case Fuel (tons/yr)
PM	1.9	2.0	7.0	7.815	0.5	0.6	64.0	1.33	0.00	35.04	0.00	0.000	0.000	320.37	320.37
PM10/PM2.5	7.6	3.3	8.3	9.315	0.5	0.6	51	5.33	0.00	41.55	0.00	0.000	0.000	255.29	255.29
SO2	0.6	71.0	75.0	78.5	0.020	0.020	176.4	0.42	0.00	375.43	0.00	0.000	0.000	883.01	883.01
NOx	190	24.0	47.0	47.0	13.0	15.0	19.0	133.15	0.00	235.27	0.00	0.00	0.00	95.11	235.27
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	3.85	0.00	1.00	0.00	0.00	0.00	5.01	5.01
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	58.8672	0.00	25.03	0.00	0.00	0.00	25.03	58.87
Hazardous Air Pollutant															
HCl							26.4							132.15	132.15
Antimony			5.25E-03	5.25E-03			negl			2.63E-02	0.00E+00			negl	2.6E-02
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	1.4E-04	0.00E+00	6.61E-03	0.00E+00			5.51E-01	5.5E-01
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	8.4E-06	0.00E+00	1.39E-04	0.00E+00			negl	1.4E-04
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.9E-03	7.7E-04	0.00E+00	1.99E-03	0.00E+00			4.66E-02	4.7E-02
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	9.8E-04	0.00E+00	4.23E-03	0.00E+00			1.00E-01	1.0E-01
Cobalt	8.4E-05	6.02E-03	6.02E-03	6.02E-03			2.1E-04	5.9E-05		3.01E-02	0.00E+00			1.05E-03	3.0E-02
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55	3.5E-04	0.00E+00	7.56E-03	0.00E+00			2.8E+00	2.75
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	2.7E-04	0.00E+00	1.50E-02	0.00E+00			3.40E-01	0.34
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				1.8E-04	0.00E+00	5.66E-04	0.00E+00				5.7E-04
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	1.5E-03	0.00E+00	4.23E-01	0.00E+00			5.51E-02	0.423
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl	1.7E-05	0.00E+00	3.42E-03	0.00E+00			negl	3.4E-03
1,1,1-Trichloroethane			2.36E-04	2.36E-04						1.18E-03	0.00E+00				1.2E-03
1,3-Butadiene															0.0E+00
Acetaldehyde															0.0E+00
Acrolein															0.0E+00
Benzene	2.1E-03		2.14E-04	2.14E-04				1.5E-03		1.07E-03	0.00E+00				1.5E-03
Bis(2-ethylhexyl)phthalate							2.2E-03							1.10E-02	1.1E-02
Dichlorobenzene	1.2E-03						8.0E-07	8.4E-04						4.00E-06	8.4E-04
Ethylbenzene			6.36E-05	6.36E-05						3.18E-04	0.00E+00				3.2E-04
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				5.9E-02	0.00E+00	1.65E-01	0.00E+00				0.165
Hexane	1.8E+00							1.26							1.261
Phenol							2.4E-03							1.20E-02	1.2E-02
Toluene	3.4E-03		6.20E-03	6.20E-03				2.4E-03		3.10E-02	0.00E+00				3.1E-02
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		5.66E-03	0.00E+00			1.96E-01	2.0E-01
Polycyclic Organic Matter		3.30E-03							0.00E+00						0.0E+00
Xylene			1.09E-04	1.09E-04						5.46E-04	0.00E+00				5.5E-04
Total HAPs								1.32	0.00	0.72	0.00	0	0	136.22	138.11

Methodology

Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
 Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
 Propane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.0905 MMBtu]
 Butane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.0974 MMBtu]
 Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
 All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]
 Sources of AP-42 Emission Factors for fuel combustion:
 Natural Gas: AP-42 Chapter 1.4 (dated 7/98), Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4
 No. 2, No. 4, and No. 6 Fuel Oil: AP-42 Chapter 1.3 (dated 5/10), 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 Calculation:
Greenhouse Gas (CO₂e) Emissions from the
Dryer/Mixer Fuel Combustion with Maximum Capacity 100 MMBtu/hr**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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	370	ton/hr								
Maximum Annual Asphalt Production	3,241,200	ton/yr								
Maximum Fuel Input Rate	160	MMBtu/hr								
Natural Gas Usage	1,402	MMCF/yr								
No. 2 Fuel Oil Usage	0	gal/yr, and	0.50	% sulfur						
No. 4 Fuel Oil Usage	10,011,429	gal/yr, and	0.50	% sulfur						
Residual (No. 5 or No. 6) Fuel Oil Usage	0	gal/yr, and	0.50	% sulfur						
Propane Usage	0	gal/yr, and	0.20	gr/100 ft3 sulfur						
Butane Usage	0	gal/yr, and	0.22	gr/100 ft3 sulfur						
Used/Waste Oil Usage	10,011,429	gal/yr, and	1.20	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead

Unlimited/Uncontrolled Emissions

CO ₂ e Fraction	Emission Factor (units)							Global Warming Potentials (GWP)		
	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)	Name	Chemical Formula	Global warming potential
CO ₂	120,161.84	22,501.41	24,153.46	24,835.04	12,500.00	14,506.73	22,024.15	Carbon dioxide	CO ₂	1
CH ₄	2.49	0.91	0.97	1.00	0.60	0.67	0.89	Methane	CH ₄	21
N ₂ O	2.2	0.26	0.19	0.53	0.9	0.9	0.18	Nitrous oxide	N ₂ O	310

CO ₂ e Fraction	Unlimited/Uncontrolled Potential to Emit (tons/yr)						
	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)
CO ₂	84,209.42	0.00	120,905.34	0.00	0.00	0.00	110,246.62
CH ₄	1.75	0.00	4.83	0.00	0.00	0.00	4.47
N ₂ O	1.54	0.00	0.97	0.00	0.00	0.00	0.90
Total	84,212.71	0.00	120,911.14	0.00	0.00	0.00	110,251.99

CO₂e for Worst Case Fuel* (tons/yr)
121,306.53

CO₂e Equivalent Emissions (tons/yr)	84,724.06	0.00	121,306.53	0.00	0.00	0.00	110,619.80
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Methodology

Fuel Usage from TSD Appendix A.1, page 1 of 14.
 Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
 Fuel Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
 Propane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.0915 MMBtu]
 Butane Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.102 MMBtu]
 Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Abbreviations

PTE = Potential to Emit
 CO₂ = Carbon Dioxide
 CH₄ = Methane
 N₂O = Nitrogen Dioxide

Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)
 Natural Gas: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N₂O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2
 No. 2, 4, and Residual (No. 5 or No. 6) Fuel Oil: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.3 (dated 5/10), Table 1.3-8
 Propane: Emission Factor for CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, has been converted from kg/mmBtu to lb/kgal. Emission Factors for CO₂ and N₂O from AP-42 Chapter 1.5 (dated 7/08), Table 1.5-1
 Butane: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.5 (dated 7/08), Table 1.5-1
 Waste Oil: Emission Factors for CO₂, CH₄, and N₂O from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal.

Emission Factor (EF) Conversions

Natural Gas: EF (lb/MMCF) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of Natural Gas (MMBtu/scf) * Conversion Factor (1,000,000 scf/MMCF)]
 Fuel Oils: EF (lb/kgal) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of the Fuel Oil (MMBtu/gal) * Conversion Factor (1000 gal/kgal)]

Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]

All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]

Unlimited Potential to Emit CO₂e (tons/yr) = Unlimited Potential to Emit CO₂ of "worst case" fuel (ton/yr) x CO₂ GWP (1) + Unlimited Potential to Emit CH₄ of "worst case" fuel (ton/yr) x CH₄ GWP (21) + Unlimited Potential to Emit N₂O of "worst case" fuel (ton/yr) x N₂O GWP (310).

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

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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

Maximum Hourly Asphalt Production = $\frac{370}{24}$ ton/hr
 Maximum Annual Asphalt Production = 3,241,200 ton/yr

Criteria Pollutant	Uncontrolled Emission Factors (lb/ton)			Unlimited/Uncontrolled Potential to Emit (tons/yr)			Worse Case PTE
	Drum-Mix Plant (dryer/mixer)			Drum-Mix Plant (dryer/mixer)			
	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	
PM*	28	28	28	45376.8	45376.8	45376.8	45376.8
PM10*	6.5	6.5	6.5	10533.9	10533.9	10533.9	10533.9
PM2.5*	1.5	1.5	1.5	2430.9	2430.9	2430.9	2431
SO2**	0.0034	0.011	0.058	5.5	17.8	94.0	94.0
NOx**	0.026	0.055	0.055	42.1	89.1	89.1	89.1
VOC**	0.032	0.032	0.032	51.9	51.9	51.9	51.9
CO***	0.13	0.13	0.13	210.7	210.7	210.7	210.7
Hazardous Air Pollutant							
HCl			2.10E-04			3.40E-01	0.34
Antimony	1.80E-07	1.80E-07	1.80E-07	2.92E-04	2.92E-04	2.92E-04	2.92E-04
Arsenic	5.60E-07	5.60E-07	5.60E-07	9.08E-04	9.08E-04	9.08E-04	9.08E-04
Beryllium	negl	negl	negl	negl	negl	negl	0.00E+00
Cadmium	4.10E-07	4.10E-07	4.10E-07	6.64E-04	6.64E-04	6.64E-04	6.64E-04
Chromium	5.50E-06	5.50E-06	5.50E-06	8.91E-03	8.91E-03	8.91E-03	8.91E-03
Cobalt	2.60E-08	2.60E-08	2.60E-08	4.21E-05	4.21E-05	4.21E-05	4.21E-05
Lead	6.20E-07	1.50E-05	1.50E-05	1.00E-03	2.43E-02	2.43E-02	2.43E-02
Manganese	7.70E-06	7.70E-06	7.70E-06	1.25E-02	1.25E-02	1.25E-02	1.25E-02
Mercury	2.40E-07	2.60E-06	2.60E-06	3.89E-04	4.21E-03	4.21E-03	4.21E-03
Nickel	6.30E-05	6.30E-05	6.30E-05	0.10	0.10	0.10	0.10
Selenium	3.50E-07	3.50E-07	3.50E-07	5.67E-04	5.67E-04	5.67E-04	5.67E-04
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	0.06	0.06	0.06	0.06
Acetaldehyde			1.30E-03			2.11	2.11
Acrolein			2.60E-05			4.21E-02	4.21E-02
Benzene	3.90E-04	3.90E-04	3.90E-04	0.63	0.63	0.63	0.63
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.39	0.39	0.39	0.39
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	5.02	5.02	5.02	5.02
Hexane	9.20E-04	9.20E-04	9.20E-04	1.49	1.49	1.49	1.49
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.08	0.08	0.08	0.08
MEK			2.00E-05			0.03	0.03
Propionaldehyde			1.30E-04			0.21	0.21
Quinone			1.60E-04			0.26	0.26
Toluene	1.50E-04	2.90E-03	2.90E-03	0.24	4.70	4.70	4.70
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.31	1.43	1.43	1.43
Xylene	2.00E-04	2.00E-04	2.00E-04	0.32	0.32	0.32	0.32
				Total HAPs	17.27		
				Worst Single HAP	5.02		(formaldehyde)

Methodology

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

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

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
Greenhouse Gas (CO₂e) Emissions from the
Drum-Mix Plant (Dryer/Mixer) Process Emissions**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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

Maximum Hourly Asphalt Production = 370 ton/hr
Maximum Annual Asphalt Production = 3,241,200 ton/yr

Criteria Pollutant	Emission Factor (lb/ton) Drum-Mix Plant (dryer/mixer)			Global Warming Potentials (GWP)	Unlimited/Uncontrolled Potential to Emit (tons/yr) Drum-Mix Plant (dryer/mixer)			CO ₂ e for Worst Case Fuel (tons/yr)
	Natural Gas	No. 2 Fuel Oil	Waste Oil		Natural Gas	No. 2 Fuel Oil	Waste Oil	
CO ₂	33	33	33	1	53,479.80	53,479.80	53,479.80	53,888.19
CH ₄	0.0120	0.0120	0.0120	21	19.45	19.45	19.45	
N ₂ O				310	0	0	0	
				Total	53,499.25	53,499.25	53,499.25	
CO ₂ e Equivalent Emissions (tons/yr)					53,888.19	53,888.19	53,888.19	

Methodology

Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels. Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-7 and 11.1-8

There are no emission factors for N₂O available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N₂O emissions anticipated from this process.

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

Unlimited Potential to Emit CO₂e (tons/yr) = Unlimited Potential to Emit CO₂ of "worst case" fuel (ton/yr) x CO₂ GWP (1) + Unlimited Potential to Emit CH₄ of "worst case" fuel (ton/yr) x CH₄ GWP (21) + Unlimited Potential to Emit N₂O of "worst case" fuel (ton/yr) x N₂O GWP (310).

Abbreviations

CO₂ = Carbon Dioxide CH₄ = Methane N₂O = Nitrogen Dioxide PTE = Potential to Emit

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

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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

Maximum Annual Blast Furnace Slag Usage* =

810,300

 ton/yr

1.5

 % sulfur
 Maximum Annual Steel Slag Usage* =

810,300

 ton/yr

0.66

 % sulfur

Type of Slag	SO2 Emission Factor (lb/ton)**	Unlimited Potential to Emit SO2 (tons/yr)
Blast Furnace Slag	0.74	299.8
Steel Slag	0.0014	0.57

Methodology

* The maximum annual slag usage was provided by the source.

** Testing results for blast furnace slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from blast furnace slag containing 1.10% sulfur content. The source has requested a safety factor of 0.20 lb/ton be added to the tested value for use at this location to allow for a sulfur content up to 1.5%.

** Testing results for steel slag, obtained June 2009 from E & B Paving, Inc. facility located in Huntington, IN. The testing results showed a steel slag emission factor of 0.0007 lb/ton from slag containing 0.33% sulfur content.

Unlimited Potential to Emit SO2 from Slag (tons/yr) = [(Maximum Annual Slag Usage (ton/yr)) * [Emission Factor (lb/ton)] * [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: Phend & Brown, Inc.
Source Location: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

Maximum Hot Oil Heater Fuel Input Rate = 1.40 MMBtu/hr
 Natural Gas Usage = 0 MMCF/yr
 No. 2 Fuel Oil Usage = 87,600 gal/yr, and 0.50% sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		Worse Case Fuel (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)	
PM	1.9	2.0	0.000	0.088	0.09
PM10/PM2.5	7.6	3.3	0.000	0.145	0.14
SO2	0.6	71.0	0.000	3.110	3.11
NOx	100	20.0	0.000	0.876	0.88
VOC	5.5	0.20	0.000	0.009	0.01
CO	84	5.0	0.000	0.219	0.22
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	0.0E+00	2.45E-05	2.5E-05
Beryllium	1.2E-05	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Cadmium	1.1E-03	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Chromium	1.4E-03	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Cobalt	8.4E-05		0.0E+00		0.0E+00
Lead	5.0E-04	1.3E-03	0.0E+00	5.52E-05	5.5E-05
Manganese	3.8E-04	8.4E-04	0.0E+00	3.68E-05	3.7E-05
Mercury	2.6E-04	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Nickel	2.1E-03	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Selenium	2.4E-05	2.1E-03	0.0E+00	9.20E-05	9.2E-05
Benzene	2.1E-03		0.0E+00		0.0E+00
Dichlorobenzene	1.2E-03		0.0E+00		0.0E+00
Ethylbenzene					0.0E+00
Formaldehyde	7.5E-02	6.10E-02	0.0E+00	2.67E-03	2.7E-03
Hexane	1.8E+00		0.0		0.0E+00
Phenol					0.0E+00
Toluene	3.4E-03		0.0E+00		0.0E+00
Total PAH Haps	negl		negl		0.0E+00
Polycyclic Organic Matter		3.30E-03		1.45E-04	1.4E-04
Total HAPs =			0.0E+00	3.1E-03	0.003

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 5/10), 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
Greenhouse Gas (CO₂e) Emissions from
Hot Oil Heater Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

Maximum Hot Oil Heater Fuel Input Rate = 1.40 MMBtu/hr
Natural Gas Usage = 0.00 MMCF/yr
No. 2 Fuel Oil Usage = 87,600.00 gal/yr, 0.50 % sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)		Global Warming Potentials (GWP)	Potential to Emit (tons/yr)	
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)		Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)
CO ₂	120,161.84	22,501.41	1	0.00	985.56
CH ₄	2.49	0.91	21	0.00	0.04
N ₂ O	2.2	0.26	310	0.00	0.01
				0.00	985.61

Worse Case CO₂e Emissions (tons/yr)
989.93

CO ₂ e Equivalent Emissions (tons/yr)	0.00	989.93
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Methodology

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]

Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]

Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

Natural Gas: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N₂O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2

No. 2 Fuel Oil: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.3 (dated 5/10), Table 1.3-8

Emission Factor (EF) Conversions

Natural Gas: EF (lb/MMCF) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of Natural Gas (MMBtu/scf) * Conversion Factor (1,000,000 scf/MMCF)]

Fuel Oils: EF (lb/kgal) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of the Fuel Oil (MMBtu/gal) * Conversion Factor (1000 gal/kgal)]

Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]

All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]

Unlimited Potential to Emit CO₂e (tons/yr) = Unlimited Potential to Emit CO₂ of "worst case" fuel (ton/yr) x CO₂ GWP (1) + Unlimited Potential to Emit CH₄ of "worst case" fuel (ton/yr) x CH₄ GWP (21) + Unlimited Potential to Emit N₂O of "worst case" fuel (ton/yr) x N₂O GWP (310).

Abbreviations

CO₂ = Carbon Dioxide
CH₄ = Methane

N₂O = Nitrogen Dioxide
PTE = Potential to Emit

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

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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 =	3,241,200	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	0.85	0.95	NA	1.80
Organic PM	3.4E-04	2.5E-04	NA	0.55	0.411	NA	0.96
TOC	0.004	0.012	0.001	6.74	19.75	1.783	28.3
CO	0.001	0.001	3.5E-04	2.19	1.912	0.570	4.67

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

PM/HAPs	0.039	0.046	0	0.086
VOC/HAPs	0.100	0.251	0.026	0.377
non-VOC/HAPs	5.2E-04	5.3E-05	1.4E-04	7.1E-04
non-VOC/non-HAPs	0.49	0.28	0.13	0.90

Total VOCs	6.34	19.75	1.7	27.8
Total HAPs	0.14	0.30	0.026	0.46
	Worst Single HAP			0.144
				(formaldehyde)

Methodology

The asphalt temperature and volatility factor were provided by the source.
 Unlimited/Uncontrolled Potential to Emit (tons/yr) = (Maximum Annual Asphalt Production (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
 Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-14, 11.1-15, and 11.1-16
 Plant Load-Out Emission Factor Equations (AP-42 Table 11.1-14):
 Total PM/PM10/PM2.5 Ef = 0.000181 + 0.00141(-V)e^{-(0.0251)(T+460)-20.43}
 Organic PM Ef = 0.00141(-V)e^{-(0.0251)(T+460)-20.43}
 TOC Ef = 0.0172(-V)e^{-(0.0251)(T+460)-20.43}
 CO Ef = 0.00558(-V)e^{-(0.0251)(T+460)-20.43}
 Silo Filling Emission Factor Equations (AP-42 Table 11.1-14):
 PM/PM10 Ef = 0.000332 + 0.00105(-V)e^{-(0.0251)(T+460)-20.43}
 Organic PM Ef = 0.00105(-V)e^{-(0.0251)(T+460)-20.43}
 TOC Ef = 0.0504(-V)e^{-(0.0251)(T+460)-20.43}
 CO Ef = 0.00488(-V)e^{-(0.0251)(T+460)-20.43}
 On Site Yard CO emissions estimated by multiplying the TOC emissions by 0.32

*No emission factors available for PM10 or PM2.5, therefore IDEM assumes PM10 and PM2.5 are equivalent to Total PM.

Abbreviations

- TOC = Total Organic Compounds
- CO = Carbon Monoxide
- PM = Particulate Matter
- PM10 = Particulate Matter (<10 um)
- PM2.5 = Particulate Matter (<2.5 um)
- HAP = Hazardous Air Pollutant
- VOC = Volatile Organic Compound

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

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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
PAH HAPs										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	1.4E-03	1.9E-03	NA	3.4E-03
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	1.5E-04	5.8E-05	NA	2.1E-04
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	3.9E-04	5.3E-04	NA	9.2E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	1.0E-04	2.3E-04	NA	3.4E-04
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	4.2E-05	0	NA	4.2E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	1.2E-05	0	NA	1.2E-05
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	1.0E-05	0	NA	1.0E-05
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	1.3E-05	0	NA	1.3E-05
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	4.3E-05	3.9E-05	NA	8.2E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	5.7E-04	8.6E-04	NA	1.4E-03
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	2.0E-06	0	NA	2.0E-06
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	2.8E-04	0	NA	2.8E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	4.3E-03	4.2E-03	NA	8.4E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	2.6E-06	0	NA	2.6E-06
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	1.3E-02	2.2E-02	NA	0.035
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	6.9E-03	7.5E-03	NA	1.4E-02
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	1.2E-04	1.2E-04	NA	2.4E-04
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	4.5E-03	7.4E-03	NA	1.2E-02
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	8.3E-04	1.8E-03	NA	2.6E-03
Total PAH HAPs							0.033	0.046	NA	0.079
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	6.5E-03	0	0	6.5E-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
VOC		VOC	---	TOC	94%	100%	6.34	19.75	1.68	27.76
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	4.4E-01	5.1E-02	1.2E-01	0.605
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	3.1E-03	1.1E-02	8.2E-04	0.015
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	4.8E-02	2.2E-01	1.3E-02	0.278
Total non-VOC/non-HAPS					7.30%	1.40%	0.492	0.276	0.130	0.90
Volatile organic HAPS										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	3.5E-03	6.3E-03	9.3E-04	1.1E-02
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	6.5E-04	9.7E-04	1.7E-04	1.8E-03
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	3.3E-03	7.7E-03	8.7E-04	1.2E-02
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	8.8E-04	3.2E-03	2.3E-04	4.3E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	1.4E-05	7.9E-04	3.7E-06	8.1E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	1.0E-03	4.5E-03	2.7E-04	5.8E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	7.4E-03	0	2.0E-03	9.4E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	1.9E-02	7.5E-03	5.0E-03	0.031
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	5.9E-03	1.4E-01	1.6E-03	0.144
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	1.0E-02	2.0E-02	2.7E-03	0.033
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	1.2E-04	6.1E-05	3.2E-05	2.1E-04
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	5.3E-05	0	5.3E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	4.9E-04	1.1E-03	1.3E-04	1.7E-03
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	5.2E-04	0	1.4E-04	6.6E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	1.4E-02	1.2E-02	3.7E-03	0.030
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	8.8E-05	0	2.3E-05	1.1E-04
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	2.8E-02	3.9E-02	7.3E-03	0.074
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	5.4E-03	1.1E-02	1.4E-03	1.8E-02
Total volatile organic HAPS					1.50%	1.30%	0.101	0.257	0.027	0.385

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: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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	4.73	2.598	0.909
Limestone	1.6	1.85	1.72	0.581	0.203
RAP	0.5	0.58	9.07	0.958	0.335
Concrete	2.6	3.01	3.73	2.049	0.717
RAS	0.5	0.58	1.41	0.149	0.052
Shingles	0.5	0.58	2.00	0.211	0.074
Gravel	1.6	1.85	1.20	0.406	0.142
Slag	3.8	4.40	1.00	0.803	0.281
Totals				7.75	2.71

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, RAS - reclaimed asphalt shingles (ground factory second shingles)

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: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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.

$$E_f = k \cdot (0.0032)^{1.3} \cdot (U/5)^{1.3} / (M/2)^{1.4}$$

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

Maximum Annual Asphalt Production = 3,241,200 tons/yr
 Percent Asphalt Cement/Binder (weight %) = 5.0%
 Maximum Material Handling Throughput = 3,079,140 tons/yr

Type of Activity	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10 (tons/yr)	Unlimited/Uncontrolled PTE of PM2.5 (tons/yr)
Truck unloading of materials into storage piles	3.49	1.65	0.25
Front-end loader dumping of materials into feeder bins	3.49	1.65	0.25
Conveyor dropping material into dryer/mixer or batch tower	3.49	1.65	0.25
Total (tons/yr)	10.47	4.95	0.75

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), unprocessed shingles, reclaimed asphalt shingles (RAS), 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 Processing Operations, Section 11.19.2 (dated 8/04) are utilized.

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Unlimited/Uncontrolled PTE of PM (tons/yr)	Unlimited/Uncontrolled PTE of PM10/PM2.5 (tons/yr)**
Crushing	0.0054	0.0024	8.31	3.69
Screening	0.025	0.0087	38.49	13.39
Conveying	0.003	0.0011	4.62	1.69
Unlimited Potential to Emit (tons/yr) =			51.42	18.78

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, concrete, shingles, and recycled asphalt pavement (RAP)

*This source performs grinding of factory second shingles. No emission factor is available for shingle grinding. Therefore, IDEM assumes the emissions generated from the grinding of shingles are equivalent to tertiary crushing of stone.

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: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

Unpaved Roads at Industrial Site

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

Maximum Annual Asphalt Production	=	3,241,200	tons/yr
Percent Asphalt Cement/Binder (weight %)	=	5.0%	
Maximum Material Handling Throughput	=	3,079,140	tons/yr
Maximum Asphalt Cement/Binder Throughput	=	162,060	tons/yr
Maximum No. 4 Fuel Oil Usage	=	10,011,429	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.4	1.4E+05	5.4E+06	2790	0.528	72636.0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	1.4E+05	2.3E+06	2790	0.528	72636.0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	4.5E+03	2.2E+05	688	0.130	586.6
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	4.5E+03	5.4E+04	688	0.130	586.6
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	1.2E+03	5.1E+04	688	0.130	150.8
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.2E+03	1.4E+04	688	0.130	150.8
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	7.3E+05	1.4E+07	345	0.065	47903.3
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	7.3E+05	1.1E+07	345	0.065	47903.3
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	1.4E+05	5.5E+06	688	0.130	17597.4
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	1.4E+05	2.3E+06	688	0.130	17597.4
Total					2.0E+06	4.1E+07			2.8E+05

Average Vehicle Weight Per Trip	=	20.3	tons/trip
Average Miles Per Trip	=	0.137	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 =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, $E_{ext} = E * [(365 - P)/365]$

Mitigated Emission Factor, $E_{ext} = E * [(365 - P)/365]$	
where P =	125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, E_f	6.10	1.55	0.16	lb/mile
Mitigated Emission Factor, E_{ext}	4.01	1.02	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	221.37	56.42	5.64	145.56	37.10	3.71	72.78	18.55	1.85
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	221.37	56.42	5.64	145.56	37.10	3.71	72.78	18.55	1.85
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	1.788	0.456	0.05	1.175	0.300	0.03	0.588	0.150	0.01
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	1.788	0.456	0.05	1.175	0.300	0.03	0.588	0.150	0.01
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.460	0.117	0.01	0.302	0.077	0.01	0.151	0.039	0.00
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.460	0.117	0.01	0.302	0.077	0.01	0.151	0.039	0.00
Aggregate/RAP Loader Full	Front-end loader (3 CY)	145.99	37.21	3.72	96.00	24.47	2.45	48.00	12.23	1.22
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	145.99	37.21	3.72	96.00	24.47	2.45	48.00	12.23	1.22
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	53.63	13.67	1.37	35.26	8.99	0.90	17.63	4.49	0.45
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	53.63	13.67	1.37	35.26	8.99	0.90	17.63	4.49	0.45
Totals		846.48	215.74	21.57	556.59	141.85	14.19	278.30	70.93	7.09

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: Unlimited Emissions Calculations
Paved Roads**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

Paved Roads at Industrial Site

The following calculations determine the amount of emissions created by paved roads, based on 8,760 hours of use and AP-42, Ch 13.2.1 (12/2003).

Maximum Annual Asphalt Production	=	3,241,200	tons/yr
Percent Asphalt Cement/Binder (weight %)	=	5.0%	
Maximum Material Handling Throughput	=	3,079,140	tons/yr
Maximum Asphalt Cement/Binder Throughput	=	162,060	tons/yr
Maximum No.4 Fuel Oil Usage	=	10,011,429	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons)	Maximum trips per year (trip/yr)	Total Weight driven per day (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.40	1.4E+05	5.4E+06	2790	0.528	72636.0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	1.4E+05	2.3E+06	2790	0.528	72636.0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	4.5E+03	2.2E+05	688	0.130	586.6
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	4.5E+03	5.4E+04	688	0.130	586.6
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	1.2E+03	5.1E+04	688	0.130	150.8
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.2E+03	1.4E+04	688	0.130	150.8
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	7.3E+05	1.4E+07	345	0.065	47903.3
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	7.3E+05	1.1E+07	345	0.065	47903.3
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	1.4E+05	5.5E+06	688	0.130	17597.4
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	1.4E+05	2.3E+06	688	0.130	17597.4
Total				2.0E+06	4.1E+07				2.8E+05

Average Vehicle Weight Per Trip	=	20.3	tons/trip
Average Miles Per Trip	=	0.137	miles/trip

Unmitigated Emission Factor, $E_f = k * (SL)^{0.91} * (W)^{1.02}$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	
where k =	0.011	0.0022	0.00054	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
SL =	0.6	0.6	0.6	g/m ² = 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, $E_{ext} = E * [1 - (p/4N)]$

Mitigated Emission Factor, E_{ext}	=	$E_f * [1 - (p/4N)]$
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, E_f	0.15	0.03	0.01	lb/mile
Mitigated Emission Factor, E_{ext}	0.14	0.03	0.01	lb/mile
Dust Control Efficiency	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	5.40	1.08	0.27	4.94	0.99	0.24	2.47	0.49	0.12
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	5.40	1.08	0.27	4.94	0.99	0.24	2.47	0.49	0.12
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.044	0.009	2.1E-03	0.040	0.008	2.0E-03	0.020	4.0E-03	9.8E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.044	0.009	2.1E-03	0.040	0.008	2.0E-03	0.020	4.0E-03	9.8E-04
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	1.1E-02	2.2E-03	5.5E-04	1.0E-02	2.1E-03	5.0E-04	5.1E-03	1.0E-03	2.5E-04
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	1.1E-02	2.2E-03	5.5E-04	1.0E-02	2.1E-03	5.0E-04	5.1E-03	1.0E-03	2.5E-04
Aggregate/RAP Loader Full	Front-end loader (3 CY)	3.56	0.71	0.17	3.26	0.65	0.16	1.63	0.33	0.08
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	3.56	0.71	0.17	3.26	0.65	0.16	1.63	0.33	0.08
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	1.31	0.26	0.06	1.20	0.24	0.06	0.60	0.12	0.03
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	1.31	0.26	0.06	1.20	0.24	0.06	0.60	0.12	0.03
Totals		20.66	4.13	1.01	18.89	3.78	0.93	9.44	1.89	0.46

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: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

The following calculations determine the amount of VOC and HAP emissions created from volatilization of solvent used as diluent in the liquid binder for cold mix asphalt production

Maximum Annual Asphalt Production	=	3,241,200	tons/yr
Percent Asphalt Cement/Binder (weight %)	=	5.0%	
Maximum Asphalt Cement/Binder Throughput	=	162,060	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%	46,349.2	32,444.4
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	32,412.0	8,103.0
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	24,309.0	11,279.4
Other asphalt with solvent binder	25.9%	2.5%	41,973.5	1,049.3
Worst Case PTE of VOC =				32,444.4

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)*	=	26.08%
Worst Case Single HAP Content of VOC solvent (weight %)*	=	9.0% Xylenes
PTE of Total HAPs (tons/yr) =		8,462.70
PTE of Single HAP (tons/yr) =		2,920.00 Xylenes

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%		
Benzof[anthracene]	56-55-3			9.60E-7%	4.50E-7%	5.50E-4%
Benzol[a]pyrene	50-32-8			2.20E-6%	2.10E-7%	4.40E-5%
Benzol[g,h,i]perylene	191-24-2			1.20E-7%	5.70E-8%	
Biphenyl	92-52-4			6.30E-4%	7.20E-5%	
Chrysene	218-01-9			4.50E-7%	1.40E-6%	6.90E-4%
Ethylbenzene	100-41-4	1.70%		0.07%	3.40E-4%	
Fluoranthene	206-44-0		7.10E-6%	5.90E-5%	1.40E-5%	2.40E-4%
Fluorene	86-73-7		4.20E-5%	8.60E-4%	1.90E-4%	
Indeno[1,2,3-cd]pyrene	193-39-5			1.60E-7%		1.00E-4%
Methyl-tert-butylether	1634-04-4	0.33%				
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%	4.20E-5%
n-Hexane	110-54-3	2.40%				
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%	2.10E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-5%	2.30E-5%
Toluene	108-88-3	8.10%		0.18%	6.20E-4%	
Total Xylenes	1330-20-7	9.00%		0.50%	0.23%	
Total Organic HAPs		26.08%	0.33%	1.29%	0.68%	0.19%
Worst Single HAP		9.00%	0.31%	0.50%	0.23%	0.07%
		Xylenes	Naphthalene	Xylenes	Xylenes	Chrysene

Methodology

Maximum Asphalt Cement/Binder Throughput = [Annual Asphalt Production Limitation (tons/yr)] * [Percent Asphalt Cement/Binder (weight %)]
Maximum VOC Solvent Usage (tons/yr) = [Maximum Asphalt Cement/Binder Throughput (tons/yr)] * [Maximum Weight % of VOC Solvent in Binder]
PTE of VOC (tons/yr) = [Weight % VOC solvent in binder that evaporates] * [Maximum VOC Solvent Usage (tons/yr)]
PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2
Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at:
<http://www.aehs.com/publications/catalog/contents/tph.htm>

Abbreviations

VOC = Volatile Organic Compounds
PTE = Potential to Emit

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

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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:

$$\begin{aligned} \text{Gasoline Throughput} &= 0 \text{ gallons/day} \\ &= 0.0 \text{ kgal/yr} \end{aligned}$$

Volatile Organic Compounds

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.00
Tank breathing and emptying	1.0	0.00
Vehicle refueling (displaced losses - controlled)	1.1	0.00
Spillage	0.7	0.00
Total		0.00

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0% Xylenes
Limited PTE of Total HAPs (tons/yr) =	0.00
Limited PTE of Single HAP (tons/yr) =	0.00 Xylenes

Methodology

The gasoline throughput was provided by the source.
 Gasoline Throughput (kgal/yr) = [Gasoline Throughput (lbs/day)] * [365 days/yr] * [kgal/1000 gal]
 PTE of VOC (tons/yr) = [Gasoline Throughput (kgal/yr)] * [Emission Factor (lb/kgal)] * [ton/2000 lb]
 PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
 PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [PTE of VOC (tons/yr)]
 *Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2. Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at: <http://www.aehs.com/publications/catalog/contents/tph.htm>

Abbreviations

VOC = Volatile Organic Compounds
 PTE = Potential to Emit

**Appendix A.1: Unlimited Emissions Calculations
Sand & Gravel Material Storage Piles**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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	4.62	2.537	0.888
Limestone	1.6	1.85	0.60	0.203	0.071
RAP	0.5	0.58	8.51	0.899	0.315
Crushed Concrete	2.6	3.01	3.73	2.049	0.717
RAS	0.5	0.58	0.34	0.036	0.013
Shingles	0.5	0.58	0.94	0.099	0.035
Gravel	1.6	1.85	3.48	1.176	0.412
Totals				7.00	2.45

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, RAS - reclaimed asphalt shingles (ground factory second shingles)

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
Sand & Gravel Plant Material Processing, Handling, Crushing, Screening, and Conveying**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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.

$$E_f = k \cdot (0.0032)^{1.3} \cdot (U/5)^{1.3} / (M/2)^{1.4}$$

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

Maximum Material Handling Throughput = 11,125,200 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	12.61	5.96	0.90
Loading of materials into truck	12.61	5.96	0.90
Total (tons/yr)	25.22	11.93	1.81

Methodology

The percent asphalt cement/binder provided by the source.
 Maximum Material Handling Throughput (tons/yr) = [Annual Asphalt Production Limitation (tons/yr)] * [1 - Percent Asphalt Cement/Binder (weight %)]
 Unlimited Potential to Emit (tons/yr) = (Maximum Material Handling Throughput (tons/yr)) * (Emission Factor (lb/ton)) * (ton/2000 lbs)
 Raw materials may include limestone, sand, recycled asphalt pavement (RAP), unprocessed shingles, reclaimed asphalt shingles (RAS), 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 Processing Operations,

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)**
Crushing	152	0.0054	0.0024	3.60	1.60
Screening	550	0.025	0.0087	60.23	20.96
Conveying	1270	0.003	0.0011	16.69	6.12
Unlimited Potential to Emit (tons/yr) =				80.51	28.67

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, concrete, 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)
 **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
Sand & Gravel Unpaved Roads**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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 Material Handling Throughput = 11,125,200 tons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP/Shingle Truck Enter Full	Tri-axle dump truck	15.0	20.0	35	5.0E+05	1.8E+07	4900	0.928	464603.5
Aggregate RAP/Shingle Truck Leave Empty	Tri-axle dump truck	15.0	0	15.0	5.0E+05	7.5E+06	4900	0.928	464603.5
RAP/Shingle Truck Enter Full	Semi tractor	15.0	25.0	40.0	4.5E+04	1.8E+06	3800	0.720	32027.1
RAP/Shingle Truck Leave Empty	Semi tractor	15.0	0	15.0	4.5E+04	6.7E+05	3800	0.720	32027.1
Aggregate/RAP/Shingle Truck Leave Full	Tri-axle dump truck	15.0	20.0	35.0	3.9E+05	1.4E+07	3800	0.720	280237.0
Aggregate/RAP/Shingle Truck Enter Empty	Tri-axle dump truck	15.0	0	15.0	3.9E+05	5.8E+06	3800	0.720	280237.0
Processed Sand and Gravel Truck Leave Full	Semi tractor	15.0	25.0	40.0	1.3E+05	5.3E+06	1000	0.189	25284.5
Processed Sand and Gravel Truck Enter Empty	Semi tractor	15.0	0	15.0	1.3E+05	2.0E+06	1000	0.189	25284.5
Total					2.1E+06	5.4E+07			1.6E+06

Average Vehicle Weight Per Trip = 25.4 tons/trip
Average Miles Per Trip = 0.751 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 =	25.4	25.4	25.4	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 =	6.75	1.72	0.17	lb/mile
Mitigated Emission Factor, E_{ext} =	4.44	1.13	0.11	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/Shingle Truck Enter Full	Tri-axle dump truck	1567.80	395.57	39.96	1030.88	262.73	26.27	515.44	131.37	13.14
Aggregate RAP/Shingle Truck Leave Empty	Tri-axle dump truck	1567.80	395.57	39.96	1030.88	262.73	26.27	515.44	131.37	13.14
RAP/Shingle Truck Enter Full	Semi tractor	108.075	27.544	2.75	71.063	18.111	1.81	35.531	9.056	0.91
RAP/Shingle Truck Leave Empty	Semi tractor	108.075	27.544	2.75	71.063	18.111	1.81	35.531	9.056	0.91
Aggregate/RAP/Shingle Truck Leave Full	Tri-axle dump truck	945.654	241.013	24.10	621.800	158.474	15.85	310.900	79.237	7.92
Aggregate/RAP/Shingle Truck Enter Empty	Tri-axle dump truck	945.654	241.013	24.10	621.800	158.474	15.85	310.900	79.237	7.92
Processed Sand and Gravel Truck Leave Full	Semi tractor	85.32	21.75	2.17	56.10	14.30	1.43	28.05	7.15	0.71
Processed Sand and Gravel Truck Enter Empty	Semi tractor	85.32	21.75	2.17	56.10	14.30	1.43	28.05	7.15	0.71
Totals		5413.69	1379.75	137.98	3559.69	907.23	90.72	1779.84	453.62	45.36

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
Entire Source - Drum Mix**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

Asphalt Plant Limitations - Drum Mix

Maximum Hourly Asphalt Production =	370	ton/hr									
Annual Asphalt Production Limitation =	780,000	ton/yr									
Blast Furnace Slag Usage Limitation =	50,000	ton/yr	1.50	% sulfur							
Steel Slag Usage Limitation =	26,428,571		0.66	% sulfur							
Natural Gas Limitation =	1,032.88	MMCF/yr									
No. 2 Fuel Oil Limitation =	0	gal/yr, and	0.50	% sulfur							
No. 4 Fuel Oil Limitation =	2,063,739	gal/yr, and	0.50	% sulfur							
Residual (No. 5 or No. 6) Fuel Oil Limitation =	0	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 =	750,000	gal/yr, and	1.20	% sulfur	1.00	% ash	0.400	% chlorine,	0.010	% lead	
PM Dryer/Mixer Limitation =	0.111	lb/ton of asphalt production									
PM10 Dryer/Mixer Limitation =	0.0501	lb/ton of asphalt production									
PM2.5 Dryer/Mixer Limitation =	0.0501	lb/ton of asphalt production									
CO Dryer/Mixer Limitation =	0.130	lb/ton of asphalt production									
VOC Dryer/Mixer Limitation =	0.032	lb/ton of asphalt production									
Blast Furnace Slag SO2 Dryer/Mixer Limitation =	0.740	lb/ton of slag processed									
Steel Slag SO2 Dryer/Mixer Limitation =	0.0014	lb/ton of slag processed									
Cold Mix Asphalt VOC Usage Limitation =	48.22	tons/yr									
HCl Limitation =	26.4	lb/kgal									

Limited/Controlled Emissions

Process Description	Limited/Controlled Potential Emissions (tons/year)									
	Criteria Pollutants							Greenhouse Gas Pollutants	Hazardous Air Pollutants	
	PM	PM10	PM2.5	SO2	NOx	VOC	CO	CO ₂ e	Total HAPs	Worst Case HAP
Ducted Emissions										
Dryer Fuel Combustion (worst case)	24.00	19.13	19.13	77.39	98.12	2.84	43.38	62,435.89	11.28	9.90 (hydrogen chloride)
Dryer/Mixer (Process)	43.25	19.54	19.54	22.62	21.45	12.48	50.70	12,968	4.16	1.21 (formaldehyde)
Dryer/Mixer Slag Processing	0	0	0	18.50	0	0	0	0	0	0
Hot Oil Heater Fuel Combustion (worst case)	0.09	0.14	0.14	3.11	0.88	0.01	0.22	989.93	0.003	0.003 (hexane)
Worst Case Emissions*	43.34	19.68	19.68	99.00	99.00	12.49	50.92	63,425.82	11.28	9.90 (hydrogen chloride)
Fugitive Emissions										
Asphalt Load-Out, Silo Filling, On-Site Yard	0.43	0.43	0.43	0	0	6.68	1.12	0	0.11	0.03 (formaldehyde)
Material Storage Piles	7.75	2.71	2.71	0	0	0	0	0	0	0
Material Processing and Handling	2.52	1.19	0.18	0	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	12.37	4.52	4.52	0	0	0	0	0	0	0
Unpaved and Paved Roads (worst case)	66.96	17.07	1.71	0	0	0	0	0	0	0
Cold Mix Asphalt Production	0	0	0	0	0	48.22	0	0	12.58	4.34 (xylenes)
Gasoline Fuel Transfer and Dispensing	0	0	0	0	0	0	0	0	0	0
Volatile Organic Liquid Storage Vessels	0	0	0	0	0	negl	0	0	negl	negl
Fugitive Emissions (Sand & Gravel Plant)										
Material Storage Piles	7.00	2.45	2.45	0	0	0	0	0	0	0
Material Processing and Handling	1.38	0.65	0.10	0	0	0	0	0	0	0
Material Crushing, Screening, and Conveying	10.14	3.70	3.70	0	0	0	0	0	0	0
Unpaved Roads	97.11	24.75	2.47	0	0	0	0	0	0	0
Total Fugitive Emissions	205.66	57.48	18.28	0	0	54.90	1.12	0	12.69	4.34 (xylenes)
Totals Limited/Controlled Emissions	249.00	77.16	37.96	99.00	99.00	67.39	52.04	63,425.82	23.97	9.90 (hydrogen chloride)

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: Phend & Brown, Inc.
 Source Address: 76 West 600 North, Leesburg, IN 46538
 Permit Number: 085-31423-00110
 Reviewer: Brian Williams

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 =	370	ton/hr
Annual Asphalt Production Limitation =	780,000	ton/yr
Natural Gas Limitation =	1,033	MMCF/yr
No. 2 Fuel Oil Limitation =	0	gal/yr, and
No. 4 Fuel Oil Limitation =	2,063,739	gal/yr, and
Residual (No. 5 or No. 6) Fuel Oil Limitation =	0	gal/yr, and
Propane Limitation =	0	gal/yr, and
Butane Limitation =	0	gal/yr, and
Used/Waste Oil Limitation =	750,000	gal/yr, and

	0.50	% sulfur
	0.50	% sulfur
	0.50	% sulfur
	0.20	gr/100 ft3 sulfur
	0.22	gr/100 ft3 sulfur
	1.20	% sulfur
	1.00	% ash
	0.400	% chlorine
	0.010	% lead

Limited Emissions

Criteria Pollutant	Emission Factor (units)							Limited 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)	Residual (No. 5 or No. 6) Fuel Oil (tons/yr)	Propane (tons/yr)	Butane (tons/yr)	Used/Waste Oil (tons/yr)	Worse Case Fuel (tons/yr)
PM	1.9	2	7	7.815	0.5	0.6	64	0.98	0	7.22	0	0	0	24.00	24.00
PM10	7.6	3.3	8.3	9.315	0.5	0.6	51	3.92	0	8.56	0	0	0	19.13	19.13
SO2	0.6	71.0	75.0	78.5	0.020	0.020	176.4	0.31	0	77.39	0	0	0	66.15	77.39
NOx	190	24.0	47.0	47.0	13.0	15.0	19.0	98.12	0	48.50	0	0	0	7.13	98.12
VOC	5.5	0.20	0.20	0.28	1.00	1.10	1.0	2.84	0	0.21	0	0	0	0.38	2.84
CO	84	5.0	5.0	5.0	7.5	8.4	5.0	43.38	0	5.16	0	0	0	1.88	43.38
Hazardous Air Pollutant															
HCl							26.4							9.90	9.90
Antimony			5.25E-03	5.25E-03						5.42E-03	0			negl	5.4E-03
Arsenic	2.0E-04	5.6E-04	1.32E-03	1.32E-03			1.1E-01	1.0E-04	0	1.36E-03	0			4.13E-02	4.1E-02
Beryllium	1.2E-05	4.2E-04	2.78E-05	2.78E-05			negl	6.2E-06	0	2.87E-05	0			negl	2.9E-05
Cadmium	1.1E-03	4.2E-04	3.98E-04	3.98E-04			9.3E-03	5.7E-04	0	4.11E-04	0			3.49E-03	3.5E-03
Chromium	1.4E-03	4.2E-04	8.45E-04	8.45E-04			2.0E-02	7.2E-04	0	8.72E-04	0			7.50E-03	7.5E-03
Cobalt	8.4E-05		6.02E-03	6.02E-03			2.1E-04	4.3E-05		6.21E-03	0			7.88E-05	6.2E-03
Lead	5.0E-04	1.3E-03	1.51E-03	1.51E-03			0.55	2.6E-04	0	1.56E-03	0			2.1E-01	0.21
Manganese	3.8E-04	8.4E-04	3.00E-03	3.00E-03			6.8E-02	2.0E-04	0	3.10E-03	0			2.55E-02	0.03
Mercury	2.6E-04	4.2E-04	1.13E-04	1.13E-04				1.3E-04	0	1.17E-04	0				1.3E-04
Nickel	2.1E-03	4.2E-04	8.45E-02	8.45E-02			1.1E-02	1.1E-03	0	8.72E-02	0			4.13E-03	0.087
Selenium	2.4E-05	2.1E-03	6.83E-04	6.83E-04			negl	1.2E-05	0	7.06E-04	0			negl	7.0E-04
1,1,1-Trichloroethane			2.36E-04	2.36E-04						2.44E-04	0				2.4E-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				1.1E-03		2.21E-04	0				1.1E-03
Bis(2-ethylhexyl)phthalate							2.2E-03							8.25E-04	8.3E-04
Dichlorobenzene	1.2E-03						8.0E-07	6.2E-04						3.00E-07	6.2E-04
Ethylbenzene			6.36E-05	6.36E-05						6.56E-05	0				6.6E-05
Formaldehyde	7.5E-02	6.10E-02	3.30E-02	3.30E-02				3.9E-02	0	3.41E-02	0				0.039
Hexane	1.8E+00							0.93							0.930
Phenol							2.4E-03							9.00E-04	9.0E-04
Toluene	3.4E-03		6.20E-03	6.20E-03				1.8E-03		6.40E-03	0				6.4E-03
Total PAH Haps	negl		1.13E-03	1.13E-03			3.9E-02	negl		1.17E-03	0			1.47E-02	1.5E-02
Polycyclic Organic Matter		3.30E-03							0						0.0E+00
Xylene			1.09E-04	1.09E-04						1.12E-04	0				1.1E-04
Total HAPs								0.97	0	0.15	0	0	0	10.20	11.28

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 5/10), Tables 1.3-1, 1.3-2, 1.3-3, 1.3-8, 1.3-9, 1.3-10, and 1.3-11
- Propane and Butane: AP-42 Chapter 1.5 (dated 7/08), Tables 1.5-1 (assuming PM = PM10)
- Waste Oil: AP-42 Chapter 1.11 (dated 10/96), Tables 1.11-1, 1.11-2, 1.11-3, 1.11-4, and 1.11-5

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

Abbreviations

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

**Appendix A.2: Limited Emissions Summary
Greenhouse Gas (CO₂e) Emissions from the
Dryer/Mixer Fuel Combustion with Maximum Capacity ≥ 100 MMBtu/hr**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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	=	370	ton/hr						
Annual Asphalt Production Limitation	=	780,000	ton/yr						
Natural Gas Limitation	=	1,033	MMCF/yr						
No. 2 Fuel Oil Limitation	=	0	gal/yr, and	0.50	% sulfur				
No. 4 Fuel Oil Limitation	=	2,063,739	gal/yr, and	0.50	% sulfur				
Residual (No. 5 or No. 6) Fuel Oil Limitation	=	0	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	=	750,000	gal/yr, and	1.20	% sulfur	1.00	% ash	0.400	% chlorine, 0.010 % lead

Limited Emissions

CO ₂ e Fraction	Emission Factor (units)							Global Warming Potentials (GWP)		
	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)	Name	Chemical Formula	Global warming potential
CO ₂	120,161.84	22,501.41	24,153.46	24,835.04	12,500.00	14,506.73	22,024.15	Carbon dioxide	CO ₂	1
CH ₄	2.49	0.91	0.97	1.00	0.60	0.67	0.89	Methane	CH ₄	21
N ₂ O	2.20	0.26	0.19	0.53	0.90	0.90	0.18	Nitrous oxide	N ₂ O	310

CO ₂ e Fraction	Limited Potential to Emit (tons/yr)						
	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)
CO ₂	62,056.64	0.00	24,923.22	0.00	0.00	0.00	8,259.06
CH ₄	1.29	0.00	1.00	0.00	0.00	0.00	0.33
N ₂ O	1.14	0.00	0.20	0.00	0.00	0.00	0.07
Total	62,059.06	0.00	24,924.41	0.00	0.00	0.00	8,259.46

CO₂e for Worst Case Fuel* (tons/yr)
62,435.89

CO ₂ e Equivalent Emissions (tons/yr)	62,435.89	0.00	25,005.92	0.00	0.00	0.00	8,287.01
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Methodology

Fuel Limitations from TSD Appendix A.2, page 1 of 15.

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.

Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)

Natural Gas: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N₂O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2

No. 2, 4, and Residual (No. 5 or No. 6) Fuel Oil: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.3 (dated 5/10), Table 1.3-8

Propane and Butane: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.5 (dated 7/08), Table 1.5-1

Waste Oil: Emission Factors for CO₂, CH₄, and N₂O from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal.

Emission Factor (EF) Conversions

Natural Gas: EF (lb/MMCF) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of Natural Gas (MMBtu/scf) * Conversion Factor (1,000,000 scf/MMCF)]

Fuel Oils: EF (lb/kgal) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of the Fuel Oil (MMBtu/gal) * Conversion Factor (1000 gal/kgal)]

Natural Gas: Limited Potential to Emit (tons/yr) = (Natural Gas Limitation (MMCF/yr)) * (Emission Factor (lb/MMCF)) * (ton/2000 lbs)

All Other Fuels: Limited Potential to Emit (tons/yr) = (Fuel Limitation (gals/yr)) * (Emission Factor (lb/kgal)) * (kgal/1000 gal) * (ton/2000 lbs)

Limited CO₂e Emissions (tons/yr) = CO₂ Potential Emission of "worst case" fuel (ton/yr) x CO₂ GWP (1) + CH₄ Potential Emission of "worst case" fuel (ton/yr) x CH₄ GWP (21) + N₂O Potential Emission of "worst case" fuel (ton/yr) x N₂O GWP (310).

Abbreviations

CH₄ = Methane

CO₂ = Carbon Dioxide

N₂O = Nitrogen Dioxide

PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary
Dryer/Mixer**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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

Maximum Hourly Asphalt Production	370	ton/hr
Annual Asphalt Production Limitation	780,000	ton/yr
PM Dryer/Mixer Limitation	0.111	lb/ton of asphalt production
PM10 Dryer/Mixer Limitation	0.050	lb/ton of asphalt production
PM2.5 Dryer/Mixer Limitation	0.050	lb/ton of asphalt production
CO Dryer/Mixer Limitation	0.130	lb/ton of asphalt production
VOC Dryer/Mixer Limitation	0.032	lb/ton of asphalt production

Criteria Pollutant	Emission Factor or Limitation (lb/ton)			Limited/Controlled Potential to Emit (tons/yr)			Worse Case PTE
	Drum-Mix Plant (dryer/mixer, controlled by fabric filter)			Drum-Mix Plant (dryer/mixer, controlled by fabric filter)			
	Natural Gas	No. 2 Fuel Oil	Waste Oil	Natural Gas	No. 2 Fuel Oil	Waste Oil	
PM*	0.111	0.111	0.111	43.3	43.3	43.3	43.3
PM10*	0.050	0.050	0.050	19.5	19.5	19.5	19.5
PM2.5*	0.050	0.050	0.050	19.5	19.5	19.5	19.5
SO2**	0.003	0.011	0.058	1.3	4.3	22.6	22.6
NOx**	0.026	0.055	0.055	10.1	21.5	21.5	21.5
VOC**	0.032	0.032	0.032	12.5	12.5	12.5	12.5
CO***	0.130	0.130	0.130	50.7	50.7	50.7	50.7
Hazardous Air Pollutant							
HCl			2.10E-04			0.08	0.08
Antimony	1.80E-07	1.80E-07	1.80E-07	7.02E-05	7.02E-05	7.02E-05	7.02E-05
Arsenic	5.60E-07	5.60E-07	5.60E-07	2.18E-04	2.18E-04	2.18E-04	2.18E-04
Beryllium	negl	negl	negl	negl	negl	negl	0.00E+00
Cadmium	4.10E-07	4.10E-07	4.10E-07	1.60E-04	1.60E-04	1.60E-04	1.60E-04
Chromium	5.50E-06	5.50E-06	5.50E-06	2.15E-03	2.15E-03	2.15E-03	2.15E-03
Cobalt	2.60E-08	2.60E-08	2.60E-08	1.01E-05	1.01E-05	1.01E-05	1.01E-05
Lead	6.20E-07	1.50E-05	1.50E-05	2.42E-04	5.85E-03	5.85E-03	5.85E-03
Manganese	7.70E-06	7.70E-06	7.70E-06	3.00E-03	3.00E-03	3.00E-03	3.00E-03
Mercury	2.40E-07	2.60E-06	2.60E-06	9.36E-05	1.01E-03	1.01E-03	1.01E-03
Nickel	6.30E-05	6.30E-05	6.30E-05	2.46E-02	2.46E-02	2.46E-02	2.46E-02
Selenium	3.50E-07	3.50E-07	3.50E-07	1.37E-04	1.37E-04	1.37E-04	1.37E-04
2,2,4 Trimethylpentane	4.00E-05	4.00E-05	4.00E-05	1.56E-02	1.56E-02	1.56E-02	1.56E-02
Acetaldehyde			1.30E-03			0.51	0.51
Acrolein			2.60E-05			1.01E-02	1.01E-02
Benzene	3.90E-04	3.90E-04	3.90E-04	0.15	0.15	0.15	0.15
Ethylbenzene	2.40E-04	2.40E-04	2.40E-04	0.09	0.09	0.09	0.09
Formaldehyde	3.10E-03	3.10E-03	3.10E-03	1.21	1.21	1.21	1.21
Hexane	9.20E-04	9.20E-04	9.20E-04	0.36	0.36	0.36	0.36
Methyl chloroform	4.80E-05	4.80E-05	4.80E-05	0.02	0.02	0.02	0.02
MEK			2.00E-05			0.01	0.01
Propionaldehyde			1.30E-04			0.05	0.05
Quinone			1.60E-04			0.06	0.06
Toluene	1.50E-04	2.90E-03	2.90E-03	0.06	1.13	1.13	1.13
Total PAH Haps	1.90E-04	8.80E-04	8.80E-04	0.07	0.34	0.34	0.34
Xylene	2.00E-04	2.00E-04	2.00E-04	0.08	0.08	0.08	0.08
Total HAPs							4.16
Worst Single HAP							1.209 (formaldehyde)

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

Emission Factors from AP-42 Chapter 11.1 (dated 3/04), Tables 11.1-3, 11.1-4, 11.1-7, 11.1-8, 11.1-10, and 11.1-12

Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

* PM, PM10, and PM2.5 AP-42 emission factors based on drum mix dryer fired with natural gas, propane, fuel oil, and waste oil. According to AP-42 fuel type does not significantly effect PM, PM10, and PM2.5 emissions.

** SO2, NOx, and VOC AP-42 emission factors are for natural gas, No. 2 fuel oil, and waste oil only.

*** CO AP-42 emission factor determined by combining data from drum mix dryer fired with natural gas, No. 6 fuel oil, and No. 2 fuel oil to develop single CO emission factor.

Abbreviations

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

**Appendix A.2: Limited Emissions Summary
Greenhouse Gas (CO₂e) Emissions from the
Drum-Mix Plant (Dryer/Mixer) Process Emissions**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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

Maximum Hourly Asphalt Production = 370 ton/hr
 Annual Asphalt Production Limitation = 780,000 ton/yr

Criteria Pollutant	Emission Factor (lb/ton) Drum-Mix Plant (dryer/mixer)			Global Warming Potentials (GWP)	Limited Potential to Emit (tons/yr) Drum-Mix Plant (dryer/mixer)			CO ₂ e for Worst Case Fuel (tons/yr)
	Natural Gas	No. 2 Fuel Oil	Waste Oil		Natural Gas	No. 2 Fuel Oil	Waste Oil	
CO ₂	33	33	33	1	12,870.00	12,870.00	12,870.00	12,968.28
CH ₄	0.0120	0.0120	0.0120	21	4.68	4.68	4.68	
N ₂ O				310	0	0	0	
				Total	12,874.68	12,874.68	12,874.68	
CO₂e Equivalent Emissions (tons/yr)					12,968.28	12,968.28	12,968.28	

Methodology

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

There are no emission factors for N₂O available in either the 40 CFR 98, Subpart C or AP-42 Chapter 11.1. Therefore, it is assumed that there are no N₂O emission anticipated from this process.

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

Natural gas, No. 2 fuel oil, and waste oil represent the worst possible emissions scenario. AP-42 did not provide emission factors for any other fuels.

Limited CO₂e Emissions (tons/yr) = CO₂ Potential Emission of "worst case" fuel (ton/yr) x CO₂ GWP (1) + CH₄ Potential Emission of "worst case" fuel (ton/yr) x CH₄ GWP (21) + N₂O Potential Emission of "worst case" fuel (ton/yr) x N₂O GWP (310).

Abbreviations

CO₂ = Carbon Dioxide CH₄ = Methane N₂O = Nitrogen Dioxide PTE = Potential to Emit

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

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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

Limited Blast Furnace Slag Usage =

50,000

 ton/yr

1.50

 % sulfur
 Limited Annual Steel Slag Usage =

26,428,571

 ton/yr

0.66

 % sulfur

Type of Slag	SO2 Emission Factor (lb/ton)*	Limited Potential to Emit SO2 (tons/yr)
Blast Furnace Slag	0.7400	18.50
Steel Slag	0.0014	18.50

Methodology

* Testing results for blast furnace slag, obtained January 9, 2009 from similar operations at Rieth-Riley Construction Co., Inc. facility located in Valparaiso, IN (permit #127-27075-05241), produced an Emission Factor of 0.54 lb/ton from blast furnace slag containing 1.10% sulfur content. The source has requested a safety factor of 0.20 lb/ton be added to the tested value for use at this location to allow for a sulfur content up to 1.5%.

** Testing results for steel slag, obtained June 2009 from E & B Paving, Inc. facility located in Huntington, IN. The testing results showed a steel slag emission factor of 0.0007 lb/ton from slag containing 0.33% sulfur content.

Limited Potential to Emit SO2 from Slag (tons/yr) = [(Limited Slag Usage (ton/yr)) * [Emission Factor (lb/ton)] * [ton/2000 lbs]

Abbreviations

SO2 = Sulfur Dioxide

Appendix A.2: Limited Emissions Summary
Hot Oil Heater
Fuel Combustion with Maximum Capacity < 100 MMBtu/hr

Company Name: Phend & Brown, Inc.
Source Location: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

Maximum Hot Oil Heater Fuel Input Rate = 1.40 MMBtu/hr
 Natural Gas Usage = 0 MMCF/yr
 No. 2 Fuel Oil Usage = 87,600 gal/yr, and 0.50 % sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)		Unlimited/Uncontrolled Potential to Emit (tons/yr)		Worse Case Fuel (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)	
PM	1.9	2.0	0.000	0.088	0.09
PM10/PM2.5	7.6	3.3	0.000	0.145	0.14
SO2	0.6	71.0	0.000	3.110	3.11
NOx	100	20.0	0.000	0.876	0.88
VOC	5.5	0.20	0.000	0.009	0.01
CO	84	5.0	0.000	0.219	0.22
Hazardous Air Pollutant					
Arsenic	2.0E-04	5.6E-04	0.0E+00	2.45E-05	2.5E-05
Beryllium	1.2E-05	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Cadmium	1.1E-03	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Chromium	1.4E-03	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Cobalt	8.4E-05		0.0E+00		0.0E+00
Lead	5.0E-04	1.3E-03	0.0E+00	5.52E-05	5.5E-05
Manganese	3.8E-04	8.4E-04	0.0E+00	3.68E-05	3.7E-05
Mercury	2.6E-04	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Nickel	2.1E-03	4.2E-04	0.0E+00	1.84E-05	1.8E-05
Selenium	2.4E-05	2.1E-03	0.0E+00	9.20E-05	9.2E-05
Benzene	2.1E-03		0.0E+00		0.0E+00
Dichlorobenzene	1.2E-03		0.0E+00		0.0E+00
Ethylbenzene					0
Formaldehyde	7.5E-02	6.10E-02	0.0E+00	2.67E-03	0.003
Hexane	1.8E+00		0.00		0.000
Phenol					0
Toluene	3.4E-03		0.0E+00		0.0E+00
Total PAH Haps	negl		negl		0
Polycyclic Organic Matter		3.30E-03		1.45E-04	1.4E-04
Total HAPs =			0.0E+00	3.1E-03	0.003

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 5/10), 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
Greenhouse Gas (CO₂e) Emissions from
Hot Oil Heater Fuel Combustion with Maximum Capacity < 100 MMBtu/hr**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

Maximum Hot Oil Heater Fuel Input Rate = 1.40 MMBtu/hr
Natural Gas Usage = 0.00 MMCF/yr
No. 2 Fuel Oil Usage = 87,600.00 gal/yr, 0.50 % sulfur

Unlimited/Uncontrolled Emissions

Criteria Pollutant	Emission Factor (units)		Global Warming Potentials (GWP)	to Emit (tons/yr)	
	Natural Gas (lb/MMCF)	No. 2 Fuel Oil (lb/kgal)		Natural Gas (tons/yr)	No. 2 Fuel Oil (tons/yr)
CO ₂	120,161.84	22,501.41	1	0.00	985.56
CH ₄	2.49	0.91	21	0.000	4.00E-02
N ₂ O	2.20	0.26	310	0.000	1.14E-02
Total				0.00	985.61

Worse Case CO₂e Emissions (tons/yr)
989.93

CO ₂ e Equivalent Emissions (tons/yr)	0.00	989.93
--------------------------------------------------	------	--------

Methodology

Global Warming Potentials (GWP) from Table A-1 of 40 CFR Part 98 Subpart A.
Sources of Emission Factors for fuel combustion: (Note: To form a conservative estimate, the "worst case" emission factors have been used.)
Natural Gas : Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/MMCF. Emission Factor for N₂O from AP-42 Chapter 1.4 (dated 7/98), Table 1.4-2
No. 2 Fuel Oil: Emission Factors for CO₂ and CH₄ from 40 CFR Part 98 Subpart C, Tables C-1 and 2, have been converted from kg/mmBtu to lb/kgal. Emission Factor for N₂O from AP-42 Chapter 1.3 (dated 5/10), Table 1.3-8
Emission Factor (EF) Conversions
Natural Gas: EF (lb/MMCF) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of Natural Gas (MMBtu/scf) * Conversion Factor (1,000,000 scf/MMCF)]
Fuel Oils: EF (lb/kgal) = [EF (kg/MMBtu) * Conversion Factor (2.20462 lbs/kg) * Heating Value of the Fuel Oil (MMBtu/gal) * Conversion Factor (1000 gal/kgal)]
Equivalent Natural Gas Usage (MMCF/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 MMCF/1,000 MMBtu]
Equivalent Oil Usage (gal/yr) = [Maximum Fuel Input Rate (MMBtu/hr)] * [8,760 hrs/yr] * [1 gal/0.140 MMBtu]
Natural Gas: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Natural Gas Usage (MMCF/yr)] * [Emission Factor (lb/MMCF)] * [ton/2000 lbs]
All Other Fuels: Unlimited/Uncontrolled Potential to Emit (tons/yr) = [Maximum Fuel Usage (gals/yr)] * [Emission Factor (lb/kgal)] * [kgal/1000 gal] * [ton/2000 lbs]
Unlimited Potential to Emit CO₂e (tons/yr) = Unlimited Potential to Emit CO₂ of "worst case" fuel (ton/yr) x CO₂ GWP (1) + Unlimited Potential to Emit CH₄ of "worst case" fuel (ton/yr) x CH₄ GWP (21) + Unlimited Potential to Emit N₂O of "worst case" fuel (ton/yr) x N₂O GWP (310).

Abbreviations

CH₄ = Methane
CO₂ = Carbon Dioxide
N₂O = Nitrogen Dioxide
PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary
Asphalt Load-Out, Silo Filling, and Yard Emissions**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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 =	780,000	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	0.20	0.23	NA	0.43
Organic PM	3.4E-04	2.5E-04	NA	0.13	0.099	NA	0.23
TOC	0.004	0.012	0.001	1.62	4.75	0.429	6.8
CO	0.001	0.001	3.5E-04	0.53	0.460	0.137	1.12

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

	PM/HAPs	VOC/HAPs	non-VOC/HAPs	non-VOC/non-HAPs
	0.009	0.011	0	0.021
	0.024	0.060	0.006	0.091
	1.2E-04	1.3E-05	3.3E-05	1.7E-04
	0.12	0.07	0.03	0.22

	Total VOCs	Total HAPs	Worst Single HAP
	1.52	0.03	0.035 (formaldehyde)
	4.75	0.07	
	0.4	0.006	
	6.7	0.11	

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: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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
PAH HAPs										
Acenaphthene	83-32-9	PM/HAP	POM	Organic PM	0.26%	0.47%	3.5E-04	4.7E-04	NA	8.1E-04
Acenaphthylene	208-96-8	PM/HAP	POM	Organic PM	0.028%	0.014%	3.7E-05	1.4E-05	NA	5.1E-05
Anthracene	120-12-7	PM/HAP	POM	Organic PM	0.07%	0.13%	9.3E-05	1.3E-04	NA	2.2E-04
Benzo(a)anthracene	56-55-3	PM/HAP	POM	Organic PM	0.019%	0.056%	2.5E-05	5.5E-05	NA	8.1E-05
Benzo(b)fluoranthene	205-99-2	PM/HAP	POM	Organic PM	0.0076%	0	1.0E-05	0	NA	1.0E-05
Benzo(k)fluoranthene	207-08-9	PM/HAP	POM	Organic PM	0.0022%	0	2.9E-06	0	NA	2.9E-06
Benzo(g,h,i)perylene	191-24-2	PM/HAP	POM	Organic PM	0.0019%	0	2.5E-06	0	NA	2.5E-06
Benzo(a)pyrene	50-32-8	PM/HAP	POM	Organic PM	0.0023%	0	3.1E-06	0	NA	3.1E-06
Benzo(e)pyrene	192-97-2	PM/HAP	POM	Organic PM	0.0078%	0.0095%	1.0E-05	9.4E-06	NA	2.0E-05
Chrysene	218-01-9	PM/HAP	POM	Organic PM	0.103%	0.21%	1.4E-04	2.1E-04	NA	3.4E-04
Dibenz(a,h)anthracene	53-70-3	PM/HAP	POM	Organic PM	0.00037%	0	4.9E-07	0	NA	4.9E-07
Fluoranthene	206-44-0	PM/HAP	POM	Organic PM	0.05%	0.15%	6.6E-05	1.5E-04	NA	2.2E-04
Fluorene	86-73-7	PM/HAP	POM	Organic PM	0.77%	1.01%	1.0E-03	1.0E-03	NA	2.0E-03
Indeno(1,2,3-cd)pyrene	193-39-5	PM/HAP	POM	Organic PM	0.00047%	0	6.2E-07	0	NA	6.2E-07
2-Methylnaphthalene	91-57-6	PM/HAP	POM	Organic PM	2.38%	5.27%	3.2E-03	5.2E-03	NA	0.008
Naphthalene	91-20-3	PM/HAP	POM	Organic PM	1.25%	1.82%	1.7E-03	1.8E-03	NA	3.5E-03
Perylene	198-55-0	PM/HAP	POM	Organic PM	0.022%	0.03%	2.9E-05	3.0E-05	NA	5.9E-05
Phenanthrene	85-01-8	PM/HAP	POM	Organic PM	0.81%	1.80%	1.1E-03	1.8E-03	NA	2.9E-03
Pyrene	129-00-0	PM/HAP	POM	Organic PM	0.15%	0.44%	2.0E-04	4.4E-04	NA	6.4E-04
Total PAH HAPs							0.008	0.011	NA	0.019
Other semi-volatile HAPs										
Phenol		PM/HAP	---	Organic PM	1.18%	0	1.6E-03	0	0	1.6E-03

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

Methodology

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

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

Abbreviations

PM = Particulate Matter

HAP = Hazardous Air Pollutant

POM = Polycyclic Organic Matter

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

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
VOC		VOC	---	TOC	94%	100%	1.52	4.75	0.40	6.68
non-VOC/non-HAPS										
Methane	74-82-8	non-VOC/non-HAP	---	TOC	6.50%	0.26%	1.1E-01	1.2E-02	2.8E-02	0.146
Acetone	67-64-1	non-VOC/non-HAP	---	TOC	0.046%	0.055%	7.5E-04	2.6E-03	2.0E-04	0.004
Ethylene	74-85-1	non-VOC/non-HAP	---	TOC	0.71%	1.10%	1.2E-02	5.2E-02	3.0E-03	0.067
Total non-VOC/non-HAPS					7.30%	1.40%	0.118	0.067	0.031	0.22
Volatile organic HAPs										
Benzene	71-43-2	VOC/HAP	---	TOC	0.052%	0.032%	8.4E-04	1.5E-03	2.2E-04	2.6E-03
Bromomethane	74-83-9	VOC/HAP	---	TOC	0.0096%	0.0049%	1.6E-04	2.3E-04	4.1E-05	4.3E-04
2-Butanone	78-93-3	VOC/HAP	---	TOC	0.049%	0.039%	7.9E-04	1.9E-03	2.1E-04	
Carbon Disulfide	75-15-0	VOC/HAP	---	TOC	0.013%	0.016%	2.1E-04	7.6E-04	5.6E-05	1.0E-03
Chloroethane	75-00-3	VOC/HAP	---	TOC	0.00021%	0.004%	3.4E-06	1.9E-04	9.0E-07	1.9E-04
Chloromethane	74-87-3	VOC/HAP	---	TOC	0.015%	0.023%	2.4E-04	1.1E-03	6.4E-05	1.4E-03
Cumene	92-82-8	VOC/HAP	---	TOC	0.11%	0	1.8E-03	0	4.7E-04	2.3E-03
Ethylbenzene	100-41-4	VOC/HAP	---	TOC	0.28%	0.038%	4.5E-03	1.8E-03	1.2E-03	0.008
Formaldehyde	50-00-0	VOC/HAP	---	TOC	0.088%	0.69%	1.4E-03	3.3E-02	3.8E-04	0.035
n-Hexane	100-54-3	VOC/HAP	---	TOC	0.15%	0.10%	2.4E-03	4.8E-03	6.4E-04	0.008
Isooctane	540-84-1	VOC/HAP	---	TOC	0.0018%	0.00031%	2.9E-05	1.5E-05	7.7E-06	5.2E-05
Methylene Chloride	75-09-2	non-VOC/HAP	---	TOC	0	0.00027%	0	1.3E-05	0	1.3E-05
MTBE	1634-04-4	VOC/HAP	---	TOC	0	0	0	0	0	0
Styrene	100-42-5	VOC/HAP	---	TOC	0.0073%	0.0054%	1.2E-04	2.6E-04	3.1E-05	4.1E-04
Tetrachloroethene	127-18-4	non-VOC/HAP	---	TOC	0.0077%	0	1.2E-04	0	3.3E-05	1.6E-04
Toluene	100-88-3	VOC/HAP	---	TOC	0.21%	0.062%	3.4E-03	2.9E-03	9.0E-04	0.007
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	2.1E-05	0	5.6E-06	2.7E-05
m-/p-Xylene	1330-20-7	VOC/HAP	---	TOC	0.41%	0.20%	6.7E-03	9.5E-03	1.8E-03	0.018
o-Xylene	95-47-6	VOC/HAP	---	TOC	0.08%	0.057%	1.3E-03	2.7E-03	3.4E-04	4.3E-03
Total volatile organic HAPs					1.50%	1.30%	0.024	0.062	0.006	0.093

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: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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	4.73	2.598	0.909
Limestone	1.6	1.85	1.72	0.581	0.203
RAP	0.5	0.58	9.07	0.958	0.335
Concrete	2.6	3.01	3.73	2.049	0.717
RAS	0.5	0.58	1.41	0.149	0.052
Shingles	0.5	0.58	2.00	0.211	0.074
Gravel	1.6	1.85	1.20	0.406	0.142
Slag	3.8	4.40	1.00	0.803	0.281
Totals				7.75	2.71

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

RAS - reclaimed asphalt shingles (ground factory second shingles)

Abbreviations

PM = Particulate Matter

PM2.5 = Particulate Matter (<2.5 um)

PTE = Potential to Emit

PM10 = Particulate Matter (<10 um)

PM2.5 = PM10

Appendix A.2: Limited Emissions Summary
Material Processing, Handling, Crushing, Screening, and Conveying

Company Name: Phend & Brown, Inc.
 Source Address: 76 West 600 North, Leesburg, IN 46538
 Permit Number: 085-31423-00110
 Reviewer: Brian Williams

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.

$$Ef = k \cdot (0.0032)^{[(U/5)^{1.3} / (M/2)^{1.4}]}$$

where: Ef = Emission factor (lb/ton)

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

Annual Asphalt Production Limitation =	780,000	tons/yr
Percent Asphalt Cement/Binder (weight %) =	5.0%	
Maximum Material Handling Throughput =	741,000	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	0.84	0.40	0.06
Front-end loader dumping of materials into feeder bins	0.84	0.40	0.06
Conveyor dropping material into dryer/mixer or batch tower	0.84	0.40	0.06
Total (tons/yr)	2.52	1.19	0.18

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), unprocessed shingles, reclaimed asphalt shingles (RAS), 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 19.2.2)

To estimate potential fugitive dust emissions from raw material crushing, screening, and conveying, AP-42 emission factors for Crushed Stone Processing Operations, Section 19.2.2 (dated 8/04) are utilized.

Operation	Uncontrolled Emission Factor for PM (lbs/ton)*	Uncontrolled Emission Factor for PM10 (lbs/ton)*	Limited PTE of PM (tons/yr)	Limited PTE of PM10/PM2.5 (tons/yr)**
Crushing	0.0054	0.0024	2.00	0.89
Screening	0.025	0.0087	9.26	3.22
Conveying	0.003	0.0011	1.11	0.41
Limited Potential to Emit (tons/yr) =			12.37	4.52

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, concrete, shingles, and recycled asphalt pavement (RAP)
 *This source performs grinding of factory second shingles. No emission factor is available for shingle grinding. Therefore, IDEM assumes the emissions generated from the grinding of shingles are equivalent to tertiary crushing of stone.
 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: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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	=	780,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	=	5.0%	
Maximum Material Handling Throughput	=	741,000	tons/yr
Maximum Asphalt Cement/Binder Throughput	=	39,000	tons/yr
No. 4 Fuel Oil Limitation	=	2,063,739	gallons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons/trip)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	17.0	22.4	39.4	3.3E+04	1.3E+06	2790	0.528	17480.0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.0	3.3E+04	5.6E+05	2790	0.528	17480.0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.0	1.1E+03	5.2E+04	688	0.130	141.2
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	1.1E+03	1.3E+04	688	0.130	141.2
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.0	2.4E+02	1.0E+04	688	0.130	31.1
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.0	2.4E+02	2.9E+03	688	0.130	31.1
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.2	1.8E+05	3.4E+06	345	0.065	11528.0
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.0	1.8E+05	2.6E+06	345	0.065	11528.0
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.0	3.3E+04	1.3E+06	688	0.130	4234.8
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.0	3.3E+04	5.5E+05	688	0.130	4234.8
Total					4.87E+05	9.86E+06			6.68E+04

Average Vehicle Weight Per Trip = 20.3 tons/trip
Average Miles Per Trip = 0.137 miles/trip

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

	PM	PM10	PM2.5	
where k =	4.9	1.5	0.15	lb/mi = particle size multiplier (AP-42 Table 13.2.2-2 for Industrial Roads)
s =	4.8	4.8	4.8	% = mean % silt content of unpaved roads (AP-42 Table 13.2.2-3 Sand/Gravel Processing Plant Road)
a =	0.7	0.9	0.9	= constant (AP-42 Table 13.2.2-2)
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
b =	0.45	0.45	0.45	= constant (AP-42 Table 13.2.2-2)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, Eext = E * [(365 - P)/365]

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

	PM	PM10	PM2.5	
Unmitigated Emission Factor, Ef =	6.10	1.55	0.16	lb/mile
Mitigated Emission Factor, Eext =	4.01	1.02	0.10	lb/mile
Dust Control Efficiency =	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	53.27	13.58	1.36	35.03	8.93	0.89	17.51	4.46	0.45
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	53.27	13.58	1.36	35.03	8.93	0.89	17.51	4.46	0.45
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.430	0.110	0.01	0.283	0.072	7.2E-03	0.141	0.036	3.6E-03
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.430	0.110	0.01	0.283	0.072	7.2E-03	0.141	0.036	3.6E-03
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	0.095	0.024	2.4E-03	0.062	0.016	1.6E-03	0.031	0.008	7.9E-04
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	0.095	0.024	2.4E-03	0.062	0.016	1.6E-03	0.031	0.008	7.9E-04
Aggregate/RAP Loader Full	Front-end loader (3 CY)	35.13	8.95	0.90	23.10	5.89	0.59	11.55	2.94	0.29
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	35.13	8.95	0.90	23.10	5.89	0.59	11.55	2.94	0.29
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	12.91	3.29	0.33	8.49	2.16	0.22	4.24	1.08	0.11
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	12.91	3.29	0.33	8.49	2.16	0.22	4.24	1.08	0.11
Totals		203.67	51.91	5.19	133.92	34.13	3.41	66.96	17.07	1.71

Methodology

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

Abbreviations

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

Appendix A.2: Limited Emissions Summary
Paved Roads
Limited Emissions

Company Name: Phend & Brown, Inc.
 Source Address: 76 West 600 North, Leesburg, IN 46538
 Permit Number: 085-31423-00110
 Reviewer: Brian Williams

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	780,000	tons/yr
Percent Asphalt Cement/Binder (weight %)	5.0%	
Maximum Material Handling Throughput	741,000	tons/yr
Maximum Asphalt Cement/Binder Throughput	39,000	tons/yr
No. 4 Fuel Oil Limitation	2,063,739	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	3.3E+04	1.3E+06	2790	0.528	17480.0
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	17.0	0	17.00	3.3E+04	5.6E+05	2790	0.528	17480.0
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	12.0	36.0	48.00	1.1E+03	5.2E+04	688	0.130	141.2
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	1.1E+03	1.3E+04	688	0.130	141.2
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	12.0	32.0	44.00	2.4E+02	1.0E+04	688	0.130	31.1
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	12.0	0	12.00	2.4E+02	2.9E+03	688	0.130	31.1
Aggregate/RAP Loader Full	Front-end loader (3 CY)	15.0	4.2	19.20	1.8E+05	3.4E+06	345	0.065	11528.0
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	15.0	0	15.00	1.8E+05	2.6E+06	345	0.065	11528.0
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	17.0	24.0	41.00	3.3E+04	1.3E+06	688	0.130	4234.8
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	17.0	0	17.00	3.3E+04	5.6E+05	688	0.130	4234.8
Total					4.9E+05	9.9E+06			6.7E+04

Average Vehicle Weight Per Trip	20.3	tons/trip
Average Miles Per Trip	0.137	miles/trip

Unmitigated Emission Factor, $E_f = [k \cdot (sL)^{0.91} \cdot (W)^{1.02}]$ (Equation 1 from AP-42 13.2.1)

	PM	PM10	PM2.5	lb/mi = particle size multiplier (AP-42 Table 13.2.1-1)
where k =	0.011	0.0022	0.00054	
W =	20.3	20.3	20.3	tons = average vehicle weight (provided by source)
sL =	0.6	0.6	0.6	g/m ² = Ubiquitous Baseline Soil Loading Values of paved roads (Table 13.2.1-3 for summer months)

Taking natural mitigation due to precipitation into consideration, Mitigated Emission Factor, $E_{ext} = E_f \cdot [1 - (p/4N)]$

Mitigated Emission Factor, $E_{ext} = E_f \cdot [1 - (p/4N)]$			
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, E_f	0.15	0.03	0.01	
Mitigated Emission Factor, E_{ext}	0.14	0.03	0.01	lb/mile
Dust Control Efficiency	50%	50%	50%	(pursuant to control measures outlined in fugitive dust control plan)

Process	Vehicle Type	Unmitigated PTE of PM (tons/yr)	Unmitigated PTE of PM10 (tons/yr)	Unmitigated PTE of PM2.5 (tons/yr)	Mitigated PTE of PM (tons/yr)	Mitigated PTE of PM10 (tons/yr)	Mitigated PTE of PM2.5 (tons/yr)	Controlled PTE of PM (tons/yr)	Controlled PTE of PM10 (tons/yr)	Controlled PTE of PM2.5 (tons/yr)
Aggregate/RAP Truck Enter Full	Dump truck (16 CY)	1.30	0.26	0.06	1.19	0.24	0.06	0.59	0.12	0.03
Aggregate/RAP Truck Leave Empty	Dump truck (16 CY)	1.30	0.26	0.06	1.19	0.24	0.06	0.59	0.12	0.03
Asphalt Cement/Binder Truck Enter Full	Tanker truck (6000 gal)	0.010	0.002	5.2E-04	0.010	0.002	4.7E-04	0.005	9.6E-04	2.4E-04
Asphalt Cement/Binder Truck Leave Empty	Tanker truck (6000 gal)	0.010	0.002	5.2E-04	0.010	0.002	4.7E-04	0.005	9.6E-04	2.4E-04
Fuel Oil Truck Enter Full	Tanker truck (6000 gal)	2.3E-03	4.6E-04	1.1E-04	2.1E-03	4.2E-04	1.0E-04	1.1E-03	2.1E-04	5.2E-05
Fuel Oil Truck Leave Empty	Tanker truck (6000 gal)	2.3E-03	4.6E-04	1.1E-04	2.1E-03	4.2E-04	1.0E-04	1.1E-03	2.1E-04	5.2E-05
Aggregate/RAP Loader Full	Front-end loader (3 CY)	0.96	0.17	0.04	0.78	0.16	0.04	0.39	0.08	0.02
Aggregate/RAP Loader Empty	Front-end loader (3 CY)	0.96	0.17	0.04	0.78	0.16	0.04	0.39	0.08	0.02
Asphalt Concrete Truck Leave Full	Dump truck (16 CY)	0.31	0.06	0.02	0.29	0.06	0.01	0.14	0.03	0.01
Asphalt Concrete Truck Enter Empty	Dump truck (16 CY)	0.31	0.06	0.02	0.29	0.06	0.01	0.14	0.03	0.01
Totals		4.97	0.99	0.24	4.54	0.91	0.22	2.27	0.45	0.11

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: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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

Limited VOC Emissions from the Sum of the Liquid Binders = 48.2 tons/yr

Volatle 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%	50.8	0.0	0.000
Cut back asphalt medium cure (assuming kerosene solvent)	28.6%	70.0%	68.9	48.2	1.429
Cut back asphalt slow cure (assuming fuel oil solvent)	20.0%	25.0%	192.9	48.2	4.000
Emulsified asphalt with solvent (assuming water, emulsifying agent, and 15% fuel oil solvent)	15.0%	46.4%	103.9	48.2	2.155
Other asphalt with solvent binder	25.9%	2.5%	1928.8	48.2	40.0
Worst Case Limited PTE of VOC =				48.2	

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0% Xylenes
Limited PTE of Total HAPs (tons/yr) =	12.58
Limited PTE of Single HAP (tons/yr) =	4.34 Xylenes

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	Fuel Oil (#2)	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	208-44-0		7.10E-6%	5.90E-5%	1.40E-5%	2.40E-4%
Fluorene	86-73-7		4.20E-5%	8.60E-4%	1.90E-4%	
Indeno(1,2,3-cd)pyrene	193-39-5			1.60E-7%		1.00E-4%
Methyl-tert-butylether	1634-04-4	0.33%				
Naphthalene	91-20-3	0.25%	0.31%	0.26%	0.22%	4.20E-5%
n-Hexane	110-54-3	2.40%				
Phenanthrene	85-01-8		8.60E-6%	8.80E-4%	7.90E-4%	2.10E-4%
Pyrene	129-00-0		2.40E-6%	4.60E-5%	2.90E-5%	2.30E-5%
Toluene	108-88-3	8.10%		0.18%	6.20E-4%	
Total Xylenes	1330-20-7	9.00%		0.50%	0.23%	
Total Organic HAPs		26.08%	0.33%	1.29%	0.68%	0.19%
Worst Single HAP		9.00%	0.31%	0.50%	0.23%	0.07%
		Xylenes	Naphthalene	Xylenes	Xylenes	Chrysene

Methodology

Limited PTE of VOC (tons/yr) = [Weight % VOC solvent in binder that evaporates] * [VOC Solvent Usage Limitation (tons/yr)]
 Limited PTE of Total HAPs (tons/yr) = [Worst Case Total HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
 Limited PTE of Single HAP (tons/yr) = [Worst Case Single HAP Content of VOC solvent (weight %)] * [Worst Case Limited PTE of VOC (tons/yr)]
 *Sources: 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.2: Limited Emissions Summary
Gasoline Fuel Transfer and Dispensing Operation**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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:

$$\begin{aligned} \text{Gasoline Throughput} &= 0 \text{ gallons/day} \\ &= 0.0 \text{ kgal/yr} \end{aligned}$$

Volatile Organic Compounds

Emission Source	Emission Factor (lb/kgal of throughput)	PTE of VOC (tons/yr)*
Filling storage tank (balanced submerged filling)	0.3	0.00
Tank breathing and emptying	1.0	0.00
Vehicle refueling (displaced losses - controlled)	1.1	0.00
Spillage	0.7	0.00
Total		0.00

Hazardous Air Pollutants

Worst Case Total HAP Content of VOC solvent (weight %)* =	26.08%
Worst Case Single HAP Content of VOC solvent (weight %)* =	9.0% Xylenes
Limited PTE of Total HAPs (tons/yr) =	0.00
Limited PTE of Single HAP (tons/yr) =	0.00 Xylenes

Methodology

The gasoline throughput was provided by the source.

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

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

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

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

*Source: Petroleum Liquids. Potter, T.L. and K.E. Simmons. 1998. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 2.

Composition of Petroleum Mixtures. The Association for Environmental Health and Science. Available on the Internet at:

<http://www.aehs.com/publications/catalog/contents/tph.htm>

Abbreviations

VOC = Volatile Organic Compounds

PTE = Potential to Emit

**Appendix A.2: Limited Emissions Summary
Sand & Gravel Plant Material Storage Piles**

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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	2.6	3.01	4.62	2.537	0.888
Limestone	1.6	1.85	0.60	0.203	0.071
RAP	0.5	0.58	8.51	0.899	0.315
Crushed Concrete	2.6	3.01	3.73	2.049	0.717
RAS	0.5	0.58	0.34	0.036	0.013
Shingles	0.5	0.58	0.94	0.099	0.035
Gravel	1.6	1.85	3.48	1.176	0.412
Totals				7.00	2.45

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

RAS - reclaimed asphalt shingles (ground factory second shingles)

Abbreviations

PM = Particulate Matter

PM10 = Particulate Matter (<10 um)

PM2.5 = Particulate Matter (<2.5 um)

PTE = Potential to Emit

PM2.5 = PM10

Appendix A.2: Limited Emissions Summary
Material Processing, Handling, Crushing, Screening, and Conveying

Company Name: Phend & Brown, Inc.
Source Address: 76 West 600 North, Leesburg, IN 46538
Permit Number: 085-31423-00110
Reviewer: Brian Williams

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.

$$Ef = k \cdot (0.0032)^{1.3} \cdot (U/5)^{1.3} / (M/2)^{1.4}$$

where: Ef = Emission factor (lb/ton)

k (PM) = 0.74 = particle size multiplier (0.74 assumed for aerodynamic diameter <=100 um)
 k (PM10) = 0.35 = particle size multiplier (0.35 assumed for aerodynamic diameter <=10 um)
 k (PM2.5) = 0.053 = particle size multiplier (0.053 assumed for aerodynamic diameter <=2.5 um)
 U = 10.2 = worst case annual mean wind speed (Source: NOAA, 2006*)
 M = 4.0 = material % moisture content of aggregate (Source: AP-42 Section 11.1.1.1)

Ef (PM) = 2.27E-03 lb PM/ton of material handled
 Ef (PM10) = 1.07E-03 lb PM10/ton of material handled
 Ef (PM2.5) = 1.62E-04 lb PM2.5/ton of material handled

Limited Material Handling Throughput = 607,000 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	0.69	0.33	0.05
Loading of materials into truck	0.69	0.33	0.05
Total (tons/yr)	1.38	0.65	0.10

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), unprocessed shingles, reclaimed asphalt shingles (RAS), 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 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)**	Limited PTE of PM (tons/yr)	Limited PTE of PM10/PM2.5 (tons/yr)***
Crushing	0.0054	0.0024	1.64	0.73
Screening	0.025	0.0087	7.59	2.64
Conveying	0.003	0.0011	0.91	0.33
Limited Potential to Emit (tons/yr) =			10.14	3.70

Abbreviations

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

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

Notes

*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).

**Appendix A.2: Limited Emissions Summary
Unpaved Roads**

Company Name: Phend & Brown, Inc.
 Source Address: 76 West 600 North, Leesburg, IN 46538
 Permit Number: 085-31423-00110
 Reviewer: Brian Williams

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).

Limited Material Handling Throughput = 607,000 tons/yr

Process	Vehicle Type	Maximum Weight of Vehicle (tons)	Maximum Weight of Load (tons)	Maximum Weight of Vehicle and Load (tons/trip)	Maximum trips per year (trip/yr)	Total Weight driven per year (ton/yr)	Maximum one-way distance (feet/trip)	Maximum one-way distance (mi/trip)	Maximum one-way miles (miles/yr)
Aggregate/RAP/Shingle Truck Enter Full	Tri-axle dump truck	15.0	20.0	35	2.7E+04	9.6E+05	4900	0.928	25349.1
Aggregate RAP/Shingle Truck Leave Empty	Tri-axle dump truck	15.0	0	15	2.7E+04	4.1E+05	4900	0.928	25349.1
RAP/Shingle Truck Enter Full	Semi tractor	15.0	25.0	40	2.4E+03	9.7E+04	3800	0.720	1747.4
RAP/Shingle Truck Leave Empty	Semi tractor	15.0	0	15	2.4E+03	3.6E+04	3800	0.720	1747.4
Aggregate/RAP/Shingle Truck Leave Full	Tri-axle dump truck	15.0	20.0	35	2.1E+04	7.4E+05	3800	0.720	15290.0
Aggregate/RAP/Shingle Truck Enter Empty	Tri-axle dump truck	15.0	0	15	2.1E+04	3.2E+05	3800	0.720	15290.0
Processed Sand and Gravel Truck Leave Full	Semi tractor	15.0	25.0	40	7.3E+03	2.9E+05	1000	0.189	1379.5
Processed Sand and Gravel Truck Enter Empty	Semi tractor	15.0	0	15	7.3E+03	1.1E+05	1000	0.189	1379.5
Total					1.2E+05	3.0E+06			8.8E+04

Average Vehicle Weight Per Trip = 25.4 tons/trip
 Average Miles Per Trip = 0.751 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 =	25.4	25.4	25.4	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, $E_{ext} = E * [(365 - P)/365]$
 Mitigated Emission Factor, $E_{ext} = E * [(365 - P)/365]$
 where P = 125 days of rain greater than or equal to 0.01 inches (see Fig. 13.2.2-1)

	PM	PM10	PM2.5	
Unmitigated Emission Factor, E_f =	6.75	1.72	0.17	lb/mile
Mitigated Emission Factor, E_{ext} =	4.44	1.13	0.11	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/Shingle Truck Enter Full	Tri-axle dump truck	85.54	21.80	2.18	56.25	14.33	1.43	28.12	7.17	0.72
Aggregate RAP/Shingle Truck Leave Empty	Tri-axle dump truck	85.54	21.80	2.18	56.25	14.33	1.43	28.12	7.17	0.72
RAP/Shingle Truck Enter Full	Semi tractor	5.90	1.50	0.15	3.88	0.99	0.10	1.94	0.49	0.05
RAP/Shingle Truck Leave Empty	Semi tractor	5.90	1.50	0.15	3.88	0.99	0.10	1.94	0.49	0.05
Aggregate/RAP/Shingle Truck Leave Full	Tri-axle dump truck	51.60	13.15	1.31	33.93	8.65	0.86	16.96	4.32	0.43
Aggregate/RAP/Shingle Truck Enter Empty	Tri-axle dump truck	51.60	13.15	1.31	33.93	8.65	0.86	16.96	4.32	0.43
Processed Sand and Gravel Truck Leave Full	Semi tractor	4.66	1.19	0.12	3.06	0.78	0.08	1.53	0.39	0.04
Processed Sand and Gravel Truck Enter Empty	Semi tractor	4.66	1.19	0.12	3.06	0.78	0.08	1.53	0.39	0.04
Totals		295.38	75.28	7.53	194.22	49.50	4.95	97.11	24.75	2.47

Methodology

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



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

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March 26, 2012

Daniel F. Brown
Phend & Brown, Inc.
PO Box 150
Milford, IN 46542-0150

Re: Public Notice
Phend & Brown, Inc.
Permit Level: FESOP
Permit Number: 085-31423-00110

Dear Mr. Brown:

Enclosed is a copy of your draft FESOP, Technical Support Document, emission calculations, and the Public Notice which will be printed in your local newspaper.

The Office of Air Quality (OAQ) has submitted the draft permit package to the Warsaw Public Library, 310 E Center Street in Warsaw, Indiana. As a reminder, you are obligated by 326 IAC 2-1.1-6(c) to place a copy of the complete permit application at this library no later than ten (10) days after submittal of the application or additional information to our department. We highly recommend that even if you have already placed these materials at the library, that you confirm with the library that these materials are available for review and request that the library keep the materials available for review during the entire permitting process.

You will not be responsible for collecting any comments, nor are you responsible for having the notice published in the newspaper. The OAQ has requested that the Times Union in Warsaw, Indiana publish this notice no later than Wednesday March 28, 2012.

Please review the enclosed documents carefully. This is your opportunity to comment on the draft permit and notify the OAQ of any corrections that are needed before the final decision. Questions or comments about the enclosed documents should be directed to Brian Williams, Indiana Department of Environmental Management, Office of Air Quality, 100 N. Senate Avenue, Indianapolis, Indiana, 46204 or call (800) 451-6027, and ask for extension 4-5375 or dial (317) 234-5375.

Sincerely,
Catherine Denny
Permits Branch
Office of Air Quality

Enclosures
PN Applicant Cover letter. dot 3/27/08



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

ATTENTION: PUBLIC NOTICES, LEGAL ADVERTISING

March 26, 2012

Times Union
P.O. Box 1448
Warsaw, Indiana 46581-1448

Enclosed, please find one Indiana Department of Environmental Management Notice of Public Comment for Phend & Brown, Inc.

Since our agency must comply with requirements which call for a Notice of Public Comment, we request that you print this notice one time, no later than Wednesday March 28, 2012.

Please send a notarized form, clippings showing the date of publication, and the billing to the Indiana Department of Environmental Management, Accounting, Room N1345, 100 North Senate Avenue, Indianapolis, Indiana, 46204.

We are required by the Auditor's Office to request that you place the Federal ID Number on all claims. If you have any conflicts, questions, or problems with the publishing of this notice or if you do not receive complete public notice information for this notice, please call Catherine Denny at 800-451-6027 and ask for extension 3-9488 or dial 317-233-9488.

Sincerely,
Catherine Denny
Permit Branch
Office of Air Quality

Permit Level: FESOP
Permit Number: 085-31423-00110

Enclosure
PN Newspaper.dot 3/27/08



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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March 26, 2012

To: Warsaw Public Library

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

Subject: **Important Information to Display Regarding a Public Notice for an Air Permit**

Applicant Name: Phend & Brown, Inc.
Permit Number: 085-31423-00110

Enclosed is a copy of important information to make available to the public. This proposed project is regarding a source that may have the potential to significantly impact air quality. Librarians are encouraged to educate the public to make them aware of the availability of this information. The following information is enclosed for public reference at your library:

- Notice of a 30-day Period for Public Comment
- Request to publish the Notice of 30-day Period for Public Comment
- Draft Permit and Technical Support Document

You will not be responsible for collecting any comments from the citizens. Please refer all questions and request for the copies of any pertinent information to the person named below.

Members of your community could be very concerned in how these projects might affect them and their families. **Please make this information readily available until you receive a copy of the final package.**

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. Questions pertaining to the permit itself should be directed to the contact listed on the notice.

Enclosures
PN Library.dot 03/27/08



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Notice of Public Comment

March 26, 2012
Phend & Brown Inc
085-31423-00110

Dear Concerned Citizen(s):

You have been identified as someone who could potentially be affected by this proposed air permit. The Indiana Department of Environmental Management, in our ongoing efforts to better communicate with concerned citizens, invites your comment on the draft permit.

Enclosed is a Notice of Public Comment, which has been placed in the Legal Advertising section of your local newspaper. The application and supporting documentation for this proposed permit have been placed at the library indicated in the Notice. These documents more fully describe the project, the applicable air pollution control requirements and how the applicant will comply with these requirements.

If you would like to comment on this draft permit, please contact the person named in the enclosed Public Notice. Thank you for your interest in the Indiana's Air Permitting Program.

Please Note: *If you feel you have received this Notice in error, or would like to be removed from the Air Permits mailing list, please contact Patricia Pear with the Air Permits Administration Section at 1-800-451-6027, ext. 3-6875 or via e-mail at PPEAR@IDEM.IN.GOV. If you have recently moved and this Notice has been forwarded to you, please notify us of your new address and if you wish to remain on the mailing list. Mail that is returned to IDEM by the Post Office with a forwarding address in a different county will be removed from our list unless otherwise requested.*

Enclosure
PN AAA Cover.dot 3/27/08

Mail Code 61-53

IDEM Staff	CDENNY 3/26/2012 Phend & Brown, Inc. 085-31423-00110 (draft)		Type of Mail: CERTIFICATE OF MAILING ONLY	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		Daniel F. Brown Phend & Brown, Inc. PO Box 150 Milford IN 46542-0150 (Source CAATS)										
2		Warsaw Community Public Library 310 E Main St Warsaw IN 46580-2882 (Library)										
3		Kosciusko County Board of Commissioners 100 W. Center St, Room 220 Warsaw IN 46580 (Local Official)										
4		Leesburg Town Council P.O. Box 372, 100 East Van Buren Leesburg IN 46538 (Local Official)										
5		Mr. Tim Thomas c/o Boilermakers Local 374 6333 Kennedy Ave. Hammond IN 46333 (Affected Party)										
6		Kosciusko County Health Department 100 W. Center Street, 3rd Floor Warsaw IN 46580-2877 (Health Department)										
7		Jim Heim Bruce Carter Associates 616 South 4th Street Elkhart IN 46516 (Consultant)										
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