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

**U.S. Aggregates, Inc. (Thorntown Plant 2)
9619 West State Road 47
Thorntown, Indiana 46071**

(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 2-1.1, 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.: S 011-16001-00048	
Original signed by Paul Dubenetzky Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: August 6, 2002

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SECTION A

SOURCE SUMMARY

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

A.1 General Information [326 IAC 2-5.1-3(c)] [326 IAC 2-6.1-4(a)]

The Permittee owns and operates a stationary sand and gravel processing source.

Authorized Individual: Kenneth Robinson
Source Address: 9619 West State Road 47, Thorntown, Indiana 46071
Mailing Address: 5400 West 86th Street, Indianapolis, Indiana 46268
Phone Number: 317 - 875 - 4670
SIC Code: 1442
County Location: Boone
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

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

- (a) One (1) grizzly hopper, known as GH-1, capacity: 475 tons of sand and gravel per hour.
- (b) One (1) vibrating screen scalper, known as SC-1, capacity: 500 tons of sand and gravel per hour.
- (c) One (1) primary jaw crusher, known as CR-1, capacity: 25 tons of sand and gravel per hour.
- (d) One (1) wash/desanding screen, known as SC-2, capacity: 475 tons of sand and gravel per hour.
- (e) One (1) secondary impact crusher, known as CR-2, capacity: 255 tons of sand and gravel per hour.
- (f) One (1) log washer, known as LW-1, capacity: 255 tons of sand and gravel per hour.
- (g) One (1) sand wash screw, known as SS-1, capacity: 100 tons of sand and gravel per hour.
- (h) One (1) wash/sizing screen, known as SC-3, capacity: 255 tons of sand and gravel per hour.
- (i) One (1) tertiary roll crusher, known as CR-3, capacity: 55 tons of sand and gravel per hour.
- (k) One (1) conveyor operation, known as CO-1, consisting of fourteen (14) conveyors or stackers, maximum capacity: 500 tons of sand and gravel per hour.

- (l) One (1) storage tank, known as T-1, capacity: 10,000 gallons of No. 2 diesel fuel oil and 21,000 pounds of diesel fuel per hour.

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

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) 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 [IC 13-15-5-3]

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 of the new emission units 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 the Section B condition entitled, "Minor Source Operating Permit", 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 Quality (OAQ), 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 2-9-7 (Sand and gravel plants).

B.7 NSPS Reporting Requirement

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 Quality
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, OAQ. The requirements of 40 CFR Part 60 are also federally enforceable.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

- 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 three million one thousand (3,100,000) tons per year.
 - (c) This source does not emit particulate matter in excess of or equal to one hundred (100) tons per year excluding fugitive emissions.
- C.2 Hazardous Air Pollutants (HAPs) [326 IAC 2-7]
- Any change or modification which may increase potential to emit to ten (10) tons per year of any single hazardous air pollutant, twenty-five (25) tons per year of any combination of hazardous air pollutants from this source, shall cause this source to be considered a major source under Part 70 Permit Program, 326 IAC 2-7, and shall require approval from IDEM, OAQ prior to making the change.
- C.3 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) 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.
 - (b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that failure to implement the Preventive Maintenance Plan 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, OAQ, upon request and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its Preventive Maintenance Plan whenever lack of proper maintenance causes or contributes to any violation.
- C.4 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 Quality
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 OAQ within thirty (30) calendar days of implementing a notice-only change. [326 IAC 2-6.1-6(d)]

C.5 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 Quality
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.6 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, 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 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 the conditions of this permit;
- (c) Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit;
- (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.

C.7 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, OAQ, 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, OAQ, 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.8 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.9 Opacity [326 IAC 5-1]

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

- (a) Opacity shall not exceed an average of 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.10 Fugitive Dust Emissions [326 IAC 6-4] [326 IAC 2-9-7(b)(4)(G)]

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.11 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 May 16, 2002. The plan consists of water to stockpiles and roads on an as-needed basis.

Testing Requirements

C.12 Performance Testing [326 IAC 3-6] [326 IAC 2-1.1-11]

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

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

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, 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 (2) weeks prior to the test date.

- (b) All test reports must be received by IDEM, OAQ, within forty-five (45) days after the completion of the testing. An extension may be granted by the IDEM, OAQ, if the source submits to IDEM, OAQ, 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.13 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. All monitoring and record keeping requirements not already legally required shall be implemented when operation begins.

C.14 Monitoring Methods [326 IAC 3]

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

C.15 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, OAQ, 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, OAQ 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, OAQ within thirty (30) days of receipt of the notice of deficiency. IDEM, OAQ 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, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ 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 require the certification by the "authorized individual" as defined by 326 IAC 2-1.1-1.

Record Keeping and Reporting Requirements

C.16 Malfunctions Report [326 IAC 1-6-2]

Pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAQ, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a) (1) through (6).
- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

C.17 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.18 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, OAQ, 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 failure to implement the Preventive Maintenance Plan 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 Response Plan - Preparation, Implementation, Records, and Reports, 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 when operation begins.

C.19 General Reporting Requirements [326 IAC 2-1.1-11] [326 IAC 2-6.1-2] [IC 13-14-1-13]

- (a) Reports required by conditions in Section D of this permit shall be submitted to:

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

- (b) 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.
- (c) Unless otherwise specified in this permit, any quarterly report required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. The report does not require the certification by an "authorized individual" as defined by 326 IAC 2-1.1-1(1).
- (d) 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. Reporting periods are based on calendar years.

C.20 Annual Notice [326 IAC 2-9-7]

- (a) 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 Branch
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

- (b) Noncompliance with any condition must be specifically identified. If there are any permit conditions or requirements for which the source is not in compliance at any time during the year, the Permittee must provide a narrative description of how the source did or will achieve compliance and the date compliance was, or will be, achieved. The notification must be signed by an authorized individual.
- (c) The annual notice shall cover the time period from January 1 to December 31 of the previous year, and shall be submitted no later than January 30 of each year, in the format attached.
- (d) The notification 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.

SECTION D.1 EMISSIONS UNIT OPERATION CONDITIONS

Emissions Unit Description: Sand and Gravel Processing Plant

- (a) One (1) grizzly hopper, known as GH-1, capacity: 475 tons of sand and gravel per hour.
- (b) One (1) vibrating screen scalper, known as SC-1, capacity: 500 tons of sand and gravel per hour.
- (c) One (1) primary jaw crusher, known as CR-1, capacity: 25 tons of sand and gravel per hour.
- (d) One (1) wash/desanding screen, known as SC-2, capacity: 475 tons of sand and gravel per hour.
- (e) One (1) secondary impact crusher, known as CR-2, capacity: 255 tons of sand and gravel per hour.
- (f) One (1) log washer, known as LW-1, capacity: 255 tons of sand and gravel per hour.
- (g) One (1) sand wash screw, known as SS-1, capacity: 100 tons of sand and gravel per hour.
- (h) One (1) wash/sizing screen, known as SC-3, capacity: 255 tons of sand and gravel per hour.
- (i) One (1) tertiary roll crusher, known as CR-3, capacity: 55 tons of sand and gravel per hour.
- (k) One (1) conveyor operation, known as CO-1, consisting of fourteen (14) conveyors or stackers, maximum capacity: 500 tons of sand and gravel per hour.
- (l) One (1) storage tank, known as T-1, capacity: 10,000 gallons of No. 2 diesel fuel oil and 21,000 pounds of diesel fuel 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

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

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

D.1.2 Annual Throughput [326 IAC 2-9-7(b)(3)]

Pursuant to 326 IAC 2-9-7(b)(3), the source annual throughput shall be less than three million one hundred thousand (3,100,000) tons per year and shall not emit particulate matter in excess of or equal to one hundred (100) tons per year, excluding fugitive particulate emissions.

D.1.3 Number of Facilities [326 IAC 2-9-7(b)(3)]

Pursuant to 326 IAC 2-9-7 (Sand and gravel plants), the source shall utilize at most twelve (12) crushers, twenty-four (24) screens, and one (1) conveying operation.

D.1.4 Opacity [326 IAC 2-9-7(b)(4)(E)] [326 IAC 12] [40 CFR 60.670, Subpart OOO]

Pursuant to 326 IAC 2-9-7(b)(4)(E) 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 percent (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.

D.1.5 Opacity [326 IAC 2-9-7(b)(4)(F)]

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

Pursuant to 326 IAC 6-3-2 (Particulate Emission Limitations), the allowable PM emission rate from the sand and gravel processing plant shall not exceed 69.0 pounds per hour.

Compliance Determination Requirements

D.1.7 Dust Suppression for Crushing, Screening and Conveying Operations [326 IAC 2-9-7(b)(4)(C)]

Pursuant to 326 IAC 2-9-7(b)(4)(C), 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.1.8 Particulate Matter [326 IAC 2-9-7(b)(4)(D)]

Pursuant to 326 IAC 2-9-7(b)(4)(D), 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.1.9 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 crushing, screening and 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 OAQ, 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 OAQ 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.1.10 Record Keeping Requirements [326 IAC 2-9-7(b)(4)(B)]

Pursuant to 326 IAC 2-9-7(b)(4)(B), the Permittee shall keep throughput records of the sand and gravel operation at the site for the previous twelve (12) months on a monthly rolling total. These records shall be maintained for a minimum period of five (5) years, and made available, upon request, to the Office of Air Quality (OAQ).

D.1.11 Annual Notice [326 IAC 2-9-7]

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 Quality
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.1.12 Reporting Requirements [326 IAC 2-9-7]

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

Annual Notification & Certification Form Source Specific Operating Agreement Program

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

Company Name:	U.S. Aggregates, Inc. (Thorntown Plant 2)
Source Address:	9619 West State Road 47, Thorntown, Indiana 46071
Contact Person:	Doug Lozier
Phone #:	317 - 875 - 4670
Agreement #:	S 011-16001-00048

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.

Name of Responsible Official (typed):
Title:
Signature:
Date:

Mail to: Permit Administration & Development Section
Office of Air Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015

U.S. Aggregates, Inc. (Thorntown Plant 2)
5400 West 86th Street
Indianapolis, IN 46268

Affidavit of Construction

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

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of _____ for U.S. Aggregates, Inc. (Thorntown Plant 2).
(Title) (Company Name)
3. By virtue of my position with U.S. Aggregates, Inc. (Thorntown Plant 2), I have personal knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of U.S. Aggregates, Inc. (Thorntown Plant 2).
4. I hereby certify that U.S. Aggregates, Inc. (Thorntown Plant 2), 9619 West State Road 47, Thorntown, Indiana 46071, completed construction of the sand and gravel processing source on _____ in conformity with the requirements and intent of the Construction Permit application received by the Office of Air Quality on May 16, 2002 and as permitted pursuant to **CP No. 011-16001, Plant ID No. 011-00048** issued on _____.

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature

Date

STATE OF INDIANA)
)SS

COUNTY OF _____)

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

My Commission expires: _____.

Signature

Name (typed or printed)

Indiana Department of Environmental Management Office of Air Quality

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

Source Background and Description

Source Name:	U.S. Aggregates, Inc. (Thorntown Plant 2)
Source Location:	9619 West State Road 47, Thorntown, Indiana 46071
County:	Boone
SIC Code:	1442
Operation Permit No.:	CP 011-16001-00048
Permit Reviewer:	Mark L. Kramer

The Office of Air Quality (OAQ) has reviewed an application from U.S. Aggregates, Inc. (Thorntown Plant 2) relating to the construction and operation of a stationary sand and gravel processing source.

Permitted Emission Units and Pollution Control Equipment

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

Unpermitted Emission Units and Pollution Control Equipment

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

New Emission Units and Pollution Control Equipment

The application includes information relating to the construction and operation of the following equipment:

- (a) One (1) grizzly hopper, known as GH-1, capacity: 475 tons of sand and gravel per hour.
- (b) One (1) vibrating screen scalper, known as SC-1, capacity: 500 tons of sand and gravel per hour.
- (c) One (1) primary jaw crusher, known as CR-1, capacity: 25 tons of sand and gravel per hour.
- (d) One (1) wash/desanding screen, known as SC-2, capacity: 475 tons of sand and gravel per hour.
- (e) One (1) secondary impact crusher, known as CR-2, capacity: 255 tons of sand and gravel per hour.
- (f) One (1) log washer, known as LW-1, capacity: 255 tons of sand and gravel per hour.
- (g) One (1) sand wash screw, known as SS-1, capacity: 100 tons of sand and gravel per hour.

- (h) One (1) wash/sizing screen, known as SC-3, capacity: 255 tons of sand and gravel per hour.
- (i) One (1) tertiary roll crusher, known as CR-3, capacity: 55 tons of sand and gravel per hour.
- (k) One (1) conveyor operation, known as CO-1, consisting of fourteen (14) conveyors or stackers, maximum capacity: 500 tons of sand and gravel per hour.
- (l) One (1) storage tank, known as T-1, capacity: 10,000 gallons of No. 2 diesel fuel oil and 21,000 pounds of diesel fuel per hour.

Existing Approvals

The source has no previous approvals.

Source Definition

This U.S. Aggregates, Inc. owns two (2) sand and gravel processing plants:

- (a) Plant 1 is located at 6990 North Country Road 875 West, Thorntown, Indiana 46071; and
- (b) Plant 2 is located at 9619 West State Road 47, Thorntown, Indiana 46071.

The two (2) plants are not located on contiguous properties, are approximately two (2) miles apart, and there is no product transfer between the two (2) plants. Although the plants have the same SIC codes and are owned by one (1) company, they will be considered as two (2) separate sources.

A separate SSOA will be issued to Plant 2. Plant 1 is currently operating under S 011-7493-00044, issued on December 26, 1996 to Vulcan Materials Company and transferred to U.S. Aggregates, Inc. by AAS 011-9771-00044, issued on November 22, 1998.

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.

An application for the purposes of this review was received on May 16, 2002, with additional information received on June 10, 2002.

Emission Calculations

See pages 1 through 4 of Appendix A of this document for detailed emissions calculations.

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.”

Pollutant	Potential To Emit (tons/year)
PM	1,093
PM ₁₀	251
SO ₂	-
VOC	-
CO	-
NO _x	-

HAPS	Potential To Emit (tons/year)
None	
TOTAL	0.00

- (a) The potential to emit (as defined in 326 IAC 2-1.1-1(16)) of PM and PM₁₀ are equal to or greater than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-6.1.
- (b) 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) are not counted toward determination of PSD applicability. Note NSPS Subpart OOO was not effective until August 31, 1983.

County Attainment Status

The source is located in Boone County.

Pollutant	Status
PM ₁₀	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	attainment

Pollutant	Status
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Boone County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Boone 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.

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	4.14
PM ₁₀	1.97
SO ₂	-
VOC	-
CO	-
NO _x	-
Single HAP	-
Combination HAPS	-

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 one hundred (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 May 16, 2002 for a Source Specific Operating Agreement (SSOA) under Option 3 of 326 IAC 2-9-7(b).

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 2-9-7(b).

Federal Rule Applicability

- (a) This sand and gravel 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

The facilities and processes of this source shall be granted the Source Specific Operating Agreement pursuant to 326 IAC 2-9-7(b)(3) provided that:

- (a) The sand and gravel operation annual throughput shall be less than three million one hundred thousand (3,100,000) tons per year.
- (b) This source does not emit particulate matter in excess of or equal to one hundred (100) tons per year excluding fugitive emissions.
- (c) The sand and gravel operation shall have no more than twelve (12) crushers, twenty-four (24) screens, and one (1) conveying operation.
- (d) The Permittee shall keep throughput records of the sand and gravel operation at the site for the previous twelve (12) months on a monthly rolling total. These records shall be maintained for a minimum period of five (5) years, and made available upon request of the Office of Air Quality (OAQ).
- (e) Wet process or continuous wet suppression shall be used.
- (f) All equipment that generate particulate matter (PM) emissions and any associated 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) The visible emissions from the screening and conveying operation shall not exceed an average of ten percent (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) 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) The fugitive particulate matter (PM) emissions of this source shall be controlled by applying water on all storage piles and unpaved roadways on an as needed basis, such that the

following visible emission conditions are met:

- (1) 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 at least fifteen (15) feet, but no more than one-fourth (1/4) mile, from the plume and at approximately right angles to the plume.
- (2) 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:
 - (A) The first reading shall be taken at the time of emission generation.
 - (B) The second reading shall be taken five (5) seconds after the first.
 - (C) 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 approximately four (4) feet from the surface at the point of maximum opacity. The observer shall stand at least fifteen (15) feet, but no more than one-fourth (1/4) mile, from the plume and at approximately right angles to the plume.

- (j) The fugitive particulate emissions at the sand and gravel operation shall not escape beyond the property lines or boundaries of the source property, right of way, or easement on which the source is located pursuant to 326 IAC 6-4.
- (k) 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 Quality
100 North Senate Avenue
P.O. Box 6015
Indianapolis, IN 46206-6015

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

- (l) 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 (Particulate Emission Limitations)

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

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

$$E = 55.0 P^{0.11} - 40$$

where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

The sand and gravel 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 69.0 pounds per hour for processing operations (total process weight, P, equals 500 tons per hour). Since this PM emission limit of 69.0 pounds per hour is greater than the potential PM emission rate after control of 0.945 pounds per hour, the sand and gravel 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 May 16, 2002. This plan consists of applying water to stockpiles and roads on an as-needed basis.

Conclusion

The construction and operation of this stationary sand and gravel processing source shall be subject to the conditions of the attached proposed **New Source Construction and Source Specific Operating Agreement** CP 011-16001-00048.

**Appendix A: Emission Calculations
Sand Processing**

Company Name: U.S. Aggregates, Inc. (Thorntown Plant 2)
Address City IN Zip: 9619 West State Road 47, Thorntown, Indiana 46071
New Source Construction & SSOA CP 011-16001
Plt ID: 011-00048
Reviewer: Mark L. Kramer
Date: May 16, 2002

* * emissions before controls * *

PM

Storage		** see page 2 **			1.24 tons/yr	AP-42 Ch.11.2.3 (Fourth edition, no update)
Transporting		** see page 3 **			1001.39 tons/yr	AP-42 Ch.13.2.2 (Supplement E, 9/98)
Loading & Unloading	500 ton/hr x	0.0033 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	7.24 tons/yr	AP-42 Ch.13.2.4 (Fifth edition, 1/95)
Crushing (primary)	25 ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.55 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Crushing (secondary)	255 ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	5.63 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Crushing (tertiary)	55 ton/hr x	0.00504 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	1.21 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Screening	500 ton/hr x	0.0315 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	68.99 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Conveyor Transfer	500 ton/hr x	0.00294 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	6.44 tons/yr	AP-42 Ch.11.19.2 (Fifth edition, 1/95)
Total emissions before controls:					1092.68 tons/yr	

* * emissions after controls * *

PM

Storage	1.24 tons/yr x	50% emitted after controls =	0.62 tons/yr
Transporting	1001.39 tons/yr x	50% emitted after controls =	500.69 tons/yr
Loading & Unloading	7.24 tons/yr x	100% emitted after controls =	7.24 tons/yr
Crushing (primary)	0.55 tons/yr x	5% emitted after controls =	0.03 tons/yr
Crushing (secondary)	5.63 tons/yr x	5% emitted after controls =	0.28 tons/yr
Crushing (tertiary)	1.21 tons/yr x	5% emitted after controls =	0.06 tons/yr
Screening	68.99 tons/yr x	5% emitted after controls =	3.45 tons/yr
Conveying	6.44 tons/yr x	5% emitted after controls =	0.32 tons/yr
Total emissions after controls:			512.69 tons/yr

* * fugitive vs. nonfugitive * *

Storage	1.24 tons/yr x	50% emitted after controls =	0.62 tons/yr
Transporting	1001.39 tons/yr x	50% emitted after controls =	500.69 tons/yr
Loading / Unloading	7.24 tons/yr x	100% emitted after controls =	7.24 tons/yr
Total fugitive emissions:			508.55 tons/yr

Crushing (primary)	0.55 tons/yr x	5% emitted after controls =	0.03 tons/yr
Crushing (secondary)	5.63 tons/yr x	5% emitted after controls =	0.28 tons/yr
Crushing (tertiary)	1.21 tons/yr x	5% emitted after controls =	0.06 tons/yr
Screening	68.99 tons/yr x	5% emitted after controls =	3.45 tons/yr
Conveying:	6.44 tons/yr x	5% emitted after controls =	0.32 tons/yr
Total nonfugitive emissions:			4.14 tons/yr

** storage **

CP 011-16001
Pit ID 001-00048

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

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

$$= 1.85 \text{ lb/acre/day}$$

where s = 1.6 % 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

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

$$= 1.2414122 \text{ tons/yr}$$

where sc = 100,000 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).

$$25 \text{ trip/hr} \times$$

$$0.2 \text{ mile/trip} \times$$

$$2 \text{ (round trip) } \times$$

$$8760 \text{ hr/yr} = 87600 \text{ miles per year}$$

PM

$$E_f = \{k \cdot [(s/12)^{0.8}] \cdot [(W/3)^b] / [(Mdry/0.2)^c]\} \cdot [(365-p)/365]$$

$$= 22.86 \text{ lb/mile}$$

where k = 10 (particle size multiplier for PM-10) (k=10 for PM-30 or TSP)
s = 8 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 = 30 tons average vehicle weight
Mdry = 0.2 surface material moisture content, % (default is 0.2 for dry conditions)
p = number of days with at least 0.254mm of precipitation (See Figure 13.2.2-1)

$$\frac{22.86 \text{ lb/mi} \times 87600 \text{ mi/yr}}{2000 \text{ lb/ton}} = 1001.39 \text{ tons/yr}$$

PM-10

$$E_f = \{k \cdot [(s/12)^{0.8}] \cdot [(W/3)^b] / [(Mdry/0.2)^c]\} \cdot [(365-p)/365]$$

$$= 4.72 \text{ lb/mile}$$

where k = 2.6 (particle size multiplier for PM-10) (k=10 for PM-30 or TSP)
s = 8 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 = 30 tons average vehicle weight
Mdry = 0.2 surface material moisture content, % (default is 0.2 for dry conditions)
p = number of days with at least 0.254mm of precipitation (See Figure 13.2.2-1)

$$\frac{4.72 \text{ lb/mi} \times 87600 \text{ mi/yr}}{2000 \text{ lb/ton}} = 206.81 \text{ tons/yr}$$

PM
 ** aggregate handling **

CP 011-16001
 Plt ID 001-00048

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).

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

= 0.0033 lb/ton

where k = 0.74 (particle size multiplier)
 U = 10 mile/hr mean wind speed
 M = 3 % material moisture content

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

Storage		** see page 2 **			1.24 tons/yr
Transporting		** see page 3 **			206.81 tons/yr
Loading & Unloading	500 ton/hr x	0.0016 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.42 tons/yr
Crushing (primary)	25 ton/hr x	0.0024 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.26 tons/yr
Crushing (secondary)	255 ton/hr x	0.0024 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	2.68 tons/yr
Crushing (tertiary)	55 ton/hr x	0.0024 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	0.58 tons/yr
Screening	500 ton/hr x	0.015 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	32.85 tons/yr
Conveyor Transfer	500 ton/hr x	0.0014 lb/ton	/ 2000 lb/ton x	8760 hr/yr =	3.07 tons/yr
Total emissions before controls:					250.91 tons/yr

AP-42 Ch.11.2.3 (Fourth edition, no update)
 AP-42 Ch.13.2.2 (Supplement E, 9/98)
 AP-42 Ch.13.2.4 (Fifth edition, 1/95)
 AP-42 Ch.11.19.2 (Fifth edition, 1/95)
 AP-42 Ch.11.19.2 (Fifth edition, 1/95)
 AP-42 Ch.11.19.2 (Fifth edition, 1/95)
 AP-42 Ch.11.19.2 (Fifth edition, 1/95)
 AP-42 Ch.11.19.2 (Fifth edition, 1/95)

** emissions after controls **
(PM-10)

Storage	1.24 tons/yr x	50% emitted after controls =	0.62 tons/yr
Transporting	206.81 tons/yr x	50% emitted after controls =	103.41 tons/yr
Loading & Unloading	3.42 tons/yr x	100% emitted after controls =	3.42 tons/yr
Crushing (primary)	0.26 tons/yr x	5% emitted after controls =	0.01 tons/yr
Crushing (secondary)	2.68 tons/yr x	5% emitted after controls =	0.13 tons/yr
Crushing (tertiary)	0.58 tons/yr x	5% emitted after controls =	0.03 tons/yr
Screening	32.85 tons/yr x	5% emitted after controls =	1.64 tons/yr
Conveying	3.07 tons/yr x	5% emitted after controls =	0.15 tons/yr
Total emissions after controls:			109.42 tons/yr

(PM-10)

** fugitive vs. nonfugitive **

Storage	1.24 tons/yr x	50% emitted after controls =	0.62 tons/yr
Transporting	206.81 tons/yr x	50% emitted after controls =	103.41 tons/yr
Loading / Unloading	3.42 tons/yr x	100% emitted after controls =	3.42 tons/yr
Total fugitive emissions:			107.45 tons/yr
Crushing (primary)	0.26 tons/yr x	5% emitted after controls =	0.01 tons/yr
Crushing (secondary)	2.68 tons/yr x	5% emitted after controls =	0.13 tons/yr
Crushing (tertiary)	0.58 tons/yr x	5% emitted after controls =	0.03 tons/yr
Screening	32.85 tons/yr x	5% emitted after controls =	1.64 tons/yr
Conveying:	3.07 tons/yr x	5% emitted after controls =	0.15 tons/yr
Total nonfugitive emissions:			1.97 tons/yr

**** storage ****

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

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

$$= 1.85 \text{ lb/acre/day}$$

where s = 1.6 % 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

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

$$= 1.2414122 \text{ tons/yr}$$

where sc = 100,000 tons storage capacity

(PM-10)

**** 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).

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

$$= 0.0016 \text{ lb/ton}$$

where k = 0.35 (particle size multiplier)

U = 10 mile/hr mean wind speed

M = 3 % material moisture content