

**NEW SOURCE CONSTRUCTION PERMIT and  
SOURCE SPECIFIC OPERATING AGREEMENT (SSOA)  
OFFICE OF AIR MANAGEMENT**

**Benchmark Materials-France Stone Co., Woodburn II Quarry  
22821 Dawkins Road  
Woodburn, Indiana 46797**

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

This permit is issued to the above mentioned company under the provisions of 326 IAC 2-5.1, 326 IAC 2-6.1 and 40 CFR 52.780, with conditions listed on the attached pages.

Operation Permit No.: SSOA 003-10580-00296	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

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## SECTION A

## SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM). 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 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

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The Permittee owns and operates a stationary limestone processing source.

Authorized Individual: Jeff Stoll  
Source Address: 22821 Dawkins Road, Woodburn, Indiana 46797  
Mailing Address: 17839 US 24 East, Woodburn, Indiana 46797  
Phone Number: 219-632-4252  
SIC Code: 1422  
County Location: Allen  
County Status: Attainment for all criteria pollutants  
Source Status: Minor Source Operating Permit  
Minor Source, under PSD Rules;  
Minor Source, Section 112 of the Clean Air Act

### A.2 Emissions units and Pollution Control Equipment Summary

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This stationary source is approved to construct and operate the following emissions units and pollution control devices:

- (a) One (1) primary crusher, capacity: 1,095 tons of limestone per hour.
- (b) One (1) secondary crusher, capacity: 391 tons of limestone per hour.
- (c) Two (2) secondary crushers, capacity: 113 tons of limestone per hour each.
- (d) Five (5) screens, maximum capacity: 1,095 tons of limestone per hour.
- (e) Thirty-three (33) conveyors, maximum capacity 1,095 tons of limestone per hour.
- (f) Two (2) hoppers, capacity: 391 tons of limestone per hour, each.
- (g) One (1) fines mill, capacity: 110 tons of limestone per hour.

### A.3 SSOA Applicability [326 IAC 2-9-1]

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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 Management (OAM) for a Source Specific Operating Agreement (SSOA).

**SECTION B GENERAL CONSTRUCTION CONDITIONS**

THIS SECTION OF THE PERMIT IS BEING ISSUED UNDER THE PROVISIONS OF 326 IAC 2-1.1 AND 40 CFR 52.780, WITH CONDITIONS LISTED BELOW.

**B.1 Permit No Defense [IC 13]**

This permit to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

**B.2 Definitions**

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, any applicable definitions found in IC 13-11, 326 IAC 1-2, and 326 IAC 2-1.1-1 shall prevail.

**B.3 Effective Date of the Permit [IC13-15-5-3]**

Pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

**B.4 Revocation of Permits [326 IAC 2-1.1-9(5)]**

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

**B.5 Modification to Permit [326 IAC 2]**

Notwithstanding Condition B.7, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

**B.6 Source Specific Operating Agreement Program [326 IAC 2-9]**

This document shall also become a source specific operating agreement pursuant to 326 IAC 2-9-1 when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the emissions units were constructed as proposed in the application. The emissions units covered in the New Source Construction Permit may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM.
- (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
- (c) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
- (d) The operating agreement will be subject to annual operating permit fees pursuant to 326 IAC 2-9-8 (Crushed stone processing plants).

**B.7 NSPS Reporting Requirement**

That pursuant to the New Source Performance Standards (NSPS), Part 60.670 - 60.676, Subpart OOO, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

- (a) Commencement of construction date (no later than 30 days after such date);
- (b) Actual start-up date (within 15 days after such date); and
- (c) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, IN 46206-6015

The application and enforcement of these standards have been delegated to the IDEM OAM. The requirements of 40 CFR Part 60 are also federally enforceable.

**SECTION C SOURCE OPERATION CONDITIONS**

Entire Source
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**C.1 Source Status [326 IAC 2-2] [40 CFR 52.21][326 IAC 2-9]**

- (a) The total source potential to emit particulate matter is less than 250 tons per year. Therefore the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 will not apply.
- (b) The source annual throughput shall be less than one million (1,000,000) tons per year.
- (c) This source does not emit particulate matter in excess of or equal to twenty-five (25) tons per year excluding fugitive emissions.

**C.2 Preventive Maintenance Plan [326 IAC 1-6-3]**

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after issuance of this permit, including the following information on each emissions unit:
  - (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;
  - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If due to circumstances beyond its control, the PMP 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 Branch, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

- (b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that lack of proper maintenance does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) PMP's shall be submitted to IDEM, OAM, upon request and shall be subject to review and approval by IDEM, OAM.

C.3 Permit Revision [326 IAC 2-5.1-3(e)(3)] [326 IAC 2-6.1-6]

- (a) The Permittee must comply with the requirements of [326 IAC 2-6.1-6] whenever the Permittee seeks to amend or modify this permit.
- (b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "authorized individual" as defined by 326 IAC 2-1.1-1.

- (c) The Permittee shall notify the OAM within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

C.4 Source Modification [326 IAC 2-7-10.5]

- (a) The Permittee must comply with the requirements of [326 IAC 2-7-10.5] whenever the Permittee seeks to construct new emissions units, modify existing emissions units, or otherwise modify the source.
- (b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management  
Permits Branch, Office of Air Management  
100 North Senate Avenue, P.O. Box 6015  
Indianapolis, Indiana 46206-6015

Any such application should be certified by the "responsible official" as defined by 326 IAC 2-7-1(34) only if a certification is required by the terms of the applicable rule.

C.5 Inspection and Entry [326 IAC 2-5.1-3(e)(4)(B)] [326 IAC 2-6.1-5(a)(4)]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, the Permittee shall allow IDEM, OAM, U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a permitted source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- (b) Have access to and copy, at reasonable times, any records that must be kept under this title or the conditions of this permit or any operating permit revisions;
- (c) Inspect, at reasonable times, any processes, emissions units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit or any operating permit revisions;
- (d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or applicable requirements; and
- (e) Utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this permit or applicable requirements.
  - (1) The Permittee may assert a claim that, in the opinion of the Permittee, information removed or about to be removed from the source by IDEM, OAM, or an authorized representative, contains information that is confidential under IC 5-14-3-4(a). The claim shall be made in writing before or at the time the information is removed from the source. In the event that a claim of confidentiality is so asserted, neither IDEM, OAM, nor an authorized representative, may disclose the information unless and until IDEM, OAM, makes a determination under 326 IAC 17-1-7 through 326 IAC 17-1-9 that the information is not entitled to confidential treatment and that determination becomes final. [IC 5-14-3-4; IC 13-14-11-3; 326 IAC 17-1-7 through 326 IAC 17-1-9]
  - (2) The Permittee, and IDEM, OAM, acknowledge that the federal law applies to claims of confidentiality made by the Permittee with regard to information removed or about to be removed from the source by U.S. EPA. [40 CFR Part 2, Subpart B]

C.6 Transfer of Ownership or Operation [326 IAC 2-6.1-6(d)(3)]

Pursuant to [326 IAC 2-6.1-6(d)(3)]:

- (a) In the event that ownership of this source is changed, the Permittee shall notify IDEM, OAM, Permits Branch, within thirty (30) days of the change.
- (b) The written notification shall be sufficient to transfer the permit to the new owner by an notice-only change pursuant to 326 IAC 2-6.1-6(d)(3).
- (c) IDEM, OAM, shall issue a revised permit.

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



**C.7 Permit Revocation [326 IAC 2-1-9]**

Pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of this article.

**C.8 Opacity [326 IAC 5-1]**

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), 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.9 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). 326 IAC 6-4-2(4) is not federally enforceable.

**C.10 Fugitive Particulate Matter Emission Limitations [326 IAC 6-5]**

Pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emission Limitations), fugitive particulate matter emissions shall be controlled according to the plan submitted on January 12, 1999. The plan consists of applying water and/or calcium chloride to stockpiles and roads on an as-needed basis.

**Testing Requirements**

**C.11 Performance Testing [326 IAC 3-6]**

- (a) All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit, utilizing methods approved by IDEM, OAM.

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

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The Permittee shall submit a notice of the actual test date to the above address so that it is received at least two weeks prior to the test date.

- (b) All test reports must be received by IDEM, OAM within forty-five (45) days after the completion of the testing. An extension may be granted by the Commissioner, if the source submits to IDEM, OAM, a reasonable written explanation within five (5) days prior to the end of the initial forty-five (45) day period.

The documentation submitted by the Permittee does not require certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

### **Compliance Monitoring Requirements**

#### **C.12 Compliance Monitoring [326 IAC 2-1.1-11]**

Compliance with applicable requirements shall be documented as required by this permit. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment, no more than ninety (90) days after receipt of this permit. If due to circumstances beyond its control, this schedule cannot be met, the Permittee may extend the compliance schedule an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management  
Compliance Branch, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

in writing, prior to the end of the initial ninety (90) day compliance schedule, with full justification of the reasons for the inability to meet this date. The notification which shall be submitted by the Permittee does require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

#### **C.13 Monitoring Methods [326 IAC 3]**

Any monitoring or testing performed to meet the applicable requirements of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, or other approved methods as specified in this permit.

#### **C.14 Actions Related to Noncompliance Demonstrated by a Stack Test**

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate corrective actions. The Permittee shall submit a description of these corrective actions to IDEM, OAM, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize emissions from the affected emissions unit while the corrective actions are being implemented. IDEM, OAM shall notify the Permittee within thirty (30) days, if the corrective actions taken are deficient. The Permittee shall submit a description of additional corrective actions taken to IDEM, OAM within thirty (30) days of receipt of the notice of deficiency.

IDEM, OAM reserves the authority to use enforcement activities to resolve noncompliant stack tests.

- (b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAM that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAM may extend the retesting deadline. Failure of the second test to demonstrate compliance with the appropriate permit conditions may be grounds for immediate revocation of the permit to operate the affected emissions unit.

The documents submitted pursuant to this condition do not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

### **Record Keeping and Reporting Requirements**

#### **C.15 Monitoring Data Availability [326 IAC 2-6.1-2] [IC 13-14-1-13]**

- (a) With the exception of performance tests conducted in accordance with Section C- Performance Testing, all observations, sampling, maintenance procedures, and record keeping, required as a condition of this permit shall be performed at all times the equipment is operating at normal representative conditions.
- (b) As an alternative to the observations, sampling, maintenance procedures, and record keeping of subsection (a) above, when the equipment listed in Section D of this permit is not operating, the Permittee shall either record the fact that the equipment is shut down or perform the observations, sampling, maintenance procedures, and record keeping that would otherwise be required by this permit.
- (c) If the equipment is operating but abnormal conditions prevail, additional observations and sampling should be taken with a record made of the nature of the abnormality.
- (d) If for reasons beyond its control, the operator fails to make required observations, sampling, maintenance procedures, or record keeping, reasons for this must be recorded.
- (e) At its discretion, IDEM may excuse such failure providing adequate justification is documented and such failures do not exceed five percent (5%) of the operating time in any quarter.
- (f) Temporary, unscheduled unavailability of staff qualified to perform the required observations, sampling, maintenance procedures, or record keeping shall be considered a valid reason for failure to perform the requirements stated in (a) above.

#### **C.16 General Record Keeping Requirements [326 IAC 2-6.1-2]**

- (a) Records of all required monitoring data and support information 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 kept at the source location for a minimum of three (3) years and available upon the request of an IDEM, OAM, representative. 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 written request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

- (b) Records of required monitoring information shall include, where applicable:
  - (1) The date, place, and time of sampling or measurements;
  - (2) The dates analyses were performed;
  - (3) The company or entity performing the analyses;
  - (4) The analytic techniques or methods used;
  - (5) The results of such analyses; and
  - (6) The operating conditions existing at the time of sampling or measurement.
- (c) Support information shall include, where applicable:
  - (1) Copies of all reports required by this permit;
  - (2) All original strip chart recordings for continuous monitoring instrumentation;
  - (3) All calibration and maintenance records;
  - (4) Records of preventive maintenance shall be sufficient to demonstrate that improper maintenance did not cause or contribute to a violation of any limitation on emissions or potential to emit. To be relied upon subsequent to any such violation, these records may include, but are not limited to: work orders, parts inventories, and operator's standard operating procedures. Records of response steps taken shall indicate whether the response steps were performed in accordance with the Compliance Response Plan required by Section C - Compliance Monitoring Plan - Failure to take Response Steps, of this permit, and whether a deviation from a permit condition was reported. All records shall briefly describe what maintenance and response steps were taken and indicate who performed the tasks.
- (d) All record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.17 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) To affirm that the source has met all the compliance monitoring requirements stated in this permit the source shall submit a Semi-annual Compliance Monitoring Report. Any deviation from the requirements and the date(s) of each deviation must be reported. The Compliance Monitoring Report shall include the certification by the "authorized individual" as defined by 326 IAC2-1.1-1(1).
- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management  
Compliance Data Section, Office of Air Management  
100 North Senate Avenue, P. O. Box 6015  
Indianapolis, Indiana 46206-6015

- (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, OAM, on or before the date it is due.
- (d) Unless otherwise specified in this permit, any semi-annual report shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (e) All instances of deviations as described in Section B- Deviations from Permit Requirements Conditions must be clearly identified in such reports. The Emergency/Deviation Occurrence Report does not require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (f) Any corrective actions or response steps taken as a result of each deviation must be clearly identified in such reports.
- (g) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period.

## SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description:

- (a) One (1) primary crusher, capacity: 1,095 tons of limestone per hour.
- (b) One (1) secondary crusher, capacity: 391 tons of limestone per hour.
- (c) Two (2) secondary crushers, capacity: 113 tons of limestone per hour each.
- (d) Five (5) screens, maximum capacity: 1,095 tons of limestone per hour.
- (e) Thirty-three (33) conveyors, maximum capacity 1,095 tons of limestone per hour.
- (f) Two (2) hoppers, capacity: 391 tons of limestone per hour, each.
- (g) One (1) fines mill, capacity: 110 tons of limestone per hour

### Emission Limitations and Standards

D.1.1 Annual Throughput [326 IAC 2-9-8]

Pursuant to 326 IAC 2-9-8 (Crushed stone processing plants), the source annual throughput shall be less than one million (1,000,000) tons per year.

D.1.2 Number of Facilities [326 IAC 2-9-8]

Pursuant to 326 IAC 2-9-8 (Crushed stone processing plants), the source shall utilize at most six (6) crushers, thirteen (13) screens, and a conveying operation.

D.1.3 Opacity [326 IAC 2-9-8] [326 IAC 12] [40 CFR 60.670, Subpart OOO]

Pursuant to 326 IAC 2-9-8 (Crushed stone processing plants) and New Source Performance Standards, 326 IAC 12 (40 CFR 60.670, Subpart OOO) "Standards of Performance for Nonmetallic Mineral Processing Plants visible emissions shall comply with the following standards:

- (a) The visible emissions from the screening and conveying operations shall not exceed an average of ten (10%) 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.
- (b) The visible emissions from the crushing operation shall not exceed an average of fifteen percent (15%) 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) These limits will also satisfy the requirements of 326 IAC 5-1 (Opacity Limitations).

D.1.4 Opacity [326 IAC 2-9-8]

Fugitive particulate matter (PM) emissions shall be controlled by applying water on storage piles and unpaved roadways on an "as needed" basis, such that the following visible emission conditions are met:

- (a) The visible emissions from any storage pile shall not exceed twenty percent (20%) in twenty-four (24) consecutive readings in a six (6) minute period. This limitation shall not apply during periods when application of control measures are ineffective or unreasonable due to sustained high wind speeds. The opacity shall be determined using 40 CFR 60, Appendix A, Method 9, except that the opacity shall be observed at approximately four (4) feet from the surface at the point of maximum opacity. The observer shall stand approximately fifteen (15) feet from the plume and at approximately right angles to the plume.
- (b) The visible emissions from unpaved roadways shall not exceed an average instantaneous opacity of twenty percent (20%). Average instantaneous opacity shall be the average of twelve (12) instantaneous opacity readings, taken for four (4) vehicle passes, consisting of three (3) opacity readings for each vehicle pass. The three (3) opacity readings for each vehicle pass shall be taken as follows:
  - (1) The first reading shall be taken at the time of emission generation.
  - (2) The second reading shall be taken five (5) seconds later.
  - (3) The third reading shall be taken five (5) seconds after the second reading, or ten (10) seconds after the first reading.

The three (3) readings shall be taken at the point of maximum opacity. The observer shall stand approximately fifteen (15) feet from the plume and at approximately right angles to the plume. Each reading shall be taken approximately four (4) feet above the surface of the unpaved roadway.

D.1.5 Particulate Matter (PM) [326 IAC 2-2] [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3 (Process Operations), the allowable PM emission rate from the limestone processing facilities shall not exceed 56.8. pounds per hour to avoid the applicability of 326 IAC 2-2 (Prevention of Significant Deterioration Requirements (PSD)). This emission limit also satisfies the requirements of 326 IAC 6-3-2.

**Compliance Determination Requirements**

D.1.6 Dust Suppression for Crushing, Screening and Conveying Operations [326 IAC 2-9-8]

Pursuant to 326 IAC 2-9-8 (Crushed stone processing plants), the crushing, screening, and conveying operations shall be equipped with dust collectors, unless a wet process or continuous wet suppression system is used to comply with conditions D.1.3 (a) and D.1.3 (b) of this operating agreement.

D.1.7 Particulate Matter [326 IAC 2-9-8]

Pursuant to 326 IAC 2-9-8 (Crushed stone processing plants), all equipment that generate particulate matter (PM) emissions and any emission control devices shall be operated and maintained at all times in such a manner as to meet all of the requirements of this Source Specific Operating Agreement.

**D.1.8 Testing Requirements [326 IAC 3-6] [40 CFR 60.670, Subpart OOO]**

Pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) compliance opacity tests shall be performed for conveying facilities within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up. These tests shall be performed according to 326 IAC 3-6 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Commissioner.

- (a) A test protocol shall be submitted to the OAM, Compliance Data Section, 35 days in advance of the test.
- (b) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.
- (c) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.
- (d) Whenever the results of the stack test performed exceed the level specified in this permit, appropriate corrective actions shall be implemented within thirty (30) days of receipt of the test results. These actions shall be implemented immediately unless notified by OAM that they are acceptable. The Permittee shall minimize emissions while the corrective actions are being implemented.
- (e) Whenever the results of the stack test performed exceed the level specified in this permit, a second test to demonstrate compliance shall be performed within 120 days. Failure of the second test to demonstrate compliance may be grounds for immediate revocation of this permit to operate the affected facility.

**Record Keeping and Reporting Requirements**

**D.1.9 Record Keeping Requirements [326 IAC 2-9-8]**

Pursuant to 326 IAC 2-9-8 (Crushed stone processing plants), the owner or operator shall prepare and maintain records of the source for the past twelve (12) months, based on a monthly rolling average. These records shall be maintained for a minimum period of five (5) years, and made available, upon request, to the Office of Air Management (OAM).

**D.1.10 Annual Notice [326 IAC 2-9-8]**

The source shall provide an annual notice to the commissioner stating that the source is in operation and certifying that its operations are in compliance with this Source Specific Operating Agreement. This report shall be submitted to:

Compliance Data Section  
Office of Air Management  
100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, IN 46206-6015

no later than January 30 of each year, in the format attached.



D.1.11 Reporting Requirements [326 IAC 2-9-8]

Any exceedance of any requirement contained in this operating agreement shall be reported, in writing, within one (1) week of its occurrence.

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

### **Technical Support Document (TSD) for a New Source Construction and Source Specific Operating Agreement (SSOA)**

#### **Source Background and Description**

<b>Source Name:</b>	<b>Benchmark Materials-France Stone Co., Woodburn II Quarry</b>
<b>Source Location:</b>	<b>22821 Dawkins Road, Woodburn, Indiana 46797</b>
<b>County:</b>	<b>Allen</b>
<b>SIC Code:</b>	<b>1422</b>
<b>Operation Permit No.:</b>	<b>CP 003-10580-00296</b>
<b>Permit Reviewer:</b>	<b>Mark L. Kramer</b>

The Office of Air Management (OAM) has reviewed an application from Benchmark Materials-France Stone Co., Woodburn II Quarry relating to the construction and operation of a stationary limestone processing source.

#### **Emission Units and Pollution Control Equipment**

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

- (a) One (1) primary crusher, capacity: 1,095 tons of limestone per hour.
- (b) One (1) secondary crusher, capacity: 391 tons of limestone per hour.
- (c) Two (2) secondary crushers, capacity: 113 tons of limestone per hour each.
- (d) Five (5) screens, maximum capacity: 1,095 tons of limestone per hour.
- (e) Thirty-three (33) conveyors, maximum capacity 1,095 tons of limestone per hour.
- (f) Two (2) hoppers, capacity: 391 tons of limestone per hour, each
- (g) One (1) fines mill, capacity: 110 tons of limestone per hour.

#### **Unpermitted Emission Units and Pollution Control Equipment**

There are no unpermitted facilities operating at this source during this review process.

#### **Existing Approvals**

There are no existing permits for this source.

#### **Stack Summary**

There are no stacks associated with the emission units that comprise this source.

### Enforcement Issue

There are no enforcement actions pending.

### Recommendation

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

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

A complete application for the purposes of this review was received on January 12, 1999.

### Emission Calculations

See Appendix A of this document for detailed emissions calculations in Appendix A, on pages 1 through 6.

### Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

<b>Pollutant</b>	<b>Potential To Emit (tons/year)</b>
PM	4,626
PM <sub>10</sub>	1,285
SO <sub>2</sub>	0.00
VOC	0.00
CO	0.00
NO <sub>x</sub>	0.00

<b>HAPs</b>	<b>Potential To Emit (tons/year)</b>
None	
TOTAL	0.00

The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of particulate matter are equal to or greater than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.

**County Attainment Status**

The source is located in Allen County.

Pollutant	Status
PM <sub>10</sub>	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Allen County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Allen County has been classified as attainment or unclassifiable for all remaining criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (c) Fugitive Emissions

Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) emissions are not counted toward determination of PSD applicability.

**Source Status**

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	40.9
PM <sub>10</sub>	19.5
SO <sub>2</sub>	0.00
VOC	0.00
CO	0.00
NO <sub>x</sub>	0.00
Single HAP	0.00
Combination HAPs	0.00

This new source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

### **Part 70 Permit Determination**

#### **326 IAC 2-7 (Part 70 Permit Program)**

This new source is subject to the Part 70 Permit requirements because the potential to emit (PTE) of at least one of the criteria pollutant is greater than or equal to 100 tons per year pursuant to 326 IAC 2-9-1(b) until the source is issued an operating agreement.

This new source has concurrently applied on January 12, 1999 for a Source Specific Operating Agreement (SSOA) under Option 2.

This source, otherwise required to obtain a Title V permit, has agreed to accept a permit with federally enforceable limits that restrict its PTE to below the Title V emission levels. Therefore, this source will be issued a SSOA pursuant to 326 IAC 2-9-8.

### **Federal Rule Applicability**

- (a) This limestone processing plant is subject to the New Source Performance Standard 326 IAC 12, 40 CFR 60.670 through 60.676, Subpart OOO. This rule requires the particulate emissions from:
  - (1) the crushing operations to be limited to fifteen percent (15%) opacity or less, and
  - (2) the screening and conveying operations to be limited to ten percent (10%) or less.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR art 63) applicable to this source.

### **State Rule Applicability - Entire Source**

#### **326 IAC 2-9-8 (Crushed stone processing plants)**

The facilities and processes of this source shall be granted the Source Specific Operating Agreement provided that:

- (a) That the source annual throughput shall be less than one million (1,000,000) tons per year.
- (b) This source does not emit particulate matter in excess of or equal to twenty-five (25) tons per year excluding fugitive emissions.
- (c) That the source shall utilize at most six (6) crushers, thirteen (13) screens, and a conveying operation.
- (d) That records of the annual throughput, based on a calendar year, shall be prepared and maintained. These records shall be maintained for a minimum period of five (5) years, and made available, upon request, to the Office of Air Management (OAM).
- (e) That the source shall use wet process or continuous wet suppression "as needed" to meet the opacity requirements.

- (f) That all equipment that generate particulate matter (PM) emissions and any emission control devices shall be operated and maintained at all times of plant operation in such a manner as to meet all of the requirements of this Source Specific Operating Agreement.
- (g) That the visible emissions from the screening and conveying operations shall not exceed an average of ten (10%) 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.
- (h) That the visible emissions from the crushing operation shall not exceed an average of fifteen percent (15%) 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.
- (i) That the fugitive particulate matter (PM) emissions shall be controlled by applying water on storage piles and unpaved roadways on an "as needed" basis, such that the following visible emission conditions are met:
- (j) The visible emissions from any storage pile shall not exceed twenty percent (20%) in twenty-four (24) consecutive readings in a six (6) minute period. This limitation shall not apply during periods when application of control measures are ineffective or unreasonable due to sustained high wind speeds. The opacity shall be determined using 40 CFR 60, Appendix A, Method 9, except that the opacity shall be observed at approximately four (4) feet from the surface at the point of maximum opacity. The observer shall stand approximately fifteen (15) feet from the plume and at approximately right angles to the plume.
- (k) The visible emissions from unpaved roadways shall not exceed an average instantaneous opacity of twenty percent (20%). Average instantaneous opacity shall be the average of twelve (12) instantaneous opacity readings, taken for four (4) vehicle passes, consisting of three (3) opacity readings for each vehicle pass. The three (3) opacity readings for each vehicle pass shall be taken as follows:
  - (1). The first reading shall be taken at the time of emission generation.
  - (2). The second reading shall be taken five (5) seconds later.
  - (3) The third reading shall be taken five (5) seconds after the second reading, or ten (10) seconds after the first reading.

The three (3) readings shall be taken at the point of maximum opacity. The observer shall stand approximately fifteen (15) feet from the plume and at approximately right angles to the plume. Each reading shall be taken approximately four (4) feet above the surface of the unpaved roadway.
- (l) That the source shall provide an annual notice to the commissioner stating that the source is in operation and certifying that its operations are in compliance with this Source Specific Operating Agreement. This report shall be submitted to:

Compliance Data Section  
Office of Air Management  
100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, IN 46206-6015

no later than January 30 of each year, in the format attached.

- (m) That any exceedance of any requirement contained in this operating agreement shall be reported, in writing, within one (1) week of its occurrence.

### **State Rule Applicability - Individual Facilities**

#### **326 IAC 6-3-2 (Process Operations)**

The particulate matter (PM) from the limestone processing operations shall be limited by the following:

Interpolation and extrapolation 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:

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

The limestone processing operations are subject to 326 IAC 6-3-2 (Particulate emission limitations which limits the particulate matter to  $E = 55.0 P^{0.11} - 40$  or 78.8 pounds per hour (345 tons per year) for processing operations (total process weight, P, equals 1,095 tons per hour). Since this PM emission limit of 345 tons per year is greater than the PSD threshold level of 250 tons per year for this stationary plant, the allowable PM emissions shall be limited to 56.8 pounds per hour (249 tons per year). Since this PM emission limit of 56.8 pounds per hour is greater than the potential PM emission rate after control of 9.33 pounds per hour, the limestone processing operations comply with this rule.

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

Fugitive particulate matter emissions shall be controlled according to the plan received on January 12, 1999. This plan consists of applying water and/or calcium chloride to stockpiles and roads on an as-needed basis.

### **Air Toxic Emissions**

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

None of the listed air toxics will be emitted from this source.

## **Conclusion**

The construction and operation of this stationary limestone processing source shall be subject to the conditions of the attached proposed **New Source Construction and Source Specific Operating Agreement CP 003-10580-00296**.



<b>Annual Notification &amp; Certification Form Source Specific Operating Agreement Program</b>
---

This form should be used to comply with the notification and certification requirements under 326 IAC 2-9.

<b>Company Name: Benchmark Materials-France Stone Co., Woodburn II Quarry</b>
<b>Address: 22821 Dawkins Road</b>
<b>City: Woodburn, IN 46797</b>
<b>Contact Person: Jeff Stoll</b>
<b>Phone #: 419-882-0123</b>
<b>Agreement #: S 003-10580-00296</b>

I hereby certify that the source identified above is still in operation and is in compliance with the requirements of the above mentioned Source Specific Operating Agreement.

<b>Name (typed):</b>
<b>Title:</b>
<b>Signature:</b>
<b>Date:</b>

**Appendix A: Emission Calculations  
Sand & Stone Processing**

**Company Name:** Benchmark Materials-France Stone Co. Woodburn II Quarry  
**Address City IN Zip:** 22821 Dawkins Road, Woodburn, IN 46797  
**Permit #:** CP 003-10580  
**Plt ID:** 003-00296  
**Reviewer:** Mark L. Kramer  
**Date:** January 12, 1999

\*\* emissions before controls \*\*  
(TSP)

Storage		** see page 2 **			3.10 tons/yr	AP-42 Ch.11.2.3 (Fourth edition, no update)
Transporting		** see page 3 **			4322.61 tons/yr	AP-42 Ch.13.2.2 (Supplement E, 9/98)
Loading & Unloading	1,095 ton/hr x	0.0058 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	27.96 tons/yr	AP-42 Ch.13.2.4 (Fifth edition, 1/95)
Crushing (primary)	1,095 ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	24.17 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Crushing (secondary)	391 ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	8.63 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Crushing (tertiary)	113 ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.49 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Fines Screening	110 ton/hr x	0.1491 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	71.84 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Screening	1,095 ton/hr x	0.0315 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	151.08 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Conveyor Transfer	1,095 ton/hr x	0.00294 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	14.10 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
<b>Total emissions before controls:</b>					<b>4625.99 tons/yr</b>	

\*\* emissions after controls \*\*

Storage	3.10 tons/yr x	50% emitted after controls =	1.55 tons/yr
Transporting	4322.61 tons/yr x	50% emitted after controls =	2161.30 tons/yr
Loading & Unloading	27.96 tons/yr x	100% emitted after controls =	27.96 tons/yr
Crushing (primary)	24.17 tons/yr x	15% emitted after controls =	3.63 tons/yr
Crushing (secondary)	8.63 tons/yr x	15% emitted after controls =	1.29 tons/yr
Crushing (tertiary)	2.49 tons/yr x	15% emitted after controls =	0.37 tons/yr
Fines Screening	71.84 tons/yr x	15% emitted after controls =	10.78 tons/yr
Screening	151.08 tons/yr x	15% emitted after controls =	22.66 tons/yr
Conveying	14.10 tons/yr x	15% emitted after controls =	2.12 tons/yr
<b>Total emissions after controls:</b>			<b>2231.67 tons/yr</b>

\*\* fugitive vs. nonfugitive \*\*

Storage	3.10 tons/yr x	50% emitted after controls =	1.55 tons/yr
Transporting	4322.61 tons/yr x	50% emitted after controls =	2161.30 tons/yr
Loading / Unloading	27.96 tons/yr x	100% emitted after controls =	27.96 tons/yr
Total fugitive emissions:			2190.82 tons/yr
Crushing (primary)	24.17 tons/yr x	15% emitted after controls =	3.63 tons/yr
Crushing (secondary)	8.63 tons/yr x	15% emitted after controls =	1.29 tons/yr
Crushing (tertiary)	2.49 tons/yr x	15% emitted after controls =	0.37 tons/yr
Fines Screening	71.84 tons/yr x	15% emitted after controls =	10.78 tons/yr
Screening	151.08 tons/yr x	15% emitted after controls =	22.66 tons/yr
Conveying:	14.10 tons/yr x	15% emitted after controls =	2.12 tons/yr
Total nonfugitive emissions:			40.85 tons/yr

\*\* storage \*\*

Storage emissions, which result from wind erosion, are determined by the following calculations:

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

$$= 2.31 \text{ lb/acre/day}$$

where s = 2 % silt content of material

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

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

$$E_p (\text{storage}) = E_f \cdot sc \cdot (40 \text{ cuft/ton}) / (2000 \text{ lb/ton}) / (43560 \text{ sqft/acre}) / (25 \text{ ft}) \cdot (365 \text{ day/yr})$$

$$= 3.10 \text{ tons/yr}$$

where sc = 200,000 tons storage capacity

\*\* unpaved roads \*\*

The following calculations determine the amount of emissions created by unpaved roads, based on 8760 hours of use and AP-42, Ch 13.2.2 (Supplement E, 9/98).

Two methods are provided for calculating emissions. The first does not consider natural mitigation due to precipitation.

$$\begin{aligned}
 &104.3 \text{ trip/hr} \times \\
 &0.333 \text{ mile/trip} \times \\
 &2 \text{ (round trip) } \times \\
 &8760 \text{ hr/yr} = \qquad \qquad \qquad 608503 \text{ miles per year}
 \end{aligned}$$

Method 1:  $E_f = k \cdot [(s/12)^{0.8}] \cdot [(W/3)^b] / [(M/0.2)^c]$   
 $= 21.61 \text{ lb/mile}$

where k = 10.0 (particle size multiplier for PM-10 (k=10 for PM-30 or TSP))  
 s = 10 mean % silt content of unpaved roads

b = 0.5 Constant for PM-10 (b = 0.5 for PM-30 or TSP)

c = 0.4 Constant for PM-10 (c = 0.4 for PM-30 or TSP)

W = 18.75 tons average vehicle weight

M = 0.2 surface material moisture content, % (default is 0.2 for dry conditions)

$$\frac{21.61 \text{ lb/mi} \times 608503 \text{ mi/yr}}{2000 \text{ lb/ton}} = 6573.97 \text{ tons/yr}$$

Method 2  $E_f = \{k \cdot [(s/12)^{0.8}] \cdot [(W/3)^b] / [(Mdry/0.2)^c] \cdot [(365-p)/365]$   
 $= 14.21 \text{ lb/mile}$   
 (particle size multiplier for PM-10) (k=10 for PM-30 or TSP)

where k = 10.0  
 s = 10 mean % silt content of unpaved roads

b = 0.5 Constant for PM-10 (b = 0.5 for PM-30 or TSP)

c = 0.4 Constant for PM-10 (c = 0.4 for PM-30 or TSP)

W = 18.75 tons average vehicle weight

Mdry = 0.2 surface material moisture content, % (default is 0.2 for dry conditions)

p = 125 number of days with at least 0.254mm of precipitation (See Figure 13.2.2-1)

$$\frac{14.21 \text{ lb/mi} \times 608502.888 \text{ mi/yr}}{2000 \text{ lb/ton}} = 4322.61 \text{ tons/yr}$$

\*\* aggregate handling \*\*

The following calculations determine the amount of emissions created by truck loading and unloading of aggregate, based on 8760 hours of use and AP-42, Ch 13.2.4 (Fifth edition, 1/95).

$$\begin{aligned}
 E_f &= k \cdot (0.0032) \cdot (U/5)^{1.3} / (M/2)^{1.4} \\
 &= 0.0058 \text{ lb/ton}
 \end{aligned}$$

where k = 0.74 (particle size multiplier)  
 U = 10 mile/hr mean wind speed  
 M = 2 % material moisture content

**Appendix A: Emission Calculations  
Sand & Stone Processing**

**Company Name:** Benchmark Materials-France Stone Co. Woodburn II Quarry  
**Address City IN Zip:** 22821 Dawkins Road, Woodburn, IN 46797  
**Permit #:** CP 003-10580  
**Plt ID:** 003-00296  
**Reviewer:** Mark L. Kramer  
**Date:** January 12, 1999

\*\* emissions before controls \*\*  
(PM-10)

Storage		** see page 2 **			3.10 tons/yr	AP-42 Ch.11.2.3 (Fourth edition, no update)
Transporting		** see page 3 **			1123.88 tons/yr	AP-42 Ch.13.2.2 (Supplement E, 9/98)
Loading & Unloading	1,095 ton/hr x	0.0058 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	27.96 tons/yr	AP-42 Ch.13.2.4 (Fifth edition, 1/95)
Crushing (primary)	1,095 ton/hr x	0.0024 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	11.51 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Crushing (secondary)	391 ton/hr x	0.0024 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	4.11 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Crushing (tertiary)	113 ton/hr x	0.0024 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.19 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Fines Screening	110 ton/hr x	0.071 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	34.21 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Screening	1,095 ton/hr x	0.015 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	71.94 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Conveyor Transfer	1,095 ton/hr x	0.0014 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	6.71 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
<b>Total emissions before controls:</b>					<b>1284.62 tons/yr</b>	

\*\* emissions after controls \*\*

Storage	3.10 tons/yr x	50% emitted after controls =	1.55 tons/yr
Transporting	1123.88 tons/yr x	50% emitted after controls =	561.94 tons/yr
Loading & Unloading	27.96 tons/yr x	100% emitted after controls =	27.96 tons/yr
Crushing (primary)	11.51 tons/yr x	15% emitted after controls =	1.73 tons/yr
Crushing (secondary)	4.11 tons/yr x	15% emitted after controls =	0.62 tons/yr
Crushing (tertiary)	1.19 tons/yr x	15% emitted after controls =	0.18 tons/yr
Fines Screening	34.21 tons/yr x	15% emitted after controls =	5.13 tons/yr
Screening	71.94 tons/yr x	15% emitted after controls =	10.79 tons/yr
Conveying	6.71 tons/yr x	15% emitted after controls =	1.01 tons/yr
<b>Total emissions after controls:</b>			<b>610.91 tons/yr</b>

\*\* fugitive vs. nonfugitive \*\*

Storage	3.10 tons/yr x	50% emitted after controls =	1.55 tons/yr
Transporting	1123.88 tons/yr x	50% emitted after controls =	561.94 tons/yr
Loading / Unloading	27.96 tons/yr x	100% emitted after controls =	27.96 tons/yr
Total fugitive emissions:			591.46 tons/yr
Crushing (primary)	11.51 tons/yr x	15% emitted after controls =	1.73 tons/yr
Crushing (secondary)	4.11 tons/yr x	15% emitted after controls =	0.62 tons/yr
Crushing (tertiary)	1.19 tons/yr x	15% emitted after controls =	0.18 tons/yr
Fines Screening	34.21 tons/yr x	15% emitted after controls =	5.13 tons/yr
Screening	71.94 tons/yr x	15% emitted after controls =	10.79 tons/yr
Conveying:	6.71 tons/yr x	15% emitted after controls =	1.01 tons/yr
Total nonfugitive emissions:			19.45 tons/yr

\*\* storage \*\*

Storage emissions, which result from wind erosion, are determined by the following calculations:

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

$$= 2.31 \text{ lb/acre/day}$$

where s = 2 % silt content of material

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

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

$$E_p (\text{storage}) = E_f \cdot sc \cdot (40 \text{ cuft/ton}) / (2000 \text{ lb/ton}) / (43560 \text{ sqft/acre}) / (25 \text{ ft}) \cdot (365 \text{ day/yr})$$

$$= 3.10 \text{ tons/yr}$$

where sc = 200,000 tons storage capacity

\*\* unpaved roads \*\*

The following calculations determine the amount of emissions created by unpaved roads, based on 8760 hours of use and AP-42, Ch 13.2.2 (Supplement E, 9/98).

Two methods are provided for calculating emissions. The first does not consider natural mitigation due to precipitation.

$$\begin{aligned}
 &104.3 \text{ trip/hr} \times \\
 &0.333 \text{ mile/trip} \times \\
 &2 \text{ (round trip) } \times \\
 &8760 \text{ hr/yr} = \qquad \qquad \qquad 608503 \text{ miles per year}
 \end{aligned}$$

Method 1:  $E_f = k \cdot [(s/12)^{0.8}] \cdot [(W/3)^b] / [(M/0.2)^c]$   
 = 4.68 lb/mile

where k = 2.6 (particle size multiplier for PM-10 (k=10 for PM-30 or TSP))  
 s = 10 mean % silt content of unpaved roads

b = 0.4 Constant for PM-10 (b = 0.5 for PM-30 or TSP)

c = 0.3 Constant for PM-10 (c = 0.4 for PM-30 or TSP)

W = 18.75 tons average vehicle weight

M = 0.2 surface material moisture content, % (default is 0.2 for dry conditions)

$$\frac{4.68 \text{ lb/mi} \times 608503 \text{ mi/yr}}{2000 \text{ lb/ton}} = 1423.03 \text{ tons/yr}$$

Method 2  $E_f = \{k \cdot [(s/12)^{0.8}] \cdot [(W/3)^b] / [(Mdry/0.2)^c] \cdot [(365-p)/365]$   
 = 3.69 lb/mile  
 (particle size multiplier for PM-10) (k=10 for PM-30 or TSP)

where k = 2.6 for PM-30 or TSP  
 s = 10 mean % silt content of unpaved roads

b = 0.5 Constant for PM-10 (b = 0.5 for PM-30 or TSP)

c = 0.4 Constant for PM-10 (c = 0.4 for PM-30 or TSP)

W = 18.75 tons average vehicle weight

Mdry = 0.2 surface material moisture content, % (default is 0.2 for dry conditions)

p = 125 number of days with at least 0.254mm of precipitation (See Figure 13.2.2-1)

$$\frac{3.69 \text{ lb/mi} \times 608502.888 \text{ mi/yr}}{2000 \text{ lb/ton}} = 1123.88 \text{ tons/yr}$$

\*\* aggregate handling \*\*

The following calculations determine the amount of emissions created by truck loading and unloading of aggregate, based on 8760 hours of use and AP-42, Ch 13.2.4 (Fifth edition, 1/95).

$$\begin{aligned}
 E_f &= k \cdot (0.0032) \cdot (U/5)^{1.3} / (M/2)^{1.4} \\
 &= 0.0058 \text{ lb/ton}
 \end{aligned}$$

where k = 0.74 (particle size multiplier)  
 U = 10 mile/hr mean wind speed  
 M = 2 % material moisture content