CONSTRUCTION PERMIT
OFFICE OF AIR MANAGEMENT

Lone Star Industries, Inc.
3301 South County Road 150 West
Greencastle, Indiana 46135

(herein known as the Permittee) is hereby authorized to construct the facilities listed in Section A (Source Summary) of this permit.

This permit is issued in accordance with the provisions of 326 IAC 2-1, 326 IAC 2-2, 40 CFR 52.780 and 40 CFR 124, with conditions listed on the attached pages.

Construction Permit No.: CP-133-10159-00002	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

SECTION A SOURCE SUMMARY

This construction permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) and presented in the permit application.

A.1 General Information

The Permittee owns and operates a portland cement manufacturing plant.

Responsible Official:	Dave Puzan
Source Address:	3301 South County Road 150 West, Greencastle, Indiana 46135
Mailing Address:	P.O. Box 482, Greencastle, Indiana 46135
SIC Code:	3241
County Location:	Putnam
County Status:	Attainment for all criteria pollutants

A.2 Emission Units and Pollution Control Equipment Summary

This source modification for Lone Star Industries, Inc., relates to the modification of the wet process cement kiln with a clinker production capacity of 2,600 tons per day to a semi-dry process cement kiln with a clinker production capacity of 4,400 tons per day and its associated operations.

(a) Quarry Activities

(1) Existing limestone quarry activities include removal and transfer of overburden material, drilling and blasting of limestone, and loading of limestone to trucks.

(b) Raw Material Sizing Activities

(1) One modified primary crusher (1,300 tons limestone per hour capacity and 2,262,479 tons limestone per year limit) identified as Point 1-8 that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(2) Existing outside storage piles that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(3) Raw material sizing transfer equipment including:

(A) One existing apron feeder (Point 1-14) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(B) One new vibrating feeder and one new belt conveyor (Point 1-9) that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(C) Three existing vibrating feeders, one existing belt conveyor, and one new gate (Point 1-11) that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(4) One new secondary crusher (400 tons shale/limestone per hour capacity and 2,574,685 tons shale/limestone per year limit) and three new belt conveyors equipped with one fabric filter system (FF 1-15) to control particulate emissions.

(5) One existing screenhouse and three belt conveyors equipped with one fabric filter system (FF 1-16) to control particulate emissions.

(c) Raw Material Ball Mill Operation (360 tons raw material per hour capacity and 2,705,789 tons raw material per year limit)

(1) Modified raw material ball mill transfer equipment including three belt conveyors, one gate, and one alleviator equipped with one fabric filter system (FF 1-17) to control particulate emissions.

(2) Five new raw material bins, four new weigh feeders, one new conveyor belt, and one new apron feeder (Point 1-18) that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(3) One new enclosed wet ball mill, one new mill sump, six new screens, one new screen sump, two existing kiln feed basins, and one new kiln feed tank.

(d) Fly Ash Storage Activities (135,289 tons fly ash per year throughput limit)

(1) Two new fly ash silos and four new rotary feeders equipped with one fabric filter system (FF 1-21) to control particulate emissions.

(2) One new fly ash feed bin equipped with one fabric filter system (FF 1-22) to control particulate emissions.

(3) One new gate and one new airslide covered by a building enclosure (BE 1-23) to control particulate emissions.

(e) Coal Mill Operation

(1) Existing coal storage piles that utilize building enclosures to control particulate emissions.

(2) Coal transfer equipment including:

(A) Four existing vibrating feeders, one existing belt conveyor and one existing screen (Point 2-2) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(B) One existing belt conveyor and one modified magnetic separator (Point 2-4) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(C) One new gate (Point 2-6) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(D) Two new belt conveyors and three new gates (Point 2-7) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(3) Two existing coal reject piles (Points 2-3 and 2-8) that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions and one metal reject pile (Point 2-5) that does not release particulate emissions.

(4) One new coal bin equipped with one fabric filter system (FF 2-9) to control particulate emissions.

(5) One new weigh feeder, one new belt conveyor and one new rotary feeder covered by a building enclosure (BE 2-10) to control particulate emissions.

(6) One new coal mill (40 tons coal per hour capacity and 313,552 tons coal per year limit) equipped with one fabric filter system (FF 2-11) to control particulate emissions.

(7) Two new screw conveyors and one rotary feeder covered by a building enclosure (BE 2-12) to control particulate emissions.

(8) One new coal bin equipped with one fabric filter system (FF 2-13) to control particulate emissions.

(f) Kiln Operation (360 tons raw feed per hour capacity and 183 tons clinker per hour capacity)

(1) One new hammermill dryer equipped with one existing electrostatic precipitator (ESP 3-1) to control particulate emissions that exhausts to Stack 3-1.

(2) One new coal-fired calciner tower with a maximum rated capacity of 451 million British thermal units (MMBtu) per hour. Particulate emissions from the calciner tower are controlled by one existing electrostatic precipitator (ESP 3-1) that exhausts to Stack 3-1.

(3) One modified semi-dry process cement kiln with a rated capacity of 376 MMBtu per hour. Particulate emissions from the kiln are controlled by one existing electrostatic precipitator (ESP 3-1) that exhausts to Stack 3-1. The kiln is fired by coal and the following supplemental fuels:

(A) hazardous and nonhazardous waste fuel at a maximum rate allowed by the approved Boiler and Industrial Furnace Permit required by 40 CFR 270; and

(B) distillate fuel for burner startup activities.

(4) Seven existing screw conveyors, two rotary feeders, and two bucket elevators covered by a building enclosure (BE 3-2) to control particulate emissions.

(5) One existing ESP return dust bin and one new waste dust bin equipped with one fabric filter system (FF 3-3) to control particulate emissions.

(6) One existing raw material dust truck loading station covered by a building enclosure (BE 3-4) to control particulate emissions.

(7) One new alkali bypass system equipped with one gas suspension absorber (GSA). Particulate matter emissions are controlled by one fabric filter system (FF 3-5) that exhausts to Stack 3-1. The GSA is equipped with a water mist spray system and lime injection system to control sulfur dioxide emissions.

(8) Seven new alkali bypass system dust screw conveyors and one new bucket elevator covered by a building enclosure (BE 3-6) to control particulate emissions.

(9) One new alkali bypass system dust bin equipped with one fabric filter system (FF 3-7) to control particulate emissions. The material from the dust bin is loaded into trucks via a new truck loading system. Particulate emissions from loading are controlled by a building enclosure.

(10) One new alkali bypass system dust truck loading station covered by a building enclosure (BE 3-8) to control particulate emissions.

(g) Clinker Cooler Operations (183 tons clinker per hour capacity)

(1) One modified clinker cooler system with one clinker breaker, one dropout chamber, and one heat exchanger equipped with one fabric filter system (FF 3-9) to control particulate emissions that exhausts to Stack 3-2.

(2) Eight modified screw conveyors and four vibrating feeders covered by a building enclosure (BE 3-10) to control particulate emissions.

(3) Two modified belt conveyors and two bucket elevators equipped with one fabric filter system (FF 3-11) to control particulate emissions.

(4) One existing non-routine outdoor clinker pile (Point 3-13) that is covered to control particulate emissions.

(5) One modified belt conveyor (turning tower) equipped with one fabric filter system (FF 3-12) to control particulate emissions.

(6) Seven existing clinker silos equipped with one fabric filter system (FF 3-14) to control particulate emissions.

(h) Finish Mill Operations

(1) Two existing vibrating feeders and one belt conveyor equipped with one fabric filter system (FF 3-17) to control particulate emissions.

(2) Seven existing vibrating feeders, two existing belt conveyors, and one new gate equipped with one fabric filter system (FF 3-15) to control particulate emissions.

(3) One existing belt conveyor and one existing gate covered by a building enclosure (BE 3-21) to control particulate emissions.

No. 1 Finish Mill (70 tons clinker per hour capacity)

(4) Three existing conveyor belts, one clinker bin, and one gypsum bin equipped with one fabric filter system (FF 4-1) to control particulate emissions.

(5) One existing No. 1 finish mill equipped with one fabric filter system (FF 4-2) to control particulate emissions.

(6) One existing particle separator, one elevator, three air slides, one tailing screw, two cement coolers, one pump hopper, one mill feed belt, and one clinker belt equipped with one fabric filter system (FF 4-3) to control particulate emissions.

No. 2 Finish Mill (70 tons clinker per hour capacity)

(7) Two existing conveyor belts, one clinker bin, one gypsum bin, one clinker belt, and one feed belt equipped with one fabric filter system (FF 4-4) to control particulate emissions.

(8) One existing No. 2 finish mill equipped with one fabric filter system (FF 4-5) to control particulate emissions.

(9) One existing particle separator, one elevator, three air slides, one tailing screw, two cement coolers, one pump hopper, and one mill feed belt equipped with one fabric filter system (FF 4-6) to control particulate emissions.

No. 3 Finish Mill (95 tons clinker per hour capacity)

(10) Four existing raw material silos and one belt conveyor (Point 4-7) utilizing water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(11) Four existing weigh feeders and one belt conveyor equipped with one fabric filter system (FF 4-8) to control particulate emissions.

(12) Two new belt conveyors that control particulate matter by one fabric filter (FF 3-19) to control particulate emissions; and

(13) One new belt conveyor that controls particulate matter by one fabric filter (FF 3-20) to control particulate emissions.

(14) One new No. 3 finish mill equipped with one fabric filter system (FF 4-9) to control particulate emissions.

(15) Four new air slides and one new bucket elevator equipped with one fabric filter system (FF 4-10) to control particulate emissions.

(16) One new air slide, one cement bin, one screw conveyor, and one rotary feeder equipped with one fabric filter system (FF 4-11) to control particulate emissions.

(17) One new air separator equipped with one fabric filter system (FF 4-12) to control particulate emissions.

(i) Cement Storage, Loading and Packaging Activities

(1) Group 4 Silos (701A-704A) with a combined storage capacity of 18,892 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-3 and FF 5-4).

(2) Group 5 Silos (705A-710A) with a combined storage capacity of 60,462 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-1 and FF 5-2). One pump transfers the material back through the transfer valves to the Group 4 Silos for loading.

(3) Two existing air slides, two screw conveyors, and one screen and truck loader equipped with one fabric filter system (FF 5-5) to control particulate emissions.

(4) Two air slides, two screw conveyors, and one screen and railcar loader equipped with one fabric filter system (FF 5-6) to control particulate emissions.

(5) One air slide, one hopper, and one pump equipped with one fabric filter system (FF 5-7) to control particulate emissions.

(6) One hopper and one pump equipped with one fabric filter system (FF 5-8) to control particulate emissions.

(7) The Group 2 Silos (Nos. 1 - 11) with a combined storage capacity of 24,842 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-10 and FF 5-11).

(8) One existing alleviator bin screw equipped with one fabric filter system (FF 5-9) to control particulate emissions.

(9) Group 3 Silos (Nos. 1 - 12) with a combined storage capacity of 29,763 tons. Particulate matter is controlled by fabric filter systems (FF 5-12 through FF 5-17).

(10) One existing screen elevator equipped with one fabric filter system (FF 5-13) to control particulate emissions.

(11) One existing screen screw, one elevator, and one air slide equipped with one fabric filter system (FF 5-16) to control particulate emissions.

(12) Four existing bulk tanks (BT 831 through BT 834) equipped with fabric filter systems (FF 5-21 through FF 5-24) to control particulate emissions.

(13) One existing air slide and truck loader equipped with one fabric filter system (FF 5-23) to control particulate emissions.

(14) One existing elevator equipped with one fabric filter system (FF 5-17) to control particulate emissions.

(15) One existing screen screw and four existing screw conveyors.

(16) Four existing Packing Machines (No. 1 through No. 4) with four elevators and four packer bins equipped with fabric filter systems (FF 6-1 through FF 6-4) to control particulate emissions.

(17) One existing conveyor, palletizer, and shipper station.

A.3 Permit Supersession

This permit shall supersede the following permits issued to the source:

(a) Operation Permit 3520-0002-0133 issued on November 28, 1990;

(b) Operation Permit 3520-0002-0134 issued on November 28, 1990;

(c) Operation Permit 3520-0002-0135 issued on November 28, 1990;

(d) Operation Permit 3520-0002-0136 issued on November 28, 1990;

(e) Operation Permit 3520-0002-0137 issued on November 28, 1990;

(f) Operation Permit 3520-0002-0138 issued on November 28, 1990;

(g) Exemption Permit issued on June 19, 1989;

(h) Registration Permit CP-133-2405-00002 issued on March 3, 1992;

(i) Amendment to 3520-0002-0135 issued on September 28, 1992;

(j) Registration Permit CP-133-2811-00002 issued on March 10, 1993;

(k) Registration Permit CP-133-3534-00002 issued on February 16, 1994;

(l) Exemption Permit CP-133-4864-00002 issued on October 3, 1995;

(m) Registration Permit CP-133-4537-00002 issued on October 6, 1995;

(n) Amendment CP-133-4996 to Exemption CP-133-4914 issued on November 8, 1995; and

(o) PSD Permit CP-133-5886-00002 issued on September 18, 1998.

SECTION B CONSTRUCTION CONDITIONS

B.1 General Construction Conditions

(a) This permit is based on the data and information submitted by the Permittee. Any change in the design or operation of the plant that could increase emissions or change applicable air pollution control requirements may require that the permit be amended in accordance with 326 IAC 2 as set forth in condition B.4 of this permit.

(b) 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.

(c) Notwithstanding Construction Condition B.4, 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).

(d) When the facility is constructed and placed into operation, the operation conditions required by Section C and Section D shall be met.

B.2 Effective Date of the Permit

Pursuant to 40 CFR Parts 124.15, 124.19, 124.20, and IC 13-15-5-3, the effective date of this permit will become effective on May 16, 1999, unless stayed under applicable law.

B.3 Source Obligation

Pursuant to 326 IAC 2-2-8(a)(1) (PSD Source Obligation), approval to construct shall become invalid if construction is:

(a) Not commenced within eighteen (18) months after receipt of such approval;

(b) Discontinued for a period of eighteen (18) months or more; or

(c) Not completed within a reasonable time.

The Commissioner may extend the eighteen (18) month period upon a satisfactory showing that an extension is justified.

B.4 First Time Operation Permit

This document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:

(a) Any modifications required by 326 IAC 2-1.1 and 326 IAC 2-7-10.5 (both as in effect on December 25, 1998) as a result of a change in the design or operation of emissions units described by this permit have been obtained prior to obtaining an Operation Permit Validation Letter.

(b) The attached affidavit of construction shall be submitted to:

Indiana Department of Environmental Management
Permit Administration & Development Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

verifying that the facilities were constructed as proposed in the application and subsequently received approvals from IDEM, OAM. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM, OAM.

(c) 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.

(d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

(e) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-1-7.1(Fees).

(f) The Permittee submitted their Part 70 permit application on October 15, 1996 for the existing source. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

B.5 NSPS Reporting Requirement

Pursuant to the New Source Performance Standards (NSPS), Part 60.7 and 60.8, 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) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);

(c) Actual start-up date (within 15 days after such date); and

(d) 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 IDEM, OAM. The requirements of 40 CFR Part 60 are also federally enforceable.

SECTION C SOURCE OPERATION CONDITIONS

Entire Source

C.1 General Operation Conditions

(a) This permit is based on the data and information supplied by the Permittee. The Indiana statutes from IC 13 and rules from 326 IAC, quoted in conditions in this permit, are those applicable at the time the permit was issued. The Permittee shall comply with all applicable provisions of IC 13 and 326 IAC.

(b) After obtaining the approval to operate in accordance with Condition B.4 of this permit, the Permittee shall subsequently obtain necessary approvals as required by 326 IAC 2-1.1 and 326 IAC 2-7-10.5 (both as in effect on December 25, 1998).

C.2 Transfer of Permit

Pursuant to 326 IAC 2-1-6 (Transfer of Permits), the following requirements shall apply:

(a) In the event that ownership of this cement manufacturing facility is changed, the Permittee shall notify:

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

within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

(b) A written notification shall be sufficient to transfer the permit from the current owner to the new owner.

(c) IDEM, OAM shall reserve the right to issue a new permit.

C.3 Permit Revocation

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; or

(e) for any cause which establishes in the judgment of IDEM, OAM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

C.4 Availability of Permit

Pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain the applicable permit on the premises of this source and shall make this permit available for inspection by IDEM, OAM, or other public official having jurisdiction.

C.5 Emergency Reduction Plans

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

(a) The Permittee shall prepare written Emergency Reduction Plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

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

within ninety (90) calendar days from the date on which this source commences operation.

(c) If the ERP is disapproved by IDEM, OAM the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM shall supply such a plan.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

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

C.6 Preventive Maintenance Plan

Pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a Preventive Maintenance Plan, including the following information:

(a) identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(b) a description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(c) identification of the replacement parts which will be maintained in inventory for quick replacement.

The Preventive Maintenance Plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

C.7 Malfunction Condition

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 IDEM, OAM 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 IDEM, OAM, 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.8 Opacity Emissions

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

(a) opacity shall not exceed an average of 40% any one (1) six (6) minute averaging period.

(b) opacity shall not exceed 60% for more than a cumulative total of 15 minutes (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 6-hour period.

C.9 Fugitive Dust Emissions

Pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the Permittee shall be in violation of 326 IAC 6-4 (Fugitive Dust Emissions) if any of the criteria specified in 326 IAC 6-4-2(1) through (4) are violated. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of IDEM, OAM. [326 IAC 6-4-5(c)]

C.10 Fugitive Particulate Matter Emissions

Pursuant to 326 IAC 2-2, the Permittee shall submit a *Fugitive Dust Control Plan* in accordance with 326 IAC 6-5 (Fugitive Particulate Matter Emissions Limitations) for approval to:

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

within 180 days after the date of issuance of this permit. This plan consists of:

(a) Observing posted speed limits. The quarry truck traffic shall be limited to a mean speed of 9.6 miles per hour during periods with high blowing road dust potential;

(b) Applying a water spray to all of the unpaved surfaces associated with the quarry vehicle traffic on a daily basis during periods when there is an elevated blowing road dust potential; and

(c) Rescheduling work or arranging for additional water spray application to the quarry roads during periods of high blowing dust potential.

(d) Control techniques to control fugitive dust from raw material sizing activities, raw material ball mill operation, and coal mill operation.

C.11 Ambient Monitoring

That pursuant to 326 IAC 2-2-4, the Permittee shall establish at least one ambient monitoring site for PM_{10} as described in (a) through (e). These sites shall begin collecting valid data at least six (6) months prior to the commencement of operation of the semi-dry process cement kiln. The monitoring shall be conducted for a minimum of 36 months after the commencement of operation of the semi-dry process cement kiln.

(a) The monitoring must be performed using USEPA approved methods, procedures, and quality assurance programs. A Quality Assurance Plan & Protocol shall be submitted to:

Indiana Department of Environmental Management
Ambient Monitoring Section, Office of Air Management
2525 North Shadeland Avenue
Indianapolis, Indiana 46219

within 90 calendar days prior to commencement of monitoring. The Quality Assurance Plan and Protocol must be approved by IDEM, OAM prior to commencement of monitoring.

(b) At least one (1) monitoring site shall be established at a downwind location to be approved by IDEM, OAM. Each monitor shall meet the operating and maintenance criteria outlined in IDEM, OAM Quality Assurance Manual.

(c) The ambient data for PM_{10} shall be collected for a minimum period of 36 months following the initial compliance demonstration. IDEM, OAM reserves the authority to require the Permittee to monitor for compliance with the National Ambient Air Quality Standards (NAAQS) for $PM_{2.5}$ in the event that such information is necessary to demonstrate compliance with the standard.

(d) A quarterly summary of the monitoring data shall be submitted to:

Indiana Department of Environmental Management
Ambient Monitoring Section, Office of Air Management
2525 North Shadeland Avenue
Indianapolis, Indiana 46219

within ninety (90) calendar days after the end of the quarter being reported.

(e) After the 36 month period of monitoring, the Permittee may petition IDEM, OAM for the removal of the monitoring site if it has been established that the PM levels will continue to comply with the NAAQS with an adequate margin of safety. The monitoring requirements may be continued beyond the minimum 36 month period if there exists a threat to the NAAQS or if determined to be warranted by IDEM, OAM.

C.12 Emission Reporting Requirement

Pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee shall annually submit an emission statement of the source. This statement must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8) (Emission Statement Operating Year). The annual statement must be submitted to:

Indiana Department of Environmental Management
Office of Air Management - Technical Support and Modeling
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015.

The annual emission statement 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.

SECTION D.1 FACILITY OPERATION CONDITIONS

(a) Quarry Activities

(1) Existing limestone quarry activities include removal and transfer of overburden material, drilling and blasting of limestone, and loading of limestone to trucks.

(b) Raw Material Sizing Activities

(1) One modified primary crusher (1,300 tons limestone per hour capacity and 2,262,479 tons limestone per year limit) identified as Point 1-8 that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(2) Existing outside storage piles that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(3) Raw material sizing transfer equipment including:

(A) One existing apron feeder (Point 1-14) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(B) One new vibrating feeder and one new belt conveyor (Point 1-9) that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(C) Three existing vibrating feeders, one existing belt conveyor, and one new gate (Point 1-11) that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate.

(4) One new secondary crusher (400 tons shale/limestone per hour capacity and 2,574,685 tons shale/limestone per year limit) and three new belt conveyors equipped with one fabric filter system (FF 1-15) to control particulate emissions.

(5) One existing screenhouse and three belt conveyors equipped with one fabric filter system (FF 1-16) to control particulate emissions.

(c) Raw Material Ball Mill Operation (360 tons raw material per hour capacity and 2,705,789 tons raw material per year limit)

(1) Modified raw material ball mill transfer equipment including three belt conveyors, one gate, and one alleviator equipped with one fabric filter system (FF 1-17) to control particulate emissions.

Continued:

(2) Five new raw material bins, four new weigh feeders, one new conveyor belt, and one new apron feeder (Point 1-18) that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate.

(3) One new enclosed wet ball mill, one new mill sump, six new screens, one new screen sump, two existing kiln feed basins, and one new kiln feed tank.

(d) Fly Ash Storage Activities (135,289 tons fly ash per year throughput limit)

(1) Two new fly ash silos and four new rotary feeders equipped with one fabric filter system (FF 1-21) to control particulate emissions.

(2) One new fly ash feed bin equipped with one fabric filter system (FF 1-22) to control particulate emissions.

(3) One new gate and one new airslide covered by a building enclosure (BE 1-23) to control particulate emissions.

(e) Coal Mill Operation

(1) Existing coal storage piles that utilize building enclosures to control particulate emissions.

(2) Coal transfer equipment including:

(A) Four existing vibrating feeders, one existing belt conveyor and one existing screen (Point 2-2) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(B) One existing belt conveyor and one modified magnetic separator (Point 2-4) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(C) One new gate (Point 2-6) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(D) Two new belt conveyors and three new gates (Point 2-7) that utilizes water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions.

(3) Two existing coal reject piles (Points 2-3 and 2-8) that utilize water mist suppression or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10 to control particulate emissions and one metal reject pile (Point 2-5) that does not release particulate emissions.

Continued:

(4) One new coal bin equipped with one fabric filter system (FF 2-9) to control particulate emissions.

(5) One new weigh feeder, one new belt conveyor and one new rotary feeder covered by a building enclosure (BE 2-10) to control particulate emissions.

(6) One new coal mill (40 tons coal per hour capacity and 313,552 tons coal per year limit) equipped with one fabric filter system (FF 2-11) to control particulate emissions.

(7) Two new screw conveyors and one rotary feeder covered by a building enclosure (BE 2-12) to control particulate emissions.

(8) One new coal bin equipped with one fabric filter system (FF 2-13) to control particulate emissions.

Emission Limitations and Standards:

D.1.1 Particulate Matter Emission Limitation

(a) Pursuant to the 326 IAC 12 and 40 CFR 60 Subpart OOO (New Source Performance Standards for Nonmetallic Mineral Processing Plants), the following facilities of the Raw Material Sizing Activities shall not exceed the following limitations:

Operation	Point ID	Emission Limitations
Primary Crusher	Point 1-8	15 percent opacity
Fugitive Raw Material Sizing Transfer Equipment	Point 1-9	10 percent opacity
	Point 1-11	10 percent opacity
Secondary Crusher	FF 1-15	7 percent opacity + 0.05 g/dscm (0.12 gr/dscf)

Opacity shall be measured in accordance with 40 CFR 60, Appendix A, Method 9. These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (Prevention of Significant Deterioration (PSD)) and 326 IAC 5-1-2 (Opacity Limitations).

(b) Pursuant to the 326 IAC 12 and 40 CFR 60 Subpart F (New Source Performance Standards for Portland Cement Plants), the following facilities shall not exceed the following limitations:

Operation	Point ID	Emission Limitations
Raw Material Ball Mill Operation	FF 1-17	10 percent opacity
	Point 1-18	10 percent opacity
Fly Ash Storage Activities	FF 1-21	10 percent opacity
	FF 1-22	10 percent opacity
	BE 1-23	10 percent opacity

Opacity shall be measured in accordance with 40 CFR 60, Appendix A, Method 9. These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD) and 326 IAC 5-1-2 (Opacity Limitations).

(c) Pursuant to the 326 IAC 12 and 40 CFR 60 Subpart Y (New Source Performance Standards for Coal Preparation Plants), the facilities of the Coal Mill Operation, excluding the coal storage and coal reject piles, shall not exceed 10 percent opacity. Opacity shall be measured in accordance with 40 CFR 60, Appendix A, Method 9. This limitation satisfies the requirements of 326 IAC 2-2-3(a)(3) (PSD) and 326 IAC 5-1-2 (Opacity Limitations).

(d) Pursuant to 326 IAC 2-2-3(a)(3) (PSD), the following facilities shall comply with the following particulate limitations:

Operation	Point ID	Filterable PM Limits		Filterable PM_{10} Limits	
		(gr/dscf)	(lbs/hr)	(gr/dscf)	(lbs/hr)
Secondary Crusher	FF 1-15	0.015	1.60	0.015	1.60
Screenhouse	FF 1-16	0.015	1.29	0.015	1.29
Raw Material Ball Mill Transfer Equipment	FF 1-17	0.010	1.08	0.010	1.08
Fly Ash Silos	FF 1-21	0.015	0.22	0.015	0.22
Fly Ash Feed Bin	FF 1-22	0.010	0.76	0.010	0.76
Coal Bins	FF 2-9 FF 2-13	0.010 0.010	0.33 0.14	0.010 0.010	0.33 0.14
Coal Mill	FF 2-11	0.010	4.45	0.010	4.45

These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD) and 326 IAC 6-3 (Particulate Limitations for Process Operations).

D.1.2 Operation Standards

Pursuant to 326 IAC 2-2-3(a)(3), the Permittee shall comply with the following throughput limitations:

(a) The overburden removed from the quarry activities shall not exceed 1.2 million tons per year rolled on a monthly basis;

(b) The limestone input rate to the primary crusher shall not exceed 2,262,479 tons per year rolled on a monthly basis;

(c) The shale/limestone input rate to the secondary crusher shall not exceed 2,574,685 tons per year rolled on a monthly basis;

(d) The fly ash input rate to the kiln operations shall not exceed 135,289 tons per year rolled on a monthly basis; and

(e) The coal input rate to the coal mill shall not exceed 313,552 tons per year rolled on a monthly basis.

Compliance Determination and Monitoring:

D.1.3 Performance Testing

(a) Pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) and 40 CFR 60 (New Source Performance Standards), initial compliance tests shall be performed to demonstrate compliance with Operation Condition D.1.1 for the following facilities within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up:

Operation	Point ID	Pollutant
Primary Crusher	Point 1-8	Opacity
Secondary Crusher	FF 1-15	Opacity, Filterable PM, Filterable PM_{10}
Raw Material Sizing Transfer Equipment	Point 1-9	Opacity
	Point 1-11	Opacity
Raw Material Ball Mill Operation	FF 1-17	Opacity
	Point 1-18	Opacity
Fly Ash Storage Activities	FF 1-21	Opacity
	FF 1-22	Opacity
	BE 1-23	Opacity
Coal Transfer Equipment	Point 2-4	Opacity
	Point 2-6	Opacity
	Point 2-6	Opacity
	Point 2-7	Opacity
	BE 2-10	Opacity
	BE 2-12	Opacity
Coal Bins	FF 2-9	Opacity
	FF 2-13	Opacity
Coal Mill	FF 2-11	Opacity, Filterable PM, Filterable PM_{10}

(b) EPA Method 9 opacity tests shall be performed concurrently with the PM and PM_{10} compliance tests, when applicable, unless meteorological conditions require rescheduling the opacity tests to another date.

(c) All compliance tests shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit (Construction Condition B.5), utilizing methods approved by IDEM, OAM.

(1) A test protocol 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

at least thirty-five (35) days before the intended test date. The Permittee shall develop and submit with the protocol for approval by IDEM, OAM, standard operating procedures to be followed during sampling, handling, analysis, quality control, quality assurance, and data reporting. A request for an exemption to any of the above stack testing requirements may be included in the protocol for OAM review.

(2) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.

(3) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(4) 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.

(5) 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.

(d) IDEM, OAM retains the authority under 326 IAC 2-1-4(f) to require the Permittee to perform additional and future compliance testing as necessary.

D.1.4 Visible Emission Notations

Visible emission notations of all exhaust to the atmosphere from each baghouse or building enclosure associated with the raw material sizing activities, raw material ball mill operation, fly ash storage activities, and coal mill operation shall be performed at least once per day (during daylight hours) to demonstrate compliance with Operation Condition D.1.1. A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, “normal” means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility’s specific condition prescribing visible emissions.

(c) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

D.1.5 Baghouse Operating Condition

The baghouses associated with the raw material sizing activities, raw material ball mill operation, fly ash storage activities, and coal mill operation shall be operated at all times when its associated process is in operation to demonstrate compliance with Condition D.1.1.

(a) The Permittee shall take readings of the total static pressure drop across each of the baghouses at least once per day when its associated facility is in operation. The pressure drop reading across each of the baghouses shall be maintained within the ranges set forth in an approved Preventive Maintenance Plan (PMP). The PMP shall address each of the baghouses and shall be prepared and submitted to:

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

within 30 days following the performance testing. The PMP shall also contain a troubleshooting contingency and corrective action plan for the baghouses when the pressure drop reading is outside of the ranges specified in the PMP for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm$ 2% of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection of each baghouse shall be performed each calendar quarter and defective bags replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

(e) In the event that a bag's failure has been observed and emissions temporarily exceed the standards:

(1) All reasonable measures shall be taken to correct, as expeditiously as practicable, the conditions causing the emissions to exceed the allowable limits;

(2) All possible steps shall be taken to minimize the impact of the excessive emissions on ambient air quality which may include but not limited to curtailment of operation and/or shutdown of the facility; and

(3) Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

D.1.6 Water Spray Operating Condition

The water mist spray systems associated with the quarry activities, raw material sizing activities, and raw material ball mill operation shall be operated on an as-needed basis while its associated equipment is in operation, and the temperature is above 35 degrees Fahrenheit to demonstrate compliance with Conditions C.8, C.9, C.10, and D.1.1.

Recordkeeping and Reporting Requirements:

D.1.7 Recordkeeping Requirement

The Permittee shall maintain records required by Operation Conditions D.1.2, D.1.4, D.1.5, and D.1.6 at the source location for a minimum period of 36 months to demonstrate compliance with Operation Conditions C.8, C.10 and D.1.1. These records shall be made available within one (1) hour upon verbal request of an IDEM, OAM representative.

(a) Records of required monitoring information shall include, where applicable:

(1) Date, place, and time of sampling or measurements;

(2) Dates analyses were performed;

(3) Company or entity performing the analyses;

(4) Analytic techniques or methods used;

(5) Results of such analyses; and

(6) Operating conditions existing at the time of sampling or measurement.

(b) 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; and

(4) Records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

D.1.8 Reporting Requirement

(a) The Permittee shall prepare rolling monthly production records for the parameters required in Operation Condition D.1.2 and submit these records on a quarterly basis to demonstrate compliance with Operation Condition D.1.1 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

within thirty (30) days following the end of each calendar quarter.

SECTION D.2 FACILITY OPERATION CONDITIONS

(f) Kiln Operation (360 tons raw feed per hour capacity and 183 tons clinker per hour capacity)

(1) One new hammermill dryer equipped with one existing electrostatic precipitator (ESP 3-1) to control particulate emissions that exhausts to Stack 3-1.

(2) One new coal-fired calciner tower with a maximum rated capacity of 451 million British thermal units (MMBtu) per hour. Particulate emissions from the calciner tower are controlled by one existing electrostatic precipitator (ESP 3-1) that exhausts to Stack 3-1.

(3) One modified semi-dry process cement kiln with a rated capacity of 376 MMBtu per hour. Particulate emissions from the kiln are controlled by one existing electrostatic precipitator (ESP 3-1) that exhausts to Stack 3-1. The kiln is fired by coal and the following supplemental fuels:

(A) hazardous and nonhazardous waste fuel at a maximum rate allowed by the approved Boiler and Industrial Furnace Permit required by 40 CFR 270; and

(B) distillate fuel for burner startup activities.

(4) Seven existing screw conveyors, two rotary feeders, and two bucket elevators covered by a building enclosure (BE 3-2) to control particulate emissions.

(5) One existing ESP return dust bin and one new waste dust bin equipped with one fabric filter system (FF 3-3) to control particulate emissions.

(6) One existing raw material dust truck loading station covered by a building enclosure (BE 3-4) to control particulate emissions.

(7) One new alkali bypass system equipped with one gas suspension absorber (GSA). Particulate matter emissions are controlled by one fabric filter system (FF 3-5) that exhausts to Stack 3-1. The GSA is equipped with a water mist spray system and lime injection system to control sulfur dioxide emissions.

(8) Seven new alkali bypass system dust screw conveyors and one new bucket elevator covered by a building enclosure (BE 3-6) to control particulate emissions.

(9) One new alkali bypass system dust bin equipped with one fabric filter system (FF 3-7) to control particulate emissions. The material from the dust bin is loaded into trucks via a new truck loading system. Particulate emissions from loading are controlled by a building enclosure.

(10) One new alkali bypass system dust truck loading station covered by a building enclosure (BE 3-8) to control particulate emissions.

Emission Limitations and Standards:

D.2.1 Particulate Matter Emission Limitation

(a) Pursuant to the 326 IAC 12 and 40 CFR 60 Subpart F (New Source Performance Standards for Portland Cement Plants), the following facilities of the kiln operation shall not exceed the following limitations:

Operation	Emission Point	Emission Limitations
Hammer Mill Dryer, Calciner Tower, Semi-Dry Kiln, + Alkali Bypass System	Stack 3-1	0.30 lb PM/ton feed (dry basis); 20 percent opacity
Alkali Bypass Dust Transfer Equipment	BE 3-6	10 percent opacity
	BE 3-8	10 percent opacity
Alkali Bypass System Dust Bins	FF 3-7	10 percent opacity

Opacity from the kiln operation exhausting to Stack 3-1 shall be measured using a continuous opacity monitoring system and recorded in accordance with the applicable procedures under 40 CFR 60, Appendix B, Performance Specification 1 and 326 IAC 3-5. Opacity from the kiln system transfer equipment and bins not exhausting to Stack 3-1 shall be measured in accordance with 40 CFR 60, Appendix A, Method 9. These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD), 326 IAC 5-1-2 (Opacity Limitations), and 326 IAC 6-3 (Particulate Limitations for Process Operations).

(b) Pursuant to 326 IAC 2-2-3(a)(3) (PSD), the following facilities shall comply with the following particulate limitations:

Operation	Emission Point	Filterable PM Limits		Filterable PM_{10} Limits	
		gr/dscf	lbs/hr	gr/dscf	lbs/hr
Hammer Mill, Calciner Tower, and Semi-Dry Process Kiln + Alkali Bypass System	ESP 3-1	0.016	91.3	0.014	88.7

These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD) and 326 IAC 6-3 (Particulate Limitations for Process Operations).

Operation	Emission Point	Filterable PM Limits		Filterable PM_{10} Limits	
		gr/dscf	lbs/hr	gr/dscf	lbs/hr
ESP Dust Bins	FF 3-3	0.02	1.40	0.02	1.40
Alkali Bypass Dust Bins	FF 3-7	0.01	0.64	0.01	0.64

These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD) and 326 IAC 6-3 (Particulate Limitations for Process Operations).

D.2.2 Sulfur Dioxide Emissions Limitation

To avoid the requirements of 326 IAC 2-2-3(a)(3), the sulfur dioxide (SO_2) emissions from Stack 3-1 of the semi-dry process kiln and calciner tower shall not exceed 3317 tons per year rolled on a monthly basis. At maximum operating capacity, this limitation is equivalent to 4.13 pounds per ton of clinker produced rolled on a monthly basis. This emissions limitation is equivalent to 1.01 pounds of SO_2 per MMBtu which satisfies the requirements of 326 IAC 7-1.1-2 (Sulfur Dioxide Emission Limitations).

D.2.3 Nitrogen Oxide Emission Limitation

To avoid the requirements of 326 IAC 2-2-3(a)(3), the nitrogen oxide (NO_X) emissions from Stack 3-1 of the semi-dry process kiln shall be controlled by the low-NO_X calciner and good combustion practices and shall not exceed 4428 tons per year rolled on a monthly basis. At maximum operating capacity, this limitation is equivalent to 5.47 pounds per ton of clinker produced rolled on a monthly basis.

D.2.4 Carbon Monoxide Emission Limitation

To avoid the requirements of 326 IAC 2-2-3(a)(3), the carbon monoxide (CO) emissions from Stack 3-1 of the semi-dry process kiln shall be controlled by good combustion practices and shall not exceed 2930 tons per year rolled on a monthly basis. At maximum operating capacity, this limitation is equivalent to 3.65 pounds per ton of clinker produced rolled on a monthly basis.

D.2.5 Hazardous Air Pollutant Emission Limitations

(a) To avoid the requirements of 326 IAC IAC 2-1-3.4 (New Source Toxic Rule), the hazardous air pollutant (HAP) emissions from Stack 3-1 of the kiln system shall not exceed 10 tons per year for a single HAP and 25 tons per year for a combination of HAPs.

(b) The benzene associated with the hazardous waste fuel shall comply with the requirements of 40 CFR 61 Subpart FF (National Emission Standards for Benzene Waste Operations). Pursuant to 40 CFR 61.348(d)(2), the treatment process (combustion of the hazardous waste in the kiln system) shall be in compliance with the requirements of 40 CFR 61 Subpart FF provided that the owner or operator documents that the treatment process has been issued a final permit under 40 CFR 270 and complies with the requirements of 40 CFR 266 Subpart D.

(c) The hazardous waste fuel combustion shall be limited by the requirements of 40 CFR 266 (Boiler and Industrial Furnace Regulations).

D.2.6 Operation Standards

Pursuant to 326 IAC 2-2-3(a)(3), the Permittee shall comply with the following throughput limitations:

(a) The raw material feed input rate to the kiln system shall not exceed 3,149,427 tons per year rolled on a monthly basis;

(b) The coal input rate to the kiln burner system shall not exceed 157,680 tons per year rolled on a monthly basis;

(c) The coal input rate to the calciner burner system shall not exceed 201,480 tons per year rolled on a monthly basis;

(d) The total coal input rate to the kiln and calciner burner systems shall not exceed 313,552 tons per year rolled on a monthly; and

(e) The clinker production rate shall not exceed 1,606,000 tons per year rolled on a monthly basis.

Compliance Determination and Monitoring:

D.2.7 Initial Performance Testing

(a) Pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) and 40 CFR 60 (New Source Performance Standards), initial compliance tests shall be performed to determine compliance with Operation Conditions D.2.1, D.2.2, D.2.3, and D.2.4 for the following facilities within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up:

Operation	Point ID	Pollutant
Hammer Mill, Calciner Tower, and Semi-Dry Process Kiln + Alkali Bypass System	Stack 3-1	Opacity, Filterable PM, Filterable PM_{10}, SO_2, NOx, CO
Alkali Bypass System Dust Transfer Equipment	BE 3-6	Opacity
	BE 3-8	Opacity
ESP and Waste Dust Bins	FF 3-3	Opacity, Filterable PM, Filterable PM_{10}
Alkali Bypass Dust Bins	FF 3-7	Opacity

(b) A copy of the results of compliance tests performed under the requirements of the BIF Permit and 40 CFR 266 (BIF Regulations) shall be submitted to the Compliance Data Section, Office of Air Management to demonstrate compliance with HAP limitations required by Operation Condition D.2.5.

(c) Either EPA Method 9 opacity tests or certified continuous opacity monitoring (COM) data shall be performed concurrently with the particulate matter compliance tests for Stack 3-1 of the semi-dry process kiln unless meteorological conditions require rescheduling the opacity tests to another date.

(d) All compliance tests, other than testing conducted for purposes of compliance with RCRA requirements, shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit (Construction Condition B.5), utilizing methods approved by IDEM, OAM.

(1) A test protocol 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

at least thirty-five (35) days before the intended test date. The Permittee shall develop and submit with the protocol for approval by IDEM, OAM, standard operating procedures to be followed during sampling, handling, analysis, quality control, quality assurance, and data reporting.

A request for an exemption to any of the above stack testing requirements may be included in the protocol for OAM review.

(2) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.

(3) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(4) 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.

(5) 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.

(e) Pursuant to 326 IAC 2-1.1-5, the IDEM, OAM shall require a stack test of the condensible particulate fraction for Stack 3-1. The condensible particulate fraction shall be measured in accordance with 40 CFR 51, Appendix M, Method 202 or other methods approved by IDEM, OAM.

(f) IDEM, OAM retains the authority under 326 IAC 2-1-4(f) to require the Permittee to perform additional and future compliance testing as necessary.

D.2.8 Performance Testing

(a) Pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements), additional compliance tests for opacity, PM, and PM_{10} from Stack 3-1 of the semi-dry process kiln shall be performed every 2 ½ years following initial performance testing.

(b) Either EPA Method 9 opacity tests or certified continuous opacity monitoring (COM) data shall be performed concurrently with the particulate matter compliance tests for Stack 3-1 of the semi-dry process kiln unless meteorological conditions require rescheduling the opacity tests to another date.

(c) All compliance tests shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit (Construction Condition B.5), utilizing methods approved by IDEM, OAM.

(1) A test protocol 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

at least thirty-five (35) days before the intended test date. The Permittee shall develop and submit with the protocol for approval by IDEM, OAM, standard operating procedures to be followed during sampling, handling, analysis, quality control, quality assurance, and data reporting.

(2) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.

(3) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(4) 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.

(5) 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.

(d) IDEM, OAM retains the authority under 326 IAC 2-1-4(f) to require the Permittee to perform additional and future compliance testing as necessary.

D.2.9 Continuous Emissions Monitoring

(a) Pursuant to 326 IAC 2-2, 326 IAC 3, and 326 IAC 12, the Permittee shall continuously monitor and record the following parameters from semi-dry process kiln to demonstrate compliance with the limitations and operation standards required by Operation Conditions D.2.1(a), D.2.2, D.2.3, D.2.4, and D.2.6:

(1) opacity;

(2) sulfur dioxide emission rates; and

(3) nitrogen oxides.

(b) The continuous emissions monitoring (CEM) systems shall be installed and operational prior to conducting the performance tests. A monitoring protocol shall be performed in accordance with the applicable procedures under 40 CFR 60, Appendix B, Performance Specification 1 and 326 IAC 3-5 and 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

within 60 days after achieving the maximum production rate at which the affected facility will be operated, but no later than 180 days after initial startup. Verification of operational status shall, as a minimum, include completion of the manufacturer written requirements or recommendations for installation, operation, and calibration of the device.

(c) In the event that a breakdown of the monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.

(d) Whenever the continuous opacity monitor is malfunctioning for a period of four (4) hours or more, visible emission readings shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, for a minimum of one (1) hour beginning four hours after the start of the malfunction and repeated at least once every four hours during daylight operations, as described in (c), until such time that the continuous opacity monitor is back in operation. The opacity readings during this period shall be reported to the air compliance inspector within two (2) working days.

D.2.10 NSPS Compliance

Pursuant to 326 IAC 12 and 40 CFR 60 Subpart F, the Permittee shall maintain daily records of the following parameters for semi-dry process kiln to demonstrate compliance with the PM and opacity limitations required by Operation Conditions D.2.1 and D.2.6(a) and (c):

(a) clinker production rate; and

(b) kiln feed rates.

D.2.11 Visible Emission Notations

Visible emission notations of all exhaust to the atmosphere from each baghouse and building enclosure associated with the kiln operations, excluding the kiln exhaust stack, shall be performed once per working shift (during daylight hours) to demonstrate compliance with Operation Condition D.2.1. A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, “normal” means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility’s specific condition prescribing visible emissions.

(c) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

D.2.12 Electrostatic (ESP) Operating Condition

The electrostatic precipitator (ESP) of semi-dry process cement kiln system shall be operated at all times when any part of the kiln system is in operation to demonstrate compliance with Operation Condition D.2.1.

(a) The Permittee shall maintain, monitor, and record the total KVA of the precipitator on a one minute basis, records kept on a hour rolling average when the kiln is in operation except as provided in 326 IAC 5-1-3. These parameters shall be maintained within the ranges set forth in an approved PMP. The PMP for the ESP shall be prepared and submitted to:

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

within 30 days following the performance testing. The PMP shall also contain a troubleshooting contingency and corrective action plan for the ESP when any one minute of an hour rolling average drops 5 KVA below the pre-determined baseline. These parameters may be adjusted to incorporate values determined from a compliant stack test.

(b) The instrument used for determining the T-R set voltage shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) An inspection of the ESP shall be performed a minimum of two (2) times per 12 month period. The inspection will normally be conducted during scheduled kiln downtimes. A record shall be kept of the results of the inspection and the number of ESP part(s) replaced.

(d) In the event that an ESP failure has been observed:

(1) All reasonable measures shall be taken to correct, as expeditiously as practicable, the conditions causing the emissions to exceed the allowable limits;

(2) All possible steps shall be taken to minimize the impact of the excessive emissions on ambient air quality which may include but not limited to curtailment of operation and/or shutdown of the facility; and

(3) Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

D.2.13 Baghouse Operating Condition

The baghouses associated with the conditioning tower, conditioning tower dust bins, and ESP dust bins shall be operated at all times when its associated process is in operation to demonstrate compliance with Condition D.2.1.

(a) The Permittee shall take readings of the total static pressure drop across each of the baghouses at least once per day when its associated facility is in operation. The pressure drop reading across each of the baghouses shall be maintained within the ranges set forth in an approved PMP. The PMP shall address each of the baghouses and shall be prepared and submitted to:

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

within 30 days following the performance testing. The PMP shall also contain a troubleshooting contingency and corrective action plan for the baghouses when the pressure drop reading is outside of the ranges specified in the PMP for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm$ 2% of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection of each baghouse shall be performed each calendar quarter and defective bags replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

(e) In the event that a bag's failure has been observed and emissions temporarily exceed the standards:

(1) All reasonable measures shall be taken to correct, as expeditiously as practicable, the conditions causing the emissions to exceed the allowable limits;

(2) All possible steps shall be taken to minimize the impact of the excessive emissions on ambient air quality which may include but not limited to curtailment of operation and/or shutdown of the facility; and

(3) Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

D.2.14 Gas Suspension Absorber Operating Condition

The gas suspension absorber system associated with the alkali bypass system shall be operated at all times when kiln gases are exhausting through the bypass system.

D.2.15 Lime Injection Operating Condition

The lime injection system associated with the conditioning tower shall be operated as necessary to demonstrate compliance with D.2.2.

Recordkeeping and Reporting Requirements:

D.2.16 Recordkeeping Requirement

The Permittee shall maintain records required by D.2.6 and D.2.9 through D.2.15 at the source location for a minimum period of 36 months to demonstrate compliance with Conditions C.8, C.9, C.10, D.2.1, D.2.2, D.2.3, and D.2.4. These records shall be made available within one (1) hour upon verbal request of an IDEM, OAM representative.

(a) 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.

(b) 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; and

(4) records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

D.2.17 Reporting Requirement

(a) The Permittee shall submit the following information to demonstrate compliance with Operation Conditions and D.2.1 through D.2.4:

(1) records of excess emissions (defined in 326 IAC 3-5-6) from the continuous emissions monitoring system for each parameter described in Operation Condition D.2.9; and

(2) monthly production records for the parameters required in Operation Condition D.2.6.

This information 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

within thirty (30) days following the end of each calendar quarter.

(b) The Permittee shall also submit semiannual reports of excess opacity emissions from the continuous emissions monitoring system of the kiln operation to demonstrate compliance with Operation Condition the D.2.1 and all malfunctions to:

U.S. Environmental Protection Agency (EPA), Regional Administrator, Region V
Air and Radiation Division, Regulation Development Branch-Indiana (AR-18J)
77 West Jackson Boulevard, Chicago, Illinois 60604-3590

within thirty (30) days following the end of each calendar half.

SECTION D.3 FACILITY OPERATION CONDITIONS

(g) Clinker Cooler Operations (183 tons clinker per hour capacity)

(1) One modified clinker cooler system with one clinker breaker, one dropout chamber, and one heat exchanger equipped with one fabric filter system (FF 3-9) to control particulate emissions that exhausts to Stack 3-2.

(2) Eight modified screw conveyors and four vibrating feeders covered by a building enclosure (BE 3-10) to control particulate emissions.

(3) Two modified belt conveyors and two bucket elevators equipped with one fabric filter system (FF 3-11) to control particulate emissions.

(4) One existing non-routine outdoor clinker pile (Point 3-13) that is covered to control particulate emissions.

(5) One modified belt conveyor (turning tower) equipped with one fabric filter system (FF 3-12) to control particulate emissions.

(6) Seven existing clinker silos equipped with one fabric filter system (FF 3-14) to control particulate emissions.

Emission Limitations and Standards:

D.3.1 Particulate Matter Emission Limitation

(a) Pursuant to the 326 IAC 12 and 40 CFR 60 Subpart F (New Source Performance Standards for Portland Cement Plants), the following facilities of the Clinker Cooler Operations shall not exceed the following limitations:

Operation	Emission Point	Emission Limitations
Clinker Cooler System	FF 3-9 (Stack 3-2)	0.10 lb PM/ton feed (dry basis); 10 percent opacity
Clinker Cooler Transfer Equipment	BE 3-10	10 percent opacity
	FF 3-11	10 percent opacity
	FF 3-12	10 percent opacity
Clinker Storage Silos	FF 3-14	10 percent opacity

Opacity from the clinker cooler operations exhausting to Stack 3-2 shall be measured using a continuous opacity monitoring system and recorded in accordance with the applicable procedures under 40 CFR 60, Appendix B, Performance Specification 1 and 326 IAC 3-5. Opacity from the clinker cooler transfer equipment and storage piles and silos not exhausting to Stack 3-2 shall be measured in accordance with 40 CFR 60, Appendix A, Method 9. These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD), 326 IAC 5-1-2 (Opacity Limitations), and 326 IAC 6-3 (Particulate Limitations for Process Operations).

(b) Pursuant to 326 IAC 2-2-3(a)(3) (PSD), the following facilities shall comply with the following particulate limitations:

Operation	Emission Point	Filterable PM Limits		Filterable PM_{10} Limits	
		(gr/dscf)	(lbs/hr)	(gr/dscf)	(lbs/hr)
Clinker Cooler System	FF 3-9	0.015	7.25	0.015	7.25
Clinker Transfer Equipment	FF 3-11 FF 3-12	0.015 0.015	0.64 0.48	0.015 0.015	0.64 0.48
Clinker Storage Silos	FF 3-14	0.015	0.59	0.015	0.59

These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD) and 326 IAC 6-3 (Particulate Limitations for Process Operations).

Compliance Determination and Monitoring:

D.3.2 Initial Performance Testing

(a) Pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) and 40 CFR 60 (New Source Performance Standards), initial compliance tests shall be performed to determine compliance with Operation Conditions D.3.1 for the following facilities within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up:

Operation	Emission Point	Pollutant
Clinker Cooler System	FF 3-9 (Stack 3-2)	Opacity, Filterable PM, Filterable PM_{10}
Clinker Cooler Transfer Equipment	BE 3-10	Opacity
	FF 3-11	Opacity
	FF 3-12	Opacity
Clinker Storage Silos	FF 3-14	Opacity

(b) Either EPA Method 9 opacity tests or certified continuous opacity monitoring (COM) data shall be performed concurrently with the PM/PM_{10} compliance tests for the clinker cooler.

(c) The compliance tests shall be performed within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up and shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit (Construction Condition B.5), utilizing methods approved by IDEM, OAM.

(1) A test protocol 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

at least thirty-five (35) days before the intended test date. The Permittee shall develop and submit with the protocol for approval by IDEM, OAM, standard operating procedures to be followed during sampling, handling, analysis, quality control, quality assurance, and data reporting. A request for an exemption to any of the above stack testing requirements may be included in the protocol for OAM review.

(2) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.

(3) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(4) When the results of a compliance test performed 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 facility 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 tests.

(5) Whenever the results of a compliance test performed exceed the level specified in any condition of 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.

(d) Pursuant to 326 IAC 2-1.1-5, the IDEM, OAM shall require a stack test of the condensible particulate fraction for Stack 3-2. The condensible particulate fraction shall be measured in accordance with 40 CFR 51, Appendix M, Method 202 or other methods approved by IDEM, OAM.

(e) IDEM, OAM retains the authority under 326 IAC 2-1-4(f) to require the Permittee to perform additional and future compliance testing as necessary.

D.3.3 Performance Testing

(a) Pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements), additional compliance tests for opacity, PM, and PM_{10} from Stack 3-2 of the clinker cooler system shall be performed every 2 ½ years following initial performance testing.

(b) Either EPA Method 9 opacity tests or certified continuous opacity monitoring (COM) data shall be performed concurrently with the particulate matter compliance tests for Stack 3-2 of the clinker cooler system unless meteorological conditions require rescheduling the opacity tests to another date.

(c) All compliance tests shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit (Construction Condition B.5), utilizing methods approved by IDEM, OAM.

(1) A test protocol 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

at least thirty-five (35) days before the intended test date. The Permittee shall develop and submit with the protocol for approval by IDEM, OAM, standard operating procedures to be followed during sampling, handling, analysis, quality control, quality assurance, and data reporting.

(2) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.

(3) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(4) 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.

(5) 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.

(d) IDEM, OAM retains the authority under 326 IAC 2-1-4(f) to require the Permittee to perform additional and future compliance testing as necessary.

D.3.4 Continuous Opacity Monitoring

(a) Pursuant to 326 IAC 2-2, 326 IAC 3 and 326 IAC 12, the Permittee shall continuously monitor and record the opacity from Stack 3-2 of the clinker cooler to demonstrate compliance with the opacity limitation required by Operation Condition D.3.1(a).

(b) The continuous opacity monitoring system shall be installed and operational prior to conducting the performance tests. A monitoring protocol shall be performed in accordance with the applicable procedures under 40 CFR 60, Appendix B, Performance Specification 1 and 326 IAC 3-5 and 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

within 60 days after achieving the maximum production rate at which the affected facility will be operated, but no later than 180 days after initial startup. Verification of operational status shall, as a minimum, include completion of the manufacturer written requirements or recommendations for installation, operation, and calibration of the device.

(c) In the event that a breakdown of the monitoring equipment occurs, a record shall be made of the times and reasons of the breakdown and efforts made to correct the problem.

(d) Whenever the continuous opacity monitor is malfunctioning for a period of four (4) hours or more, visible emission readings shall be performed in accordance with 40 CFR 60, Appendix A, Method 9, for a minimum of one (1) hour beginning four hours after the start of the malfunction and repeated at least once every four hours during daylight operations, as described in (c), until such time that the continuous opacity monitor is back in operation. The opacity readings during this period shall be reported to the air compliance inspector within two (2) working days.

D.3.5 Visible Emission Notations

Visible emission notations of all exhaust to the atmosphere from each baghouse and building enclosure associated with the clinker cooler transfer facilities, storage piles and storage silos shall be performed once per day (during daylight hours) to demonstrate compliance with Operation Condition D.3.1. A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, “normal” means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility’s specific condition prescribing visible emissions.

(c) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

D.3.6 Baghouse Operating Condition

The baghouses associated with the clinker cooler operations shall be operated at all times when its associated process is in operation to demonstrate compliance with Operation Condition D.3.1.

(a) The Permittee shall take readings of the total static pressure drop across each of the baghouses at least once per day when its associated facility is in operation. The pressure drop reading across each of the baghouses shall be maintained within the ranges set forth in an approved Preventive Maintenance Plan (PMP). The PMP shall address each of the baghouses and shall be prepared and submitted to:

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

within 30 days following the performance testing. The PMP shall also contain a troubleshooting contingency and corrective action plan for the baghouses when the pressure drop reading is outside of the ranges specified in the PMP for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm$ 2% of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection of each baghouse shall be performed each calendar quarter and defective bags replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

(e) In the event that a bag's failure has been observed and emissions temporarily exceed the standards:

(1) All reasonable measures shall be taken to correct, as expeditiously as practicable, the conditions causing the emissions to exceed the allowable limits;

(2) All possible steps shall be taken to minimize the impact of the excessive emissions on ambient air quality which may include but not limited to curtailment of operation and/or shutdown of the facility; and

(3) Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

D.3.7 NSPS Compliance

Pursuant to 326 IAC 12 and 40 CFR 60, Subpart F, the Permittee shall maintain daily records of the following parameters for the clinker cooler to demonstrate compliance with the PM limitations required by Operation Condition D.3.1(a):

(a) clinker production rate; and

(b) kiln feed rates.

Recordkeeping and Reporting Requirements:

D.3.8 Recordkeeping Requirement

The Permittee shall maintain records required by D.3.3, D.3.4, D.3.5, D.3.6, and D.3.7 at the source location for a minimum period of 36 months to demonstrate compliance with Conditions C.8, C.9 and D.3.1. These records shall be made available within one (1) hour upon verbal request of an IDEM, OAM representative.

(a) 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.

(b) 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; and

(4) records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

D.3.9 Reporting Requirement

(a) The Permittee shall submit quarterly summary reports of the excess emissions (defined in 326 IAC 3-5-6) of opacity from the continuous emissions monitoring system described in Operation Condition D.3.4 to demonstrate compliance with Operation Condition D.3.1(a) 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

within thirty (30) days following the end of each calendar quarter.

(b) The Permittee shall also submit semiannual reports of excess opacity emissions from the continuous emissions monitoring system to show compliance with D.3.1(a) and all malfunctions to:

U.S. Environmental Protection Agency (EPA), Regional Administrator, Region V
Air and Radiation Division, Regulation Development Branch-Indiana (AR-18J)
77 West Jackson Boulevard, Chicago, Illinois 60604-3590

within thirty (30) days following the end of each calendar half.

SECTION D.4 FACILITY OPERATION CONDITIONS

(h) Finish Mill Operations

(1) Two existing vibrating feeders and one belt conveyor equipped with one fabric filter system (FF 3-17) to control particulate emissions.

(2) Seven existing vibrating feeders, two existing belt conveyors, and one new gate equipped with one fabric filter system (FF 3-15) to control particulate emissions.

(3) One existing belt conveyor and one existing gate covered by a building enclosure (BE 3-21) to control particulate emissions.

No. 1 Finish Mill (70 tons clinker per hour capacity)

(4) Three existing conveyor belts, one clinker bin, and one gypsum bin equipped with one fabric filter system (FF 4-1) to control particulate emissions.

(5) One existing No. 1 finish mill equipped with one fabric filter system (FF 4-2) to control particulate emissions.

(6) One existing particle separator, one elevator, three air slides, one tailing screw, two cement coolers, one pump hopper, one mill feed belt, and one clinker belt equipped with one fabric filter system (FF 4-3) to control particulate emissions.

No. 2 Finish Mill (70 tons clinker per hour capacity)

(7) Two existing conveyor belts, one clinker bin, one gypsum bin, one clinker belt, and one feed belt equipped with one fabric filter system (FF 4-4) to control particulate emissions.

(8) One existing No. 2 finish mill equipped with one fabric filter system (FF 4-5) to control particulate emissions.

(9) One existing particle separator, one elevator, three air slides, one tailing screw, two cement coolers, one pump hopper, and one mill feed belt equipped with one fabric filter system (FF 4-6) to control particulate emissions.

No. 3 Finish Mill (95 tons clinker per hour capacity)

(10) Four existing raw material silos and one belt conveyor (Point 4-7) utilizing water mist suppression or equivalent dust suppression (e.g., enclosure or chemical suppressant) to control particulate emissions.

(11) Four existing weigh feeders and one belt conveyor equipped with one fabric filter system (FF 4-8) to control particulate emissions.

Continued:

(12) Two new belt conveyors that control particulate matter by one fabric filter (FF 3-19) to control particulate emissions; and

(13) One new belt conveyor that controls particulate matter by one fabric filter (FF 3-20) to control particulate emissions.

(14) One new No. 3 finish mill equipped with one fabric filter system (FF 4-9) to control particulate emissions.

(15) Four new air slides and one new bucket elevator equipped with one fabric filter system (FF 4-10) to control particulate emissions.

(16) One new air slide, one cement bin, one screw conveyor, and one rotary feeder equipped with one fabric filter system (FF 4-11) to control particulate emissions.

(17) One new air separator equipped with one fabric filter system (FF 4-12) to control particulate emissions.

(i) Cement Storage, Loading and Packaging Activities

(1) Group 4 Silos (701A-704A) with a combined storage capacity of 18,892 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-3 and FF 5-4).

(2) Group 5 Silos (705A-710A) with a combined storage capacity of 60,462 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-1 and FF 5-2). One pump transfers the material back through the transfer valves to the Group 4 Silos for loading.

(3) Two existing air slides, two screw conveyors, and one screen and truck loader equipped with one fabric filter system (FF 5-5) to control particulate emissions.

(4) Two air slides, two screw conveyors, and one screen and railcar loader equipped with one fabric filter system (FF 5-6) to control particulate emissions.

(5) One air slide, one hopper, and one pump equipped with one fabric filter system (FF 5-7) to control particulate emissions.

(6) One hopper and one pump equipped with one fabric filter system (FF 5-8) to control particulate emissions.

(7) The Group 2 Silos (Nos. 1 - 11) with a combined storage capacity of 24,842 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-10 and FF 5-11).

(8) One existing alleviator bin screw (FF 5-9).

(9) Group 3 Silos (Nos. 1 - 12) with a combined storage capacity of 29,763 tons. Particulate matter are controlled by fabric filter systems (FF 5-12 through FF 5-17).

Continued:

(10) One existing screen elevator equipped with one fabric filter system (FF 5-13) to control particulate emissions.

(11) One existing screen screw, one elevator, and one air slide equipped with one fabric filter system (FF 5-16) to control particulate emissions.

(12) Four existing bulk tanks (BT 831 through BT 834) equipped with fabric filter systems (FF 5-21 through FF 5-24) to control particulate emissions.

(13) One existing air slide and truck loader equipped with one fabric filter system (FF 5-23) to control particulate emissions.

(14) One existing elevator equipped with one fabric filter system (FF 5-17) to control particulate emissions.

(15) One existing screen screw and four existing screw conveyors.

(16) Four existing Packing Machines (No. 1 through No. 4) with four elevators and four packer bins equipped with fabric filter systems (FF 6-1 through FF 6-4) to control particulate emissions.

(17) One existing conveyor, palletizer, and shipper station.

Compliance Determination and Monitoring:

D.4.1 Particulate Matter Emission Limitation

(a) Pursuant to the 326 IAC 12 and 40 CFR 60 Subpart F (New Source Performance Standards for Portland Cement Plants), the following facilities shall not exceed the following limitations:

Operation	Emission Point	Emission Limitations
Finish Mill Operations	FF 3-15	10 percent opacity
No. 1 Finish Mill Operations	FF 4-1	10 percent opacity
	FF 4-2	10 percent opacity
	FF 4-3	10 percent opacity
No. 3 Finish Mill Operations	FF 3-19	10 percent opacity
	FF 3-20	10 percent opacity
	FF 4-9	10 percent opacity
	FF 4-10	10 percent opacity
	FF 4-11	10 percent opacity
	FF 4-12	10 percent opacity

Opacity shall be measured in accordance with 40 CFR 60, Appendix A, Method 9. These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD), 326 IAC 5-1-2 (Opacity Limitations), and 326 IAC 6-3 (Process Operations).

(b) Pursuant to 326 IAC 2-2-3(a)(3) (PSD), the following facilities shall comply with the following particulate limitations:

Operation	Emission Point	Filterable PM Limits		Filterable PM_{10} Limits	
		(gr/dscf)	(lbs/hr)	(gr/dscf)	(lbs/hr)
Finish Mill Transfer Equipment	FF 3-15 FF 3-17	0.015 0.015	0.59 0.59	0.015 0.015	0.59 0.59
No. 1 Finish Mill	FF 4-2	0.020	2.07	0.020	2.07
No. 1 Finish Mill Transfer	FF 4-1 FF 4-3	0.020 0.015	1.12 9.64	0.020 0.015	1.12 9.64
No. 2 Finish Mill	FF 4-5	0.020	2.07	0.020	2.07
No. 2 Finish Mill Transfer	FF 4-4 FF 4-6	0.015 0.020	0.98 2.07	0.015 0.020	0.98 2.07
No. 3 Finish Mill	FF 4-9	0.010	1.97	0.010	1.97
No. 3 Finish Mill Transfer	FF 4-8 FF 3-19 FF 3-20 FF 4-10 FF 4-11 FF 4-12	0.015 0.015 0.010 0.010 0.010 0.010	0.96 0.46 0.63 0.55 0.36 6.43	0.015 0.015 0.010 0.010 0.010 0.010	0.96 0.46 0.63 0.55 0.36 6.43
Group 4 Silos	FF 5-3 FF 5-4	0.020 0.020	1.88 0.45	0.020 0.020	1.88 0.45
Group 5 Silos	FF 5-1 FF 5-2	0.015 0.015	12.86 12.86	0.015 0.015	12.86 12.86
Cement Transfer Equipment	FF 5-5 FF 5-6 FF 5-7 FF 5-8	0.020 0.020 0.020 0.020	1.88 0.45 0.45 1.88	0.020 0.020 0.020 0.020	1.88 0.45 0.45 1.88
Group 2 Silos	FF 5-10 FF 5-11	0.015 0.020	0.32 0.36	0.015 0.020	0.32 0.36
Group 3 Silos	FF 5-12 - FF 5-17	0.020	0.28 each	0.020	0.28 each
Four Bulk Tanks	FF 5-21 - FF 5-24	0.020	0.73 each	0.020	0.73 each
Four Packing Machines	FF 6-1 FF 6-2 - FF 6-4	0.020 0.015	0.13 0.93 each	0.020 0.015	0.13 0.93 each

These limitations satisfy the requirements of 326 IAC 2-2-3(a)(3) (PSD) and 326 IAC 6-3 (Particulate Limitations for Process Operations).

D.4.2 Operation Standards

Pursuant to 326 IAC 2-2-3(a)(3), the Permittee shall comply with the following throughput limitations:

(a) The clinker input rate to the No. 1 finish mill shall not exceed 517,942 tons per year rolled on a monthly basis;

(b) The clinker input rate to the No. 2 finish mill shall not exceed 517,942 tons per year rolled on a monthly basis; and

(c) The clinker input rate to the No. 3 finish mill shall not exceed 700,567 tons per year rolled on a monthly basis.

Compliance Determination and Monitoring:

D.4.3 Performance Testing

(a) Pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) and 40 CFR 60 (New Source Performance Standards), initial compliance tests for the following facilities shall be performed to determine compliance with Operation Conditions D.4.1 within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up:

Operation	Emission Point	Emission Limitations
No. 1 Finish Mill	FF 4-2	Opacity, Filterable PM, Filterable PM_{10}
No. 1 Finish Mill Transfer	FF 4-3	Opacity, Filterable PM, Filterable PM10
No. 2 Finish Mill	FF 4-5	Filterable PM, Filterable PM_{10}
No. 2 Finish Mill Transfer	FF 4-6	Filterable PM, Filterable PM_{10}
No. 3 Finish Mill Transfer	FF 3-19	Opacity
No. 3 Finish Mill Transfer	FF 3-20	Opacity
No. 3 Finish Mill	FF 4-9	Opacity, Filterable PM, Filterable PM_{10}
No. 3 Finish Mill Transfer	FF 4-10 FF 4-11 FF 4-12	Opacity Opacity Opacity, Filterable PM, Filterable PM_{10}
Group 4 Silos	FF 5-3	Filterable PM, Filterable PM_{10}
Group 5 Silos	FF 5-1 FF 5-2	Filterable PM, Filterable PM_{10} Filterable PM, Filterable PM_{10}
Cement Transfer Equipment	FF 5-5 FF 5-8	Filterable PM, Filterable PM_{10} Filterable PM, Filterable PM_{10}

(b) The compliance tests shall be performed within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up and shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this permit (Construction Condition B.5), utilizing methods approved by IDEM, OAM.

(1) A test protocol 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

at least thirty-five (35) days before the intended test date. The Permittee shall develop and submit with the protocol for approval by IDEM, OAM, standard operating procedures to be followed during sampling, handling, analysis, quality control, quality assurance, and data reporting. A request for an exemption to any of the above stack testing requirements may be included in the protocol for OAM review.

(2) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.

(3) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(4) When the results of a compliance test performed 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 facility 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 tests.

(5) Whenever the results of a compliance test performed exceed the level specified in any condition of 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.

(c) IDEM, OAM retains the authority under 326 IAC 2-1-4(f) to require the Permittee to perform additional and future compliance testing as necessary.

D.4.4 Visible Emission Notations

Visible emission notations of all exhaust to the atmosphere from each baghouse and building enclosure associated with the finish mill operations and cement storage, loading, and packaging activities shall be performed at least once per day (during daylight hours) to demonstrate compliance with Operation Condition D.4.1. A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, “normal” means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility’s specific condition prescribing visible emissions.

(c) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

D.4.5 Baghouse Operating Condition

The following baghouses shall be operated at all times when its associated process is in operation to demonstrate compliance with Condition D.4.1.

(a) The Permittee shall take readings of the total static pressure drop across each of the baghouses at least once per day when its associated facility is in operation. The pressure drop reading across each of the baghouses shall be maintained within the ranges set forth in an approved Preventive Maintenance Plan (PMP). The PMP shall address each of the baghouses and shall be prepared and submitted to:

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

within 30 days following the performance testing. The PMP shall also contain a troubleshooting contingency and corrective action plan for the baghouses when the pressure drop reading is outside of the ranges specified in the PMP for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm$ 2% of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection of each baghouse shall be performed each calendar quarter and defective bags replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

(e) In the event that a bag's failure has been observed and emissions temporarily exceed the standards:

(1) All reasonable measures shall be taken to correct, as expeditiously as practicable, the conditions causing the emissions to exceed the allowable limits;

(2) All possible steps shall be taken to minimize the impact of the excessive emissions on ambient air quality which may include but not limited to curtailment of operation and/or shutdown of the facility; and

(3) Failure or partial failure of the control device shall be reported to IDEM, OAM according to the procedure specified for malfunctions in 326 IAC 1-6-2, in which case the provisions of 326 IAC 1-6-5 may apply at the discretion of IDEM, OAM.

Recordkeeping and Reporting Requirements:

D.4.6 Recordkeeping Requirement

The Permittee shall maintain records required by D.4.2, D.4.4 and D.4.5 at the source location for a minimum period of 36 months to demonstrate compliance with Conditions C.8, C.10 and D.4.1. These records shall be made available within one (1) hour upon verbal request of an IDEM, OAM representative.

(a) Records of required monitoring information shall include, where applicable:

(1) Date, place, and time of sampling or measurements;

(2) Dates analyses were performed;

(3) Company or entity performing the analyses;

(4) Analytic techniques or methods used;

(5) Results of such analyses; and

(6) Operating conditions existing at the time of sampling or measurement.

(b) 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; and

(4) Records of any required preventive maintenance and corrective actions that were implemented. Such records shall briefly describe what was done and indicate who did it. Such records may include, but are not limited to work orders, quality assurance procedures, quality control procedures, operator's standard operating procedures, manufacturer's specifications or their equivalent, and equipment "troubleshooting" guidance.

D.4.7 Reporting Requirement

The Permittee shall prepare monthly production records for the parameters required in Operation Condition D.4.2 and submit these reports on a quarterly basis to demonstrate compliance with Operation Condition D.4.1 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

within thirty (30) days following the end of each calendar quarter.

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - 317 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ?_____, 100 LBS/HR VOC ?_____, 100 LBS/HR SULFUR DIOXIDE ?_____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ?_____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY:_____PHONE NO. ( )_____
LOCATION: (CITY AND COUNTY)_____
PERMIT NO. _____ AFS PLANT ID: _____ AFS POINT ID: _____ INSP: _____
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON:_____
_____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 19____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE_____/_____/ 19____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____
_____

MEASURES TAKEN TO MINIMIZE EMISSIONS:_____
_____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL*SERVICES:_____
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS:_____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT:_____
INTERIM CONTROL MEASURES: (IF APPLICABLE)_____
MALFUNCTION REPORTED BY: _____TITLE:_____
(SIGNATURE IF FAXED)
MALFUNCTION RECORDED BY:_____DATE:_____TIME:_____

REV 3/96 FAX NUMBER - 317 233-5967 *SEE REVERSE

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO2, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

_____

_____

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section
Quarterly Report

Company Name: Lone Star Industries, Inc.
Location: 3301 South County Road 150 West, Greencastle, Indiana 46135
Permit No.: CP 133-10159-00002
Source/Facility: Quarry Activities, Raw Material Sizing, Ball Mill Operation, Fly Ash Storage Activities, and Coal Mill Operation
Limits: Production Limits Required by Operation Condition D.1.2

YEAR: ________________

Month	Production Facility	Production this Month, tons/month	Production Last 12 Months, tons/year	Production Limit, tons/year, rolled on a monthly basis
	Overburden Material			1.2 million overburden
	Primary Crusher			2,262,479 limestone
	Secondary Crusher			2,574,685 shale/limestone
	Coal Mill			313,552 coal
	Fly Ash Input to Kiln			135,289 fly ash
	Overburden Material			1.2 million overburden
	Primary Crusher			2,262,479 limestone
	Secondary Crusher			2,574,685 shale/limestone
	Coal Mill			313,552 coal
	Fly Ash Input to Kiln			135,289 fly ash
	Overburden Material			1.2 million overburden
	Primary Crusher			2,262,479 limestone
	Secondary Crusher			2,574,685 shale/limestone
	Coal Mill			313,552 coal
	Fly Ash Input to Kiln			135,289 fly ash

Submitted by: ______________________ Signature: ______________________
Title / Position: ______________________ Date: ______________________

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section
Quarterly Report

Company Name: Lone Star Industries, Inc.
Location: 3301 South County Road 150 West, Greencastle, Indiana 46135
Permit No.: CP 133-10159-00002
Source/Facility: Kiln Operations
Limits: Production Limits Required by Operation Condition D.2.6

YEAR: ________________

Month	Production Facility	Production this Month, tons/month	Production Last 12 Months, tons/year	Production Limit, tons/year, rolled on a monthly basis
	Kiln Raw Material Input			3,149,427 raw feed
	Coal to Kiln			157,680 coal
	Coal to Calciner			201,480 coal
	Total Coal Input			313,552 coal
	Clinker Production			1,606,000 clinker
	Kiln Raw Material Input			3,149,427 raw feed
	Coal to Kiln			157,680 coal
	Coal to Calciner			201,480 coal
	Total Coal Input			313,552 coal
	Clinker Production			1,606,000 clinker
	Kiln Raw Material Input			3,149,427 raw feed
	Coal to Kiln			157,680 coal
	Coal to Calciner			201,480 coal
	Total Coal Input			313,552 coal
	Clinker Production			1,606,000 clinker

Submitted by: ______________________ Signature: ______________________

Title / Position: ______________________ Date: ______________________

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section
Quarterly Report

Company Name: Lone Star Industries, Inc.
Location: 3301 South County Road 150 West, Greencastle, Indiana 46135
Permit No.: CP 133-10159-00002
Source/Facility: Finish Mill Operations
Limits: Production Limits Required by Operation Condition D.4.2

YEAR: _____

Month	Production Facility	Production this Month, tons/month	Production Last 12 Months, tons/year	Production Limit, tons/year, rolled on a monthly basis
	No. 1 Finish Mill			517,942 clinker
	No. 2 Finish Mill			517,942 clinker
	No. 3 Finish Mill			700,567 clinker
	No. 1 Finish Mill			517,942 clinker
	No. 2 Finish Mill			517,942 clinker
	No. 3 Finish Mill			700,567 clinker
	No. 1 Finish Mill			517,942 clinker
	No. 2 Finish Mill			517,942 clinker
	No. 3 Finish Mill			700,567 clinker

Submitted by: _____ Signature: _____

Title / Position: _____ Date: _____

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for New Construction and Operation

Source Background and Description

Source Name:	Lone Star Industries, Inc.
Source Location:	3301 South County Road 150 West, Greencastle, Indiana 46135
County:	Putnam
Construction Permit No.:	CP-133-10159-00002
SIC Code:	3241
Permit Reviewer:	Michele Williams

The Office of Air Management (OAM) has reviewed an application from Lone Star Industries, Inc., relating to the modification of the wet process cement kiln with a clinker production capacity of 2,600 tons per day to a semi-dry process cement kiln with a clinker production capacity of 4,400 tons per day and its associated operations.

(a) Quarry Activities

(1) Existing Limestone Quarry Activities include removal and transfer of overburden material, drilling and blasting of limestone, and loading of limestone to trucks.

The quarry activities shall increase the maximum volume of limestone rock removed from the quarry from 600 tons per hour to 1,100 tons per hour and 2,262,479 tons per year via additional equipment and work hours.

(b) Raw Material Sizing Activities

(1) One Modified Primary Crusher (1,100 tons limestone per hour capacity and 2,262,479 tons limestone per year limit) that utilizes water mist suppression to control particulate emissions.

(2) Outside Storage Piles that utilize water mist suppression to control particulate emissions.

(3) One New Secondary Crusher (400 tons shale/limestone per hour capacity and 2,574,685 tons shale/limestone per year limit) and three conveyor belts equipped with one fabric filter system (FF 1-15) to control particulate emissions.

(4) One existing Screenhouse and three belt conveyors equipped with one fabric filter system (FF 1-16) to control particulate emissions.

Trucks transfer limestone from the quarry operation to one hopper that feeds into the primary crusher. The crushed limestone from the primary crusher is transferred to outside storage piles via one new apron feeder and one new belt conveyor. Other raw materials are shipped in by truck and unloaded onto outside storage piles. The crushed limestone is transferred to the secondary crusher via three vibrating feeders, one belt conveyor, one new gate, and one vibrating grizzly, while the other raw materials are transferred to the secondary crusher via one apron feeder. Particulate matter emissions from these transfer activities are controlled using water mist suppression.

The crushed raw materials may be transferred to the No. 3 finish mill operation via the screenhouse and three belt conveyors, or to the raw material ball mill operation.

(c) Raw Material Ball Mill Operation (320 tons raw material per hour capacity and 2,705,789 tons raw material per year limit)

(1) Modified Raw Material Transfer Equipment to Ball Mill consisting of:

(a) three belt conveyors, one gate, and one alleviator equipped with one fabric filter system (FF 1-17) to control particulate emissions; and

(b) five raw material bins (BI 1-5), four weigh feeders (WF 1-4), one conveyor belt, and one apron feeder that utilize water mist suppression to control particulate emissions.

(2) One New Enclosed Ball Mill.

(3) New Raw Material Transfer Equipment to Hammermill Dryer consisting of one mill sump, six screens, one screen sump, two kiln feed basins, and one kiln feed tank.

Raw material is transferred from the crusher to the raw material bins. The material from the bins are fed into the weigh feeders before it is transferred to the ball mill operation. The raw materials are blended with water to prepare the liquid slurry to be introduced into the hammermill dryer portion of the semi-dry process kiln system.

(d) Fly Ash Storage Activities (135,289 tons fly ash per year throughput limit)

(1) Two New Fly Ash Silos and four rotary feeders equipped with one fabric filter system (FF 1-21) to control particulate emissions.

(2) One New Fly Ash Feed Bin equipped with one fabric filter system (FF 1-22) to control particulate emissions.

(3) Fly Ash New Transfer Equipment to the Hammermill Dryer includes one gate and one airslide covered by a building enclosure (BE 1-23) to control particulate emissions.

Fly ash is blended with the raw material liquid slurry from the ball mill before it is transferred to the hammermill dryer.

(e) Coal Mill Operation

(1) Coal Storage Piles that utilize building enclosures to control particulate emissions.

(2) Modified Transfer Equipment to Coal Bin consisting of various feeders, conveyors, screening, and magnetic separator systems that utilize water mist suppression to control particulate emissions.

(3) One New Coal Bin equipped with one fabric filter system (FF 2-9) to control particulate emissions.

(4) New Transfer Equipment to Coal Mill consisting of one weigh feeder, one belt conveyor and one rotary feeder covered by a building enclosure (BE 2-10) to control particulate emissions.

(5) One New Coal Mill (40 tons coal per hour capacity and 313,552 tons coal per year limit) equipped with one fabric filter system (FF 2-11) to control particulate emissions.

(6) New Transfer Equipment to the Coal Bin includes two screw conveyors and one rotary feeder covered by a building enclosure (BE 2-12) to control particulate emissions.

(7) One New Coal Bin equipped with one fabric filter system (FF 2-13) to control particulate emissions.

Coal is delivered by truck from nearby mines, or delivered via rail from more distant sites. The coal is transferred from enclosed on-site storage into a grinding mill, reduced to a fine powder and then blown into the kiln and calciner combustion chambers.

(f) Kiln Operations (360 tons raw feed per hour capacity and 183 tons clinker per hour capacity)

(1) One New Hammermill Dryer equipped with one electrostatic precipitator (ESP 3-1) to control particulate emissions that exhausts to Stack 3-1.

(2) One New Coal-Fired Calciner Tower with a maximum rated capacity of 451 million British thermal units (MMBtu) per hour. Particulate emissions from the calciner tower are controlled by one electrostatic precipitator (ESP 3-1) that exhausts to Stack 3-1.

(3) One Modified Semi-Dry Process Cement Kiln with a rated capacity of 376 MMBtu per hour. Particulate emissions from the kiln are controlled by one electrostatic precipitator (ESP 3-1) that exhausts to Stack 3-1. The kiln is fired by coal and the following supplemental fuels:

(A) hazardous and nonhazardous waste fuel at a maximum rate allowed by the approved Boiler and Industrial Furnace Permit required by 40 CFR 270; and

(B) distillate fuel for burner startup activities.

(4) Seven existing screw conveyors, two rotary feeders, and two bucket elevators covered by a building enclosure (BE 3-2) to control particulate emissions.

(5) Two Existing ESP Return Dust Bins and One Waste Dust Bin equipped with one fabric filter system (FF 3-3) to control particulate emissions.

(6) One Alkali Bypass System equipped with one gas suspension absorber (GSA) and fabric filter system (FF 3-5) to control particulate emissions. The GSA is equipped with a water mist spray system and lime injection system to control sulfur dioxide emissions.

(7) Seven new screw conveyors and one bucket elevator covered by a building enclosure (BE 3-6) to control particulate emissions.

(8) One New Alkali Bypass System Dust Bin equipped with one fabric filter system (FF 3-7) to control particulate emissions. The material from the dust bin is loaded into trucks via a new truck loading system. Particulate emissions from loading are controlled by a building enclosure.

Raw materials enter the semi-dry process as a slurry. The raw materials are flash-dried in the hammermill dryer and preheated. The raw materials exit the drier and are air swept to a pair of cyclone separators and discharged to the calciner tower. An alkali bypass system removes raw material with high sulfur content from the calciner tower to ensure product quality. The existing wet kiln will be shortened and connected to the calciner tower.

(g) Clinker Operations (183 tons clinker per hour capacity)

(1) One Modified Clinker Cooler with one clinker breaker, one dropout chamber, and one heat exchanger equipped with one fabric filter system (FF 3-9) to control particulate emissions that exhausts to Stack 3-9.

(2) Modified Clinker Transfer Equipment consisting of:

(a) eight screw conveyors and four vibrating feeders covered by a building enclosure to control particulate emissions; and

(b) two belt conveyors and two bucket elevators equipped with one fabric filter system (FF 3-11) to control particulate emissions.

(3) One existing non-routine outdoor clinker pile that is covered to control particulate emissions.

(4) Modified Clinker Transfer Equipment to Clinker Silos consisting of one belt conveyor (turning tower) equipped with one fabric filter system (FF 3-12) to control particulate emissions.

(5) Seven Existing Clinker Silos equipped with one fabric filter system (FF 3-14) to control particulate emissions.

Clinker exits the hot end of the kiln to an existing clinker cooler. This operation also serves to preheat kiln and calciner combustion air. The cooled clinker can be stored temporarily and then will enter a pre-grind mill before entering one of three cement finishing grinding mills.

(h) Finish Mill Operations

(1) Existing Gypsum Transfer Equipment to Finish Mill Operations consisting of two vibrating feeders and one belt conveyor equipped with one fabric filter system (FF 3-17) to control particulate emissions.

(2) Modified Clinker Silo Transfer Equipment to the finish mills consisting of seven vibrating feeders, two belt conveyors, and one gate equipped with one fabric filter system (FF 3-15) to control particulate emissions.

(3) Existing Clinker/Gypsum Transfer Equipment to No. 1 and No. 2 Finish Mills consisting of one belt conveyor and one gate covered by a building enclosure to control particulate emissions.

No. 1 Finish Mill (70 tons clinker per hour capacity)

(4) Existing Clinker/Gypsum Transfer Equipment to No. 1 Finish Mill consisting of three conveyor belts, one clinker bin, and one gypsum bin equipped with one fabric filter system (FF 4-1) to control particulate emissions.

(5) Existing No. 1 Finish Mill equipped with one fabric filter system (FF 4-1) to control particulate emissions.

(6) Existing No. 1 Finish Mill Transfer Equipment to Cement Silos consisting of one particle separator, one elevator, three air slides, one tailing screw, two cement coolers, one pump hopper, one mill feed belt, and one clinker belt equipped with one fabric filter system (FF 4-3) to control particulate emissions.

No. 2 Finish Mill (70 tons clinker per hour capacity)

(7) Existing Clinker/Gypsum Transfer Equipment to No. 2 Finish Mill consisting of two conveyor belts, one clinker bin, one gypsum bin, one clinker belt, and one feed belt equipped with one fabric filter system (FF 4-4) to control particulate emissions.

(8) Existing No. 2 Finish Mill equipped with one fabric filter system (FF 4-5) to control particulate emissions.

(9) Existing No. 2 Finish Mill Transfer Equipment to Cement Silos consisting of one particle separator, one elevator, three air slides, one tailing screw, two cement coolers, one pump hopper, and one mill feed belt equipped with one fabric filter system (FF 4-6) to control particulate emissions.

No. 3 Finish Mill (95 tons clinker per hour capacity)

(10) Raw Material Transfer Equipment to No. 3 Finish Mill Transfer Equipment consisting of:

(a) three new belt conveyors equipped with one fabric filter system (FF 1-15) to control particulate emissions;

(b) one existing screenhouse and three belt conveyors equipped with one fabric filter system (FF 1-16) to control particulate emissions;

(c) four existing silos and one existing belt conveyor utilizing water mist suppression to control particulate emissions; and

(d) four existing weigh feeders and one existing belt conveyor equipped with one fabric filter system (FF 4-8) to control particulate emissions.

(11) New Clinker/Gypsum Transfer Equipment to No. 3 Finish Mill Transfer Equipment consisting of:

(a) two belt conveyors that control particulate matter by one fabric filter (FF 3-19) to control particulate emissions; and

(b) one belt conveyor that controls particulate matter by one fabric filter (FF 3-20) to control particulate emissions.

(12) New No. 3 Finish Mill equipped with one fabric filter system (FF 4-9) to control particulate emissions.

(13) New No. 3 Finish Mill Transfer Equipment to Cement Silos consisting of:

(a) four air slides and one bucket elevator equipped with one fabric filter system (FF 4-10) to control particulate emissions;

(b) one air slide, one cement bin, one screw conveyor, and one rotary feeder equipped with one fabric filter system (FF 4-11) to control particulate emissions; and

(c) one air separator equipped with one fabric filter system (FF 4-12) to control particulate emissions.

Additives, mainly gypsum and limestone, are mixed with the clinker during the grinding step. The finished product is cement which is transferred into storage, and shipped out to customers and distribution terminals, or packaged for sale.

(i) Cement Storage, Loading and Packaging

(1) Existing Group 4 Silos (701A-704A) with a combined storage capacity of 18,892 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-3 and FF 5-4).

(2) Existing Group 5 Silos (705A-710A) with a combined storage capacity of 60,462 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-1 and FF 5-2). One pump transfers the material back through the transfer valves to the Group 4 Silos for loading.

(3) Existing Group 4 Silo Transfer Equipment to Truck Loading Station consisting of two air slides, two conveyors, and one screen equipped with one fabric filter system (FF 5-5) to control particulate emissions.

(4) Existing Group 4 Silo Transfer Equipment to Rail Car Station consisting of two air slides, two screw conveyors, and one screen equipped with one fabric filter system (FF 5-6) to control particulate emissions.

(5) Existing Group 4 Silo Transfer Equipment to Group 2 Silos consisting of:

(a) one air slide, one hopper, and one pump equipped with one fabric filter system (FF 5-7) to control particulate emissions; and

(b) one hopper and one pump equipped with one fabric filter system (FF 5-8) to control particulate emissions.

(6) Existing Group 2 Silos (Nos. 1 - 11) with a combined storage capacity of 24,842 tons. Particulate emissions are controlled by two fabric filter systems (FF 5-10 and FF 5-11).

(7) Existing Group 2 and Group 4 Silo Transfer Equipment to Group 3 Silos or Packing Machines consisting of one alleviator bin screw.

(8) Existing Group 3 Silos (Nos. 1 - 12) with a combined storage capacity of 29,763 tons. Particulate matter are controlled by fabric filter systems (FF 5-12 through FF 5-17).

(9) Existing Group 3 Silo Transfer Equipment to Truck Loading Stations consisting of:

(a) one screen elevator equipped with one fabric filter system (FF 5-18) to control particulate emissions;

(b) one screen screw, one elevator, and one air slide equipped with one fabric filter system (FF 5-20) to control particulate emissions;

(c) four bulk tanks (BT 831 through BT 834) equipped with fabric filter systems (FF 5-21 through FF 5-24) to control particulate emissions; and

(d) one air slide equipped with one fabric filter system (FF 5-25) to control particulate emissions.

(10) Existing Group 3 Silo Transfer Equipment to No. 1 Packing Machine consisting of:

(a) one elevator equipped with one fabric filter system (FF 5-19) to control particulate emissions; and

(b) one screen screw.

(11) Existing Cement Transfer Equipment to Packing Machines consisting of four screw conveyors.

(12) Four Existing Packing Machines (No. 1 through No. 4) with four elevators and four packer bins equipped with fabric filter systems (FF 6-1 through FF 6-4) to control particulate emissions. The packaged cement is then transferred for shipping via conveyor systems.

(13) One conveyor, palletizer, and shipper station.

Permit Supersession

This permit shall supersede the following permits issued to the source:

(a) Operation Permit 3520-0002-0133 issued on November 28, 1990
Quarry, Primary Crusher;

(b) Operation Permit 3520-0002-0134 issued on November 28, 1990
Material Storage, Secondary Crusher;

(c) Operation Permit 3520-0002-0135 issued on November 28, 1990
Wet Process Cement Kiln;

(d) Operation Permit 3520-0002-0136 issued on November 28, 1990
Clinker Cooler and Material Handling;

(e) Operation Permit 3520-0002-0137 issued on November 28, 1990
Grinding Operations;

(f) Operation Permit 3520-0002-0138 issued on November 28, 1990
Material Storage and Handling;

(g) Exemption Permit issued on June 19, 1989
Cement Blending System;

(h) Registration Permit CP-133-2405-00002 issued on March 3, 1992
Clinker Cooler Improvement Work;

(i) Amendment to 3520-0002-0135 issued on September 28, 1992
Fuel Use Flexibility;

(j) Registration Permit CP-133-2811-00002 issued on March 10, 1993
Grinding Air Classification System Improvements;

(k) Registration Permit CP-133-3534-00002 issued on February 16, 1994
ESP Modernization and Improvements;

(l) Exemption Permit CP-133-4864-00002 issued on October 3, 1995
New Material Silos;

(m) Registration Permit CP-133-4537-00002 issued on October 6, 1995
Grinding Mill No. 3;

(n) Amendment CP-133-4996 to Exemption CP-133-4914 issued on November 8, 1995
Clarify Storage Silo Contents; and

(o) PSD Permit CP-133-5886-00002 issued on September 18, 1998
No. 2 Wet Process Cement Kiln and Associated Equipment Modifications.

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

(a) Amendment to 3520-0002-0135 issued on September 28, 1992

(1) Condition 3:

"The following Operation Permit Conditions shall be added:

7: That the fuel use shall be limited to the following:

a) for coal, the limit will be 200,000 tons per year.
b) for liquid hazardous waste fuel, the limit will be 192,000 tons per year.
c) for solid hazardous waste fuel, the limit will be 170,000 tons per year.
d) for non-hazardous waste fuels, the limit will be 255,000 tons per year.

8: That a log of information necessary to document compliance with the fuel usage limitations shall be maintained. These records shall be kept for at least the past 24 month period and made available upon request to the Office of Air Management. A quarterly summary shall be submitted to:

Enforcement Section
Office of Air Management
Department of Environmental Management
P.O. Box 6015
Indianapolis, Indiana 46206-6015

within 30 days after the end of the quarter being reported, in the format attached. These reports shall include the types of fuel used and the quantities."

(2) Reason Not Incorporated:

The fuel usage limits for hazardous waste are established in the Boiler and Industrial Furnace (BIF) permit. Operation Condition D.2.5(b) references that the hazardous waste usage shall comply with the regulations of 40 CFR 266 and limits required by the BIF permit. The proposed permit does limit the hazardous air pollutant (HAP) emissions in Operation Condition D.2.5(a) to less than 10 tons per year for a single HAP and 25 tons per year for a combination of HAPs pursuant to 326 IAC 2-1-3.4 (New Source Toxic Rule).

The fuel usage limits for coal have been revised due to the modification to the kiln system which will require additional coal usage. There is a coal usage limit required by Operation Condition D.2.6(b) of the proposed permit.

The non-hazardous waste fuels have not been incorporated into the proposed permit. The source must receive prior approval to utilize specific non-hazardous waste fuels in the kiln. The source has not submitted information concerning non-hazardous waste fuel usage, therefore, non-hazardous waste has not been approved in this proposed permit.

The recordkeeping requirements are no longer necessary for hazardous waste fuel and non-hazardous waste fuels for the reasons described above. The proposed permit requires monthly coal usage records be kept for a minimum period of 36 months.

(b) PSD Permit CP-133-5886-00002 issued on September 18, 1998

(1) Complete Permit Superseded

(2) Reason Not Incorporated:
This proposed permit shall replace the PSD Permit CP-133-5886-00002. The company has decided to modify the existing wet kiln to a semi-wet process kiln instead of constructing a second wet kiln system. The modeling conducted in this permit application does not include emissions from the second kiln system. Therefore, CP-133-5886-00002 shall be superseded by this permit.

Stack Summary

The stack summary information for the source is included in Appendix A.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. Information, unless otherwise stated, used in this review was derived from the application which was received on September 18,1998.

Emissions Calculations

The emissions calculations are provided in Appendix B. The design outlet grain loading specifications for the baghouses were used to calculate particulate PTE for all facilities equipped with a baghouse. The January 1995 Edition of the EPA AP-42 Emission Factors (Chapter 11.6 - Portland Cement Manufacturing, Chapter 11.19 - Crushed Stone Processing, Chapter 13.2 - Fugitive Dust Sources, and Chapter 13.3 - Explosives Detonation) were used to calculate the PTE from all other facilities at the source excluding the semi-dry process kiln system. Because the semi-dry process kiln is a new technology and limited emission data is available, the particulate limitation for cement kilns required by the New Source Performance Standard for Portland Cement Plants (40 CFR 60, Subpart F) was used to calculate particulate PTE from the semi-dry process cement kiln. Lone Star conducted performance tests at the only operating semi-dry process kiln while utilizing the raw material mix associated with the Greencastle plant to calculate NOx, SO2, VOC, and CO emissions.

Total Allowable Emissions

The following table represents the total allowable emissions as defined in 326 IAC 1-2-2 for the source. These emissions are determined after compliance with applicable rules (326 IAC 2-2 and 326 IAC 12), based on 8,760 hours of operation per year at rated capacity.

Pollutant	Allowable Emissions (tons/year)
Particulate Matter (PM)	808
Particulate Matter (PM10)	725
Sulfur Dioxide (SO_2)	2,971
Volatile Organic Compounds (VOC)	22.5
Carbon Monoxide (CO)	2,422
Nitrogen Oxides (NO_x)	3,051
Single Hazardous Air Pollutant (HAP)	<10
Combination of HAPs	<25

The allowable emissions of at least one criteria pollutant are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

County Attainment Status

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

(b) Putnam County has been classified as attainment or unclassifiable for all 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

The following emissions summary table represents the existing source emissions after controls, based on 8,760 hours of operation per year at rated capacity.

Pollutant	Emissions (ton/yr)
PM	402
PM10	177
SO_2	3,278
VOC	24.4
CO	2,831
NO_x	4,389

(a) This existing source is a major PSD source as defined in 326 IAC 2-2-1 (Major PSD Source) because it is in one of the 28 listed source categories (Portland cement plants) and at least one regulated pollutant is emitted at a rate of 100 tons per year or more.

(b) The existing source emissions were referenced from the Facility Quick Look Report, dated September 18, 1996.

Proposed Modification

The following table represents the proposed source potential to emit (PTE) from the proposed modification after controls based on 8,760 hours of operation per year at rated capacity.

Pollutant	PM (ton/yr)	PM10 (ton/yr)	SO_2 (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO_x (ton/yr)
Proposed Source Emissions	808	725	2,971	22.5	2,422	3,051
Existing Source Emissions	402	177	3,278	24.4	2,831	4,389

Net Emissions	406	548	-307	-1.9	-409	-1,338
PSD Significant Level	25	15	40	40	100	40

This existing major source is subject to the requirements of 326 IAC 2-2 and 40 CFR 52.21 because PM and PM10 exceed the PSD significant threshold levels. It should be noted that while this modification project will almost double the current production capacity, the SO2, VOC, CO, and NOx emissions will decrease as shown in the above table.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)
This existing source has submitted their Part 70 permit application (T-133-6927-00002) on October 15, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 permit application.

Federal Rule Applicability

40 CFR 60 Subpart F (New Source Performance Standards for Portland Cement Plants)
The new and modified facilities in this proposed modification project are subject to the New Source Performance Standard (NSPS) for Portland Cement Plants (40 CFR 60 Subpart F). This rule applies to the following facilities in Portland cement plants that have commenced construction or modification after August 17, 1971 and establishes particulate emission limitations:

Affected Facility	Emission Limitations
Kiln and Alkali Bypass System	0.30 pounds of PM per ton raw feed; 20 percent opacity
Clinker Cooler	0.10 pounds of PM per ton raw feed; 10 percent opacity
Raw Mill System Finish Mill System Raw Mill Dryer Raw Material Storage Clinker Storage Finished Product Storage Conveyor Transfer Points Bagging and Bulk Loading/Unloading Systems	10 percent opacity

(a) The particulate emissions generated from the raw mill system and raw mill dryer are exhausted to the kiln stack. The raw mill system and raw mill dryer have more stringent opacity limits (10 percent opacity) than the kiln opacity limits (20 percent opacity) pursuant to 40 CFR 60 Subpart F. Therefore, the kiln stack shall comply with the more stringent opacity limit not exceed 10 percent.

(b) The No. 1 finish mill operation is not being modified as part of this project. However, the No. 1 finish mill operation was modified under registration CP-133-2811-00002 issued on March 10, 1993. Therefore, the No. 1 finish mill operation is subject to 40 CFR 60, Subpart F.

(c) This rule requires that the cement plant record the daily production rates and kiln feed rates. The source shall install, calibrate, maintain, and operate a continuous opacity monitoring systems on the kiln and clinker cooler to measure the opacity of emissions discharged into the atmosphere. [40 CFR 60.63]

40 CFR 60 Subpart Y (New Source Performance Standards for Coal Preparation Plants)
The modified coal mill operation is subject to the NSPS for Coal Preparation Plants (40 CFR 60 Subpart Y). This rule establishes particulate emission limitations for the coal processing (coal mill) and conveying equipment, coal storage systems, and coal transfer and loading systems that have commenced construction or modification after October 24, 1974. The opacity from each of these facilities shall be less than 20 percent. [40 CFR 60.252(c)]

40 CFR 60 Subpart OOO (New Source Performance Standards for Nonmetallic Mineral Processing Plants)
The new and modified facilities in this proposed modification project are subject to the NSPS for Nonmetallic Mineral Processing Plants (40 CFR 60 Subpart OOO). An affected facility that is subject to the provisions of 40 CFR 60, Subpart F or that follows in the plant process any facility subject to the provisions of 40 CFR 60, Subpart F is not subject to the provisions of this subpart. This rule applies to the following facilities of the nonmetallic mineral processing operations that have commenced construction, reconstruction, or modification after August 31, 1983 and establishes particulate emission limitations:

Operation	Emission Limitations
Any Transfer Point on Belt Conveyors or from any Other Affected Facility* discharged to a Stack or Vent, excluding Individual, Enclosed Storage Bins controlled by a Baghouse	0.05 g/dscm (0.12 gr/dscf) and 7 percent opacity
Fugitive Emissions from any Transfer Point on Belt Conveyors or from any Other Affected Facility, excluding Crusher Facilities	10 percent opacity
Truck Dumping of Nonmetallic Minerals into any Screening Operation, Feed Hopper, or Crusher	Exempt from NSPS Requirements
Fugitive Emissions from any Crusher at which a Capture System is not Used	15 percent opacity

* Affected Facilities include each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station.

(a) The particulate emissions generated from the modified primary crusher are fugitive and shall comply with the 15 percent opacity limitation, excluding truck dumping of the nonmetallic minerals into the primary crusher. The particulate emissions generated from the modified secondary crusher are controlled by a baghouse system and shall comply with the 7 percent opacity and 0.05 g/dscm limitations.

(b) The grinding mill (raw mill), raw material, clinker, and cement storage facilities, bagging operations, and associated conveyor transfer points are not subject by this rule because they are subject to 40 CFR 60 Subpart F.

NSPS Source Requirement Summary

The *NSPS Applicability Table* is included in Appendix C. This table includes each facility, its installation or modification date, and its applicable NSPS.

40 CFR 61 Subpart FF (National Emission Standard for Benzene Waste Operations)

The modified kiln is subject to the National Emission Standard for Benzene Waste Operations (40 CFR 61 Subpart FF) because it is a hazardous waste disposal facility that disposes of hazardous waste generated by a chemical manufacturing plant. [40 CFR 61.340] The hazardous waste serves as a supplemental fuel, and because of the extreme temperatures of the kiln system, destructs a majority of the organics in the hazardous waste.

Pursuant to 40 CFR 61.348 (Standards for Treatment Processes), the kiln shall achieve a destruction efficiency of 99 percent or greater of benzene. [40 CFR 61.348(a)(1)(iii)] The treatment process is in compliance with the requirements of this subpart provided that the owner or operator documents that the treatment process has been issued a final permit under 40 CFR 270 and complies with the requirements of 40 CFR 266 Subpart D. [40 CFR 61.348(d)(2)] The determination of annual waste quantity for wastes that are received at hazardous waste treatment, storage, or disposal facilities from off-site shall be made at the point where the waste enters the hazardous waste treatment, storage, or disposal facility based on the test methods, procedures, and compliance provisions of 40 CFR 61.355. Lone Star shall comply with the recordkeeping and reporting requirements specified in 40 CFR 61.356 and 61.357.

40 CFR 63 (National Emissions Standards for Hazardous Air Pollutants)

There are presently no National Emissions Standards for Hazardous Air Pollutant (NESHAP) regulations for Portland Cement Plants. There are two proposed NESHAPs that could apply to the source upon promulgation including the NESHAP for Portland Cement Plants and the NESHAP for Hazardous Waste Combustors:

(a) The NESHAP for Portland Cement Plants is expected to be final in May 1999. The particulate and opacity limits established in the proposed permit demonstrate compliance with the proposed limits of this NESHAP.

(b) The NESHAP for Hazardous Waste Combustors is expected to be final in March 1999. The proposed limits established in this NESHAP assume that compliance is achievable through the use of either a fabric filter or ESP along with temperature controls.

State Rule Applicability

326 IAC 2-1-3.4 (New Source Toxic Control)

The New Source Toxics Control rule requires any new or reconstructed major source of hazardous air pollutants (HAPs) for which there is no applicable NESHAP shall be required to make the maximum achievable control technology (MACT) determination on a case-by-case basis when the potential to emit is greater than 10 tons per year of any single HAP or 25 tons per year of any combination of HAP. Lone Star is not subject to the requirements of this rule because the total source emissions of HAPs are less than the threshold levels. A condition has been incorporated into the permit limiting the HAP emissions from the kiln system to less than 10 tons per year of any single HAP or 25 tons per year of any combination of HAP.

326 IAC 2-2 (Prevention of Significant Deterioration)

This proposed modification is subject to the Prevention of Deterioration (PSD) rules because the emissions from at least one pollutant is above the PSD significant threshold levels reported in 326 IAC 2-2-1. Therefore, the PSD provisions require that this major modification be reviewed to ensure compliance with the National Ambient Air Quality Standards, the applicable PSD air quality increments, and the requirements to apply the best available control technology on the project's emissions.

The *Air Quality Analysis* report included in Appendix D was conducted to show that this major modification does not violate the National Ambient Air Quality Standards (NAAQS) and does not exceed the incremental consumption above 80 percent of the PSD increment for any pollutant. The pre-construction monitoring analysis showed that the SO2 and PM10 concentration exceeded the pre-construction monitoring deminimis levels specified in 326 IAC 2-2-4(b)(3). Therefore, pursuant to 326 IAC 2-2-4(c)(6), the IDEM shall require Lone Star to conduct post-ambient monitoring for PM10 and SO2 for a minimum period of three (3) years to determine the effect of said emissions from the source modification on air quality in the area.

The best available control technologies (BACT) for the facilities covered in this major modification are determined on a case-by-case basis by reviewing similar process controls and new available technologies. In addition, the cost per ton of pollutant removed, energy requirements, and environmental impacts are weighed in IDEM's final decision. Control technology summaries of the facilities covered in this major modification are discussed in the *BACT Analysis Report* included in Appendix E.

326 IAC 2-6 (Emission Reporting)

This facility is subject to 326 IAC 2-6 (Emission Reporting), because the source emits more than 100 tons per year of at least one (1) regulated pollutant. Pursuant to this rule, the owner or operator of this facility must annually submit an emission statement of the facility. The annual statement must be received by July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

326 IAC 5-1-2 (Opacity Limitations)

This rule applies to opacity, not including condensed water vapor, emitted by or from a facility or source. This source is subject to the applicability requirements of 326 IAC 5-1-1(b) and 326 IAC 5-1-2(1). Pursuant to 326 IAC 5-1-2(1), the opacity shall not exceed an average of 40 percent in any one 6 minute averaging period and 60 percent for more than a cumulative total of 15 minutes (60 readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen 1 minute nonoverlapping integrated averages for a continuous opacity monitor) in a 6 minute period.

The new and modified facilities in this proposed modification project shall comply with the more stringent opacity limits required by 40 CFR 60 Subpart F (NSPS for Portland Cement Plants), 40 CFR 60 Subpart OOO (New Source Performance Standards for Nonmetallic Mineral Processing Plants), or 40 CFR 60 Subpart Y (New Source Performance Standards for Coal Preparation Plants). Existing equipment prior to this project shall comply with the requirements of 326 IAC 5-1-2.

326 IAC 6-3-2 (Particulate Matter Emissions Limitations from Process Operations)

This rule establishes emission limitations for particulate emissions from process operations located anywhere in the state. If any limitation established by this rule is inconsistent with applicable limitations contained in 326 IAC 12 (New Source Performance Standards), then the limitation contained herein shall not apply; but the limits in such sections shall apply. The new and modified facilities in this proposed modification project subject to the requirements of an NSPS shall comply with the requirements of 326 IAC 12 in lieu of this rule. The emission calculations for process operations are included in Appendix B. As shown in Appendix B, the potential controlled emissions from each process operation are less than the calculated allowable emissions for each process operation, and therefore in compliance with the requirements of 326 IAC 6-3-2.

326 IAC 7-1.1-2 (Sulfur Dioxide Limitations)
The proposed semi-dry process cement kiln is subject to the sulfur dioxide emissions of this rule. According to this rule, sulfur dioxide emissions shall be limited to 6.0 pounds per MMBtu for coal or coal blend combustion. However, the sulfur dioxide emissions from the semi-dry process kiln shall be limited by the emission limitation determined from 326 IAC 2-2-3 (PSD BACT) because it represents the more stringent limit.

326 IAC 12 (New Source Performance Standards)
The air pollution control board incorporates by reference 40 CFR 60. If the emission limitations contained in this article conflict with or are inconsistent with any other emission limitations established by this title, then the more stringent limitation shall apply.

326 IAC 14 (National Emissions Standards for Hazardous Air Pollutants)
The air pollution control board incorporates by reference 40 CFR 61. The source is subject to the requirements of 40CFR 61 Subpart FF, as discussed above in further detail.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 187 hazardous air pollutants 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 OAM Construction Permit Application Form Y.

(a) This modification will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Amendments to Clean Air Act.

Conclusion

The construction of a semi-dry process cement kiln with a clinker production capacity of 4,400 tons per day and associated equipment will be subject to the conditions of the attached proposed **Construction Permit No. CP-133-10159-00002.**

Indiana Department of Environmental Management
Office of Air Management

Addendum to the
Technical Support Document for New Construction and Operation

Source Name:	Lone Star Industries, Inc.
Source Location:	3301 South County Road 150 West, Greencastle, Indiana 46135
County:	Putnam
Construction Permit No.:	CP-133-10159-00002
SIC Code:	3241
Permit Reviewer:	Michele Williams

On March 17, 1999, the Office of Air Management (OAM) had a notice published in the *Banner Graphic*, Greencastle, Indiana stating that Lone Star Industries (LSI) had applied for a construction permit relating to the modification of the wet process cement kiln with a clinker production capacity of 2,600 tons per day to a semi-dry process cement kiln with a clinker production capacity of 4,400 tons per day and its associated operations. The detailed description of equipment can be found in the construction permit. The particulate matter (PM and PM_{10}) emissions will be controlled by the use of high efficiency fabric filters, electrostatic precipitator, building enclosures, and water mist suppression. The sulfur dioxide emissions generated by the combustion of coal in the kiln will be controlled through adsorption by the raw materials. In addition, sulfur dioxide is removed in the alkali bypass system through lime injection and a gas suspension absorber. Nitrogen oxide emissions also generated by the combustion of coal in the kiln will be controlled by the utilization of low-NOx calciner and by optimizing the stochiometric air requirements for complete combustion and stable operation.

The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

Written comments on various clarifications, additions and changes to the construction permit were received via electronic mail from LSI on April 14, 1999. The following sections summarize the comments made by LSI and responses made by OAM:

Comment 1:

A.2(b)(1); D.1(b)(1); D.1.2(b); TSD pg 1, (a)(1) and (b)(1)

The hourly limestone rate should be revised from “1,100 tons limestone per hour” to “1,300 tons limestone per hour based upon a monthly rolling average”. The annual production rate will not change.

Response 1:

The OAM has approved this change to allow the company short term flexibility with its process. This increase in the short term throughput rate does not increase the calculated potential to emit from the process.

Comment 2:

A.2(b)(1), (2) & (3); (c)(2); (e)(2) & (3); (h)(10) and
D.1(b)(1), (2) & (3); (c)(2); (e)(2) & (3) and
D.4(h)(10) TSD pg 1 (b), (c)(1)(b), (e)(2), (h)(10)(c),
BACT pg 2 under modified primary crusher and under modified coal mill operation

After "…utilizes water mist suppression…" insert "or equivalent dust suppression" before "to control".

LSI is evaluating dust suppression options other than water which would provide equivalent or improved dust suppression in comparison to water and would like the permit to allow the use of alternatives without requiring a permit revision.

Response 2:

The OAM has approved this change with the following clarification (boldface characters represent additions):

"...utilizes water mist suppression **or equivalent dust suppression as referenced in the Fugitive Dust Control Plan required by C.10**...."

In addition, the OAM has made the revisions to C.10 (Fugitive Particulate Matter Emissions) as discussed in Comment/Response 36 to ensure that LSI will maintain the same level of control utilizing an alternative control system for fugitive sources of emissions.

Comment 3:

A.2(b)(3)(c), D.1(b)(3)(c), TSD pg 1 last paragraph

Delete "one existing vibrating grizzly". This equipment will not exist after the modification.

Response 3:

The OAM has deleted the above facility from A.2(b)(3)(c) and D.1(b)(3)(c) of the construction permit. The OAM duly notes the above change to the Technical Support Document. However, the Technical Support Document and BACT Review Document will not be revised for purposes of historical documentation.

Comment 4:

A.2(c), D.1(c), TSD page 2(c)

Change "320 tons raw material …" to 360 tons raw material per hour based upon a monthly rolling average…". Revised estimates of the capacity of the raw mill state 360 TPH. However, the annual throughput will not change.

Response 4:

The OAM has approved this change to allow the company short term flexibility with its process. This increase in the short term throughput rate does not increase the calculated potential to emit from the process.

Comment 5:

A.2(c)(3), D.1(c)(3), TSD pg 2 (c) and 2(c)(2)

Change “one new enclosed ball mill…” to “one new enclosed wet ball mill…”.

Response 5:

The OAM has approved the above clarification to A.2(c)(3) and D.1(c)(3) of the construction permit. The OAM duly notes the above clarification to the Technical Support Document. However, the Technical Support Document will not be revised for purposes of historical documentation.

Comment 6:

A.2(c)(3), D.1(c)(3)

Delete “…exhausting to stack 3-1”. The raw materials are wet when being processed by this equipment. There are no emissions to vent.

Response 6:

The OAM has reviewed the design of the process equipment and agrees with this change. The ball mill operation is enclosed and the raw material slurry is directly transferred to the next process (hammermill dryer) via a closed system. The hammermill dryer is associated with the kiln system which exhausts to stack 3-1.

Comment 7:

D.1.1(b)

Under “Raw Material Ball Mill Operation” on the table delete from point ID column, stack 3-1 and from Emissions Limitations Column 10% opacity for stack 3.1. The system does not emit particulate emissions is not vented to stack 3-1. Therefore, no opacity limit is applicable.

Response 7:

The OAM agrees that the enclosed ball mill operation does not exhaust to a stack, and therefore, no opacity limit is associated with this process. OAM has removed Stack 3-1 of the enclosed ball mill operation from D.1.1(b) of the construction permit.

Comment 8:

D.1.3(a) Table

Under “Raw Material Ball Mill Operation” delete last row with “stack 3-1” and “opacity”.

The raw material ball mill system does not have particulate emissions. The raw materials are wet and the mill is enclosed. No opacity testing requirement is applicable.

Response 8:

The OAM agrees that the enclosed ball mill operation does not exhaust to a stack, and therefore, no opacity limit is associated with this process. The OAM has removed Stack 3-1 of the ball mill operation from D.1.3(a) of the construction permit.

Comment 9:

BACT document page 3, new/modified raw material ball mill.

Insert "raw materials are wet" after "…enclosed and all …." Delete the remainder of the paragraph. There are no particulate emissions and the system is not connected to the kiln ESP. The NSPS opacity limit does not apply.

Response 9:

The OAM has approved the above clarification to the construction permit as discussed in Responses 7 and 8. The OAM duly notes the above clarification to the BACT Review Document. However, the BACT Review Document will not be revised for purposes of historical documentation.

Comment 10:

A. 2(e)(3) and D.1(e)(3)

Change three existing coal reject piles (points 2-3, 2-5 and 2-8) …to "Two existing coal reject piles (points 2-3 and 2-8)…" add the following sentence "one metal reject pile (point 2-5) which does not release particulate emissions.

The magnetic separator on the belt conveyor removes metal pieces from the coal as it passes across the conveyor. The metal pieces are stockpiled for transport to a metal recycler. The reject pile (point 2-8) will be relocated inside the coal mill building to receive rejects from the coal mill. Because point 2-8 will be controlled by building enclosure rather than WMS, the emissions will be reduced due to the higher control efficiency of BE (Building Enclosure vs WMS (Water Mist Suppression).

Response 10:

The OAM has approved the above clarification to the construction permit.

Comment 11:

A.2(f)(1), (2) & (3); D.2(f)(1), (2) & (3), TSD pg 3 (f)(1), (2) & (3)

Insert the word "existing before "electrostatic precipitator…"

Response 11:

The OAM has approved the above clarification to the construction permit.

Comment 12:

A.2(f)(5), D.2(f)(5) and TSD pg 3 (f)(5)

Change “Two existing ESP return dust bins and one existing waste dust …” to “One existing ESP return dust bin and one new waste dust …”

Response 12:

The OAM has approved the above clarification to the construction permit.

Comment 13:

A.2(f)(7), D.2(f)(7)

Delete “to ESP 3-1 and” from sentence 2. The bypass system exhausts directly to stack 3-1. It does not vent to the ESP.

Delete “modified” from the first sentence and replace with “new”. The bypass system is new.

Response 13:

The OAM has reviewed the design of the process equipment as well as the emission calculations and agrees with this change. The bypass system is controlled by the fabric filter which is directly exhausted to stack 3-1. The potential to emit calculations from the bypass system are based on emissions after control of only the fabric filter system.

Comment 14:

A.2(i)(8) and D.4(i)(8)

Add “(FF 5-9)” to the end of the sentence.

Response 14:

The OAM has approved the above clarification to the construction permit, along with the following addition (boldface characters):

“... bin screw **equipped with one fabric filter system (FF 5-9) to control particulate emissions**.”

Comment 15:

B.1(a) and C.1(a)

The nature of a construction project of the magnitude of LSI’s proposed facility modification means that there will be many small changes to the project design as it moves from preliminary to final design and from design to construction. While some of these changes are very minor and will not result in changes in emissions, some of them most likely will result in minor increases or decreases in emissions. It is imperative that LSI be able to continue to proceed with construction without delays. As long as applications for modifications are submitted in a timely manner, and approved prior to operation, the construction should be able to proceed uninterrupted. Further clarification, in writing, of or deletion of this requirement is needed.

Response 15:

(a) The OAM has revised Operation Condition B.1(a) as follows for clarification (boldface characters represent additions and strikeout characters represent deletions):

"~~The~~ **This permit is based on the** data and information ~~supplied with the application shall be considered part~~ **submitted by the Permittee. Any change in the design in the design or operation of the plant that could increase emissions or change applicable air pollution control requirements may require that the permit be amended in accordance with 326 IAC 2 as set forth in condition B. 4** of this permit. ~~Prior to any proposed change in construction which may result in an increase in allowable emissions, the change must be approved by IDEM, OAM~~.

(b) The OAM has revised Operation Condition B.4 as follows for clarification (boldface characters represent additions and strikeout characters represent deletions):

"**(a) Any modifications required by 326 IAC 2-1.1 and 326 IAC 2-7-10.5 (both as in effect on December 25, 1998) as a result of a change in the design or operation of emissions units described by this permit have been obtained prior to obtaining an Operation Permit Validation Letter.**

(b) The attached affidavit of construction shall be submitted to:

Indiana Department of Environmental Management
Permit Administration & Development Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

verifying that the facilities were constructed as proposed in the application **and subsequently received approvals from IDEM, OAM**. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM, OAM."

(c) The OAM has revised Operation Condition C.1(a) as follows for clarification (boldface characters represent additions and strikeout characters represent deletions):

"~~The data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2 1 1 (Construction and Operating Permit Requirements), the change must be approved by IDEM, OAM.~~ **Language from b.1(a). Subsequent to receiving the approval to operate as described in B.4, the Permittee shall obtain necessary approvals as required by 326 IAC 2-1.1- 2 (General Provisions) and 326 IAC 2-7-10.5 (Modifications).**"

Comment 16:

(a) D.2.7(a) Table

(1) Source 3-3, ESP + Waste Dust Bins – The existing location of this collector is such that there is no safe way to access it for emissions testing. The requirement to perform PM/PM10 testing should be deleted from the Table.

(2) Sources 5-3, 5-1, 5-2, 5-5. These sources are existing and located on top of 600 foot tall cement silos. These collectors are located such that the exhaust stack is past the edge of the silo structures. Source 5-8, exhausts above a very steep roof. It is not believed to be reasonable to be able to construct safe stack testing platforms at these locations. These units also have relatively low emission rates (less than 2 #/hr). The potential emissions from these existing emission points are not projected to increase as a result of this modification. These units should be exempt from testing requirements.

(b) D.4.3 (a) Table

(1) Sources 5-3, 5-1, 5-2, 5-5. These sources are existing and located on top of 600 foot tall cement silos. These collectors are located such that the exhaust stack is past the edge of the silo structures. Source 5-8, exhausts above a very steep roof. It is not believed to be reasonable to be able to construct safe stack testing platforms at these locations. These units also have relatively low emission rates (less than 2 #/hr). The potential emissions from these existing emission points are not projected to increase as a result of this modification. These units should be exempt from testing requirements.

The table should be revised to delete the PM/PM10 requirement for sources ff 5-3, ff 5-1, ff 5-2, ff 5-5 and ff 5-8.

(2) In addition, sources ff 4-2, ff 4-3, ff 4-5 and ff 4-6 are existing sources which will experience no increases in potential emissions as a result of the facility modification. These sources should also be exempted from compliance testing for PM/PM10. These sources are not currently equipped with stack testing ports or platforms. Significant expense would be incurred to construct necessary testing ports and platforms to test sources for which there is no increase in potential emissions.

The table D. 4 . 3 (a) should be revised to delete the PM/PM10 requirements for sources FF 4-2, ff 4-3, ff 4-5, and ff 4-6.

Response 16:

The OAM must ensure that each facility at the source is achieving compliance with all applicable emission limitations and to ensure protection of public health. The OAM limited testing requirements to a representative number of similar processes and controls.

The OAM has revised D.1.3(c)(1), D.2.7(d)(1), D.3.2(c)(1), and D.4.3(c)(1) to indicate that the source has the may request in the testing protocol some units to be exempted from these stack testing requirements with proper justification.

Comment 17:

(a) In the event that the sources discussed in Comment 16 are not found to be exempt from the stack testing requirements by IDEM, the requirement to test for the PM 10 condensible fraction using method 202 should be deleted. These sources are clinker material handling and grinding equipment. Based on a discussion with Mr. John Richards of Air Control Techniques, Inc., a consultant who is conducting PM10/PM 2.5 Study for the cement industry, found condensibles are expected from these operations at cement plants.

(b) D.1.3(a) Table

The secondary crusher, ff 1-15, will be processing raw materials. The crushing of these materials is not expected to result in condensible PM10. According to Mr. John Richards, the National Stone Association (NSA) has received an exemption from USEPA to exempt stone processing equipment up to and including the tertiary crusher from the requirement to test for condensible particulate. The materials crushed by LSI are the same types of materials processed by the NSA facilities. Therefore, LSI's secondary crusher should also be exempt from testing for condensibles.

(c) D.4.3(a) Table, D.4.1(b)

The Finish Mill 3 and the Finish Mill 3 Transfer (ff 4-12) are not expected to emit condensible PM10. Therefore, the requirement to determine compliance by measuring the sum of both filterable and condensible fractions is excessive. Change the table in D.4.3(a) by including a footnote for ff 4-9 and ff 4-12 which says:

"For the purposes of determining compliance with the PM10 limit D.4.1(b), the PM10 limit shall be measured using 40CFR 51, Appdx M, Method 201A. PM10 shall include the filterable fraction only. The condensible fraction is negligible."

Also in D.4.1(b) change the last paragraph to read:

"PM/PM10 means the PM limit and the PM10 limit are the same and shall be measured as the filterable fraction only. The condensible fraction is expected to be negligible. PM shall be measured in accordance with 40 CFR 60, Appendix A, Method 5. PM10 shall be measured in accordance with 40 CFR 51, Appendix M, Method 201A. These limitations satisfy the requirements of 326 IAC 2-2-3 (a) (b) (PSD) and 326 IAC 6-3 (Particulate Limitations for Process Operations)."

(d) D.3.2 (a) Table, D.3.1(b)

The clinker cooler is not expected to release condensible PM10 emissions therefore, the requirement to conduct compliance testing for the condensible fraction is unnecessary.

Change D.3.1(b) final paragraph to read:

"PM/PM10 means that the PM limit and the PM10 limit are the same and shall be measured as the filterable fraction. PM shall be measured in accordance with 40 CFR 60, Appendix A, Method 5. PM10 shall be measured in accordance with 40 CFR 51, Appendix M, Method 201A. These limitations satisfy the requirements of 326 IAC 2-2-3 (a) (3) (PSD) and 326 IAC 6-3 (Particulate Limitations for Process Operations).

(e) D.2.1(b) Table

This emission limit reflects only the filterable portion of the particulate emissions. Previous BACT determinations for particulate matter (PM) limited only the filterable portion of the emissions. Therefore, the BACT limit for PM should be clarified to note that it represents filterable emissions only.

All emissions calculations and modeling are based on filterable particulate only. Existing emissions factors and the NSPS limit were based on data collected by conducting performance tests on only the front half (filterable) emissions. The back half (impingers) were not tested for condensibles. In fact, the proposed MACT for portland cement plants specifies that the "impinger catch" would not be included when conducting method 5 tests for compliance with the particulate matter limit.

Mr. John Richards was consulted regarding emission levels of condensible particulate from cement kilns. Mr. Richards has been contracted by the PCA (Portland Cement Association) conduct a test program for PM10 and PM 2-5 emissions from cement production operations. Mr. Richards confirmed that the test data collected so far is highly variable. He believes this happens because the test method was not developed for gas streams that contain combinations of ammonia, $S0_2$ and chlorides in the concentrations found in cement kiln exhaust gases. These gases react in the impingers to form condensibles that would not be found in the kiln exhaust. This reaction adversely biases the inorganic portion of the condensible fraction. Mr. Richards has developed a modified test method which he is currently verifying through testing. Conversations with a USEPA testing contractor verified the presence of ammonia and $S0_2$ could present problems with Method 202.

Because Method 202 appears to be biased it is inappropriate for testing kiln gases. This method should not be specified by the permit. If IDEM believes that the kiln must be tested for total PM10 (filterable plus condensible) after the modification is complete, the test method should not be specified in the permit. This would allow the use of whatever method or method modification is deemed to be appropriate at the time of the tests.

The condensible PM10 that would be expected from a cement kiln is comprised of various sulfates and chlorides such as ammonium sulfate and ammonium chloride which are not toxic.

Response 17:

The OAM acknowledges that the USEPA AP-42 emission factor data and NSPS data do not account for the condensible particulate matter from cement plants. In addition, the OAM verified that there is limited stack test information regarding condensible particulate matter for cement plants. Therefore, Conditions D.1.3 (a), D.2.7(a), D.3.1(b), D.3.2 (a), D.4.1(b), and D.4.3(a) have been revised to reflect that the particulate limits are based only on the filterable fraction.

Based on information obtained by the OAM, it is reasonable to assume that non-combustion sources and processes that have a temperature below 250 degrees Fahrenheit are not expected to contain condensible particulate matter. However, condensible particulate matter is expected to be associated with combustion sources and units that generate heat or operate at a temperature above 250 degrees Fahrenheit.

With regard to this project, the kiln system (combustion source) and clinker cooler (high temperature source) are expected to have condensible particulate matter. For informational purposes and to ensure public health is protected, the OAM has added conditions in D.2.7(e) and D.3.2(d) that require stack tests of the condensible particulate fraction for Stacks 3-1 and 3-2. The condensible particulate fraction shall be measured in accordance with 40 CFR 51, Appendix M, Method 202 or other methods approved by IDEM, OAM.

Comment 18:

D.2.1(a) Table

Stack 3-1 (kiln) should have a limit of 20% opacity.

On September 7, 1995, USEPA issued a clarification of the NSPS opacity limitations for cement kiln operations (see attachment). Although the hammermill dryer is not an in-line raw mill, the hammermill dryer is an integral part of the kiln process. The hammermill dryer performs essentially the same function as the chain section of the existing wet kiln. In the existing wet kiln the wet raw feed enters the kiln and is dried by the kiln gases. The chains in the kiln act to disagglomerate the drying feed before it enters the calcining zone of the kiln. In the semi-dry process, this activity occurs in the hammermill dryer. The material is dried and disagglomerated in the hammermill dryer before entering the precalciner. The kiln cannot operate without the hammermill dryer. The dryer is simply an extension of the kiln system and does not operate as a separate NSPS affected facility. Therefore, the hammermill dryer, calciner tower, kiln, alkali bypass is subject to the 0.30 #/ ton of feed particulate limit and 20% opacity limit.

Response 18:

Based on the additional information submitted by LSI, the OAM agrees that the hammermill should be handled as an integral part of the kiln system. Therefore, the kiln opacity limit (Stack 3-1) has been revised from “10 percent opacity” to “20 percent opacity” in Condition D.2.1(a). This revised limitation is consistent with the NSPS and proposed NESHAP limits.

Comment 19:

TSD page 12 NSPS for Portland Cement Plants (a).

There are no particulate emissions generated in the raw mill because it will be an enclosed, wet process with no emissions point. The hammermill dryer is an integral part of the kiln process and therefore subject to the kiln opacity limit of 20%.

Rewrite (a) as follows:

There are no particulate emissions generated by the wet raw mill. Therefore, NSPS does not apply to the raw mill. The hammermill dryer is an integral part of the kiln system.

Therefore, the kiln and bypass system are subject to a 20% opacity limit pursuant to 40 CFR 60 Subpart f delete “Raw Mill System “ and “Raw Mill Dryer” from the Table. In addition, make the following change to he TSD appendix C, NSPS applicability Table in the row for the “Kiln/Calciner/Hammermill Dryer”. Change “10% opacity to “20% opacity”.

Response 19:

The OAM has approved the change to the kiln opacity limit in the construction permit as discussed in Response 18. The OAM duly notes the above changes to the Technical Support Document. However, the Technical Support Document will not be revised for purposes of historical documentation.

Comment 20:

D.2.1(b) Table

The PM Emission limit (0.014 gr/dscf) has been reversed with the PM10 emission limit (0.016 gr/dscf). These should read PM (0.016) and PM10 (0.014).

Response 20:

The OAM has made this correction to D.2.1(b) of the construction permit.

Comment 21:

D.1.4, D.2.11, D.3.5, & D.4.4

LSI needs clarification as to how IDEM expects the visible emissions notations for building enclosures to be performed.

Response 21:

LSI shall inspect any openings from the building enclosure such as doors, windows or vents for visible emissions. If any visible emissions are observed from any opening in the building enclosure, corrective action shall be taken.

Comment 22:

D.1.5(a), D.2.13(a), D.3.6(a), and D.4.5(a)

This paragraph infers that a separate PMP is required for each collector. LSI would like to have ability to prepare one PMP for all of the sources rather than individual PMPs for each baghouse. The sentence just prior to IDEM's address should be revised to read as follows:

"The PMP shall address each of the baghouses and shall be prepared and submitted to:"

Response 22:

The OAM has approved the above clarification to D.1.5(a), D.2.13(a), D.3.6(a), and D.4.5(a) of the construction permit.

Comment 23:

D.2.6(f)

A coal sulfur content limit is redundant because condition D.2.9 requires continuous monitoring of SO_2 emissions as allowed by 326 IAC 7-2-1(e) to determine compliance. Condition D.2.6(f) should be deleted.

Response 23:

The OAM concurs with the above comment. Therefore, D.2.6(f) has been deleted from the construction permit.

Comment 24:

D.2.7(b)

BIF testing procedures are dictated by USEPA through RCRA. These results are submitted to IDEM, OSHWM. A copy of these results can be submitted to IDEM, OAM.

Revise D.2.7(b) to begin as follows:

"A copy of the results of compliance tests performed…"

Response 24:

The OAM concurs with the above comment. Therefore, D.2.7(b) of the construction permit has been revised to reflect the above change.

Comment 25:

D.1.1(e), D.2.1(c), D.2.1(c), and D.4.1(c)

This requirement specifies that any baghouse addition or replacement achieve 0.010 grains/dscf. In some instances the best level of control feasible may be higher than 0.01.

Response 25:

The OAM has removed D.1.1(e), D.2.1(c), D.2.1(c), and D.4.1(c) from the construction permit. Any future modification or change to the permit must instead be addressed at the time of the proposed modification or change.

Comment 26:

TSD Page3, Last Paragraph "Unmodified Existing Sources of PM Emissions"

For the same reasons that the language in D.1.1(e), D.2.1(c), D.2.1(c), and D.4.1(c) above should be changed, the second sentence in this paragraph should be changed.

Response 26:

The OAM has revised the above comment in the construction permit as discussed in Response 25. The OAM duly notes the above changes to the Technical Support Document. However, the Technical Support Document will not be revised for purposes of historical documentation.

Comment 27:

D.2.7(d)

BIF testing is regulated by RCRA and testing at the facility is under the oversight of USEPA Region V and IDEM, OSHWM. While all test results can and will be provided to IDEM, OAM, only non-BIF testing protocols should be under the jurisdiction of OAM. Therefore, D.2.7(d) should be revised as follows:

"All air emissions compliance tests, other than testing conducted for purposes of compliance with RCRA requirements shall be performed…"

Response 27:

The OAM has approved the above clarification to D.2.7(d) of the construction permit.

Comment 28:

D.2.12

Precipitator Operating conditions as stated are redundant to what the Greencastle Plant is required to do now for continuous particulate emissions compliance monitoring under BIF limitations. This plant uses total precipitator KVA to comply with particulate emission standards. For 8 years Lone Star has used a continuous KVA precipitator-monitoring plan. The continuous monitoring has been in combination with independent stack tests to prove the effectiveness of precipitator performance in controlling particulate. The monitoring plan as proposed in this permit requirement will require redundant documentation for two regulatory agencies that will be used for the same purpose.
Total KVA to the precipitator fields has proved to be an effective parameter to show compliance with particulate limits for the Greencastle Plant since 1992 under BIF (40 CFR 266) regulations. USEPA has approved the use of this parameter at the Greencastle plant. The relationship between particulate emissions and total KVA has been documented in 4 different performance tests at the Greencastle plant, 1992, 1994, 1995 and 1998. These test results are available for review, and have been submitted to IDEM OSHWM.

This requirement duplicates monitoring for the same pollutant and is unduly burdensome for Lone Star. We continuously monitor KVA, where for the individual TR sets, instrumentation and software would need to be installed producing another set of instruments to be operated and maintained.

In addition to the requirements for independent stack testing and opacity monitoring, Lone Star Industries, Inc. suggests the following language to D.2.12(a) to continuously monitor the precipitator performance compliance:

"The Permittee shall maintain, monitor, and record the total KVA of the precipitator on a one minute basis, records kept on a hour rolling average when the kiln is in operation except as provided in 326 IAC 5-1-3. These parameters shall be maintained within the ranges set forth in an approved PMP. The PMP for the ESP shall be prepared and submitted to:

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

within 30 days following the performance testing. The PMP shall also contain a troubleshooting contingency and corrective action plan for the ESP when any one minute of an hour rolling average drops 5 KVA below the pre-determined baseline. These parameters may be adjusted to incorporate values determined from a compliant stack test. "

Response 28:

The OAM concurs with the above comment. Therefore, D.2.12(a) of the construction permit has been revised to reflect the above change.

Comment 29:

The throughputs for equipment should reflect that compliance is based on a monthly rolling average.

Response 29:

The production limitations associated with D.1.4, D.2.6, and D.4.2 have been revised to reflect annual limitations rolled on a monthly basis. The Quarterly Reports have also been revised to be consistent with production limitations stated in D.1.4, D.2.6, and D.4.2.

Comment 30:

D.2.2

The NAAQS for S02 is a 24-hour or a 3-hour standard. The $S0_2$ emissions from the modification decrease. Therefore it is not a PSD source for $SO_{2..}$ There is not need for an hourly limit. The limit of "678 pounds per hour" should be deleted and replaced with an $S0_2$ limit which reflects either a monthly rolling average. The "3.7 pounds per ton of clinker produced" should be specified to be a monthly rolling average.

Response 30:

The OAM has revised the emission limitation required to demonstrate that PSD does not apply (boldface characters represent additions and strikeout characters represent deletions):

"~~Pursuant to~~ **To avoid the requirements of** 326 IAC 2-2-3(a)(3), the sulfur dioxide (SO_2) emissions from Stack 3-1 of the semi-dry process kiln and calciner tower shall not exceed **3317 tons per year rolled on a monthly basis. At maximum operating capacity, this limitation is equivalent to** ~~678 pounds per hour and 3.7~~ **4.13** pounds per ton of clinker produced **rolled on a monthly basis**. This emissions limitation is equivalent to **1.01** ~~0.90~~ pounds of SO_2 per MMBtu which satisfies the requirements of 326 IAC 7-1.1-2 (Sulfur Dioxide Emission Limitations)."

The OAM originally used the potential to emit from the modification (678 pounds per hour) as the limit in D.2.2. However, there is no rule basis for this limitation because the potential to emit decreased as a result of the modification. To avoid the requirements of PSD, the correct limitation should be the existing potential to emit plus the PSD significant threshold level set forth in 326 IAC 2-2-1. The revised limitation was determined by the following methodology:

SO2 Emission Limitation = Existing PTE + PSD Significant Threshold Level
= 3278 tons per year + 39 tons per year
= 3317 tons per year

Equivalent Limitation = SO2 Emission Limitation / Max Clinker Throughput Capacity
= (3317 tons/year x 2000 pounds/ton) / 1,606,000 tons clinker/year
= 4.13 pounds SO2 per ton clinker produced

Comment 31:

D.2.3

The current NOx NAAQS is an annual exposure standard. The NOx emissions from this modification decrease. Therefore, this is not a PSD source fro NOx. There is no need for an hourly NOx limit. The NOx SIP which is under development is concerned with the NOx emissions during the ozone season. The permit should reflect a NOx limit based on either an annual rolling average or an "ozone season" rolling average rather than the currently specified "per hour" or "per ton" limits.

Response 31:

The OAM has revised the emission limitation required to demonstrate that PSD does not apply (boldface characters represent additions and strikeout characters represent deletions):

"~~Pursuant to~~ **To avoid the requirements of** 326 IAC 2-2-3(a)(3), the nitrogen oxide (NO_X) emissions from Stack 3-1 of the semi-dry process kiln shall be controlled by the low-NO_X calciner and good combustion practices and shall not exceed **4428 tons per year rolled on a monthly basis. At maximum operating capacity, this limitation is equivalent to** ~~697 pounds per hour and 3.8~~ **5.51** pounds per ton of clinker produced **rolled on a monthly basis**."

The OAM originally used the potential to emit from the modification (697 pounds per hour) as the limit in D.2.3. However, there is no rule basis for this limitation because the potential to emit decreased as a result of the modification. To avoid the requirements of PSD, the correct limitation should be limited to the existing potential to emit plus the PSD significant threshold level set forth in 326 IAC 2-2-1. The revised limitation was determined by the following methodology:

NOx Emission Limitation = Existing PTE + PSD Significant Threshold Level
= 4389 tons per year + 39 tons per year
= 4428 tons per year

Equivalent NOx Limitation = NOx Emission Limitation / Max Clinker Throughput Capacity
= (4428 tons/year x 2000 pounds/ton) / 1,606,000 tons clinker/year
= 5.51 pounds NOx per ton clinker produced

Comment 32:

D.2.4

It is unlikely that it is even possible to violate the 1 hour NAAQS. In fact, this modification results in a net reduction in CO emissions of over 400 TPY. An hourly limitation on emissions does not address the normal fluctuations in CO inherent in the combustion process. The limit is acceptable when it reflects a rolling average. The averaging period should be either an annual average or at a rolling monthly average.

Response 32:

The OAM has revised the emission limitation required to demonstrate that PSD does not apply (boldface characters represent additions and strikeout characters represent deletions):

"~~Pursuant to~~ **To avoid the requirements of** 326 IAC 2-2-3(a)(3), the carbon monoxide (CO) emissions from Stack 3-1 of the semi-dry process kiln shall be controlled by good combustion practices and shall not exceed **2930 tons per year rolled on a monthly basis. At maximum operating capacity, this limitation is equivalent to** ~~550 pounds per hour and 3.0~~ **3.65** pounds per ton of clinker produced **rolled on a monthly basis**."

The OAM originally used the potential to emit from the modification (550 pounds per hour) as the limit in D.2.4. However, there is no rule basis for this limitation because the potential to emit decreased as a result of the modification. To avoid the requirements of PSD, the correct limitation should be the existing potential to emit plus the PSD significant threshold level set forth in 326 IAC 2-2-1. The revised limitation was determined by the following methodology:

CO Emission Limitation = Existing PTE + PSD Significant Threshold Level
= 2831 tons per year + 99 tons per year
= 2930 tons per year

Equivalent CO Limitation = CO Emission Limitation / Max Clinker Throughput Capacity
= (2930 tons/year x 2000 pounds/ton) / 1,606,000 tons clinker/year
= 3.65 pounds NOx per ton clinker produced

Comment 33:

D.2.9(a)(3)

Because BIF regulations require a CO CEM in the bypass rather than in the stack, the requirement of a CO CEM in the stack is an additional requirement that is not necessary especially in light of the decrease in CO resulting from the modification. Continuous monitoring of CO in the stack should be deleted. D.2.9 (a) (3) should be deleted.

Response 33:

The OAM has removed the continuous emission monitoring (CEM) requirement for CO in D.2.9(a)(3) of the construction permit. CO is not a PSD pollutant and the existing compliance monitoring requirements for CO established in the BIF permit serve to demonstrate compliance with the CO emission limitation in D.2.6.

The OAM has made additional revisions to the construction permit as follows:

Comment/Response 34:

The OAM has revised D.2.14 as follows for clarification purposes (boldface characters represent additions and strikeout characters represent deletions):

"The gas suspension absorber system associated with the alkali bypass system shall be operated at all times ~~the kiln system is in operation~~ **when kiln gases are exhausting through the bypass system**."

Comment/Response 35:

The OAM has revised D.2.15 as follows for clarification purposes (boldface characters represent additions and strikeout characters represent deletions):

"The lime injection system associated with the conditioning tower shall be operated ~~when the continuous emissions monitor for SO2 indicates that emissions are at 90 percent of its limit which is equivalent to 610 pounds SO2 per hour~~ **as necessary to demonstrate compliance with D.2.2**."

Comment/Response 36:

The OAM has revised C.10 as follows for clarification purposes (boldface characters represent additions and strikeout characters represent deletions):

"Pursuant to **326 IAC 2-2, the Permittee shall submit a *Fugitive Dust Control Plan* in accordance with** 326 IAC 6-5 (Fugitive Particulate Matter Emissions Limitations) ~~, the fugitive particulate matter emissions shall be controlled according to the *Fugitive Dust Control Plan* (copy attached to permit) submitted on September 19, 1997~~ **for approval to:**

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

within 180 days after the date of issuance of this permit. This plan consists of:

(a) Observing posted speed limits. The quarry truck traffic shall be limited to a mean speed of 9.6 miles per hour during periods with high blowing road dust potential;

(b) Applying a water spray to all of the unpaved surfaces associated with the quarry vehicle traffic on a daily basis during periods when there is an elevated blowing road dust potential; and

(c) Rescheduling work or arranging for additional water spray application to the quarry roads during periods of high blowing dust potential.

(d) Control techniques to control fugitive dust from raw material sizing activities, raw material ball mill operation, and coal mill operation."

Lone Star Industries, Inc. **CP 133-10159**
Greencastle, IN **Plt ID 133-00007**

Air Quality Analysis

Introduction

Lone Star Industries, Inc (Lone Star) has applied for a Prevention of Significant Deterioration (PSD) permit to modify its portland cement manufacturing facility near Greencastle, Putnam County, Indiana. The site is located at Universal Transverse Mercator (UTM) coordinates 511507.0 East and 4385123.0 North. The proposed modification to the portland cement facility will consist of an conversion from the permitted wet process kiln system (CP #133-5886) to a semi-dry process kiln system. Lone Star also proposes to install a new calciner and hammermill dryer, upgrade the existing clinker cooler and primary and secondary crushers, convert existing raw mill to finish grinding mill and install a new pre-grind mill and coal mill. Putnam County is designated as attainment for all criteria pollutants.

The air quality impact analysis portion of the permit application will accomplish the following objectives:

A. Establish which pollutants require an air quality analysis.
B. Determine the significant ambient air impact area of the source's emissions and provide analysis of actual stack height with respect to Good Engineering Practice (GEP).
C. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or Prevention of Significant Deterioration (PSD) increment.
D. Perform analysis of any air toxic compound for health risk factor on general population.
E. Perform a qualitative analysis of the source's impact on general growth, soils, vegetation and visibility in the impact area with emphasis on any Class I areas. The nearest Class I area is Kentucky's Mammoth Cave National Park which is 250 kilometers southeast of Lone Star in Putnam County, Indiana.

August Mack prepared the PSD permit application for Lone Star Industries, Inc. The permit application was received by the Office of Air Management (OAM) on September 18, 1998. This document provides the Air Quality Modeling Section's review of the PSD permit application including an air quality analysis performed by the OAM.

Executive Summary

Lone Star Industries, Inc. has applied for a PSD construction permit to modify its portland cement manufacturing plant in Greencastle, Putnam County, Indiana. The PSD application was prepared by August Mack Environmental, Inc of Indianapolis, Indiana. Putnam County is designated as attainment for all criteria pollutants. Lone Star’s modeling analysis used the default value of 10.0 meter anemometer height instead of the actual anemometer height of 6.1 meters at the Indianapolis Airport National Weather Service. Lone Star’s resulting modeled concentrations are higher than OAM’s modeling results.

Particulate Matter less than 10 microns (PM_{10}) emission rates associated with the proposed modification exceeded its significant emission rate while Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Carbon Monoxide (CO) and Volatile Organic Compounds (VOCs) emissions decrease as a result of the conversion from wet process kiln to semi-dry process kiln. Lead (Pb) emission rates were below its significant emission rate, however plant-wide Pb emissions were modeled by OAM to determine maximum impacts. Modeling results taken from the ISCST3 model showed PM_{10} impacts were predicted to be greater than the significant impact increment. Pb impacts were predicted to be well below the National Ambient Air Quality Standards (NAAQS) and monitoring de minimus limit, no significant impact increment exists for Pb. Refined modeling for PM_{10} showed no violations of the NAAQS. PSD increment consumption was necessary for PM_{10} and results showed consumption below 80% of the available PSD increment. Although a Hazardous Air Pollutant (HAP) modeling analysis was conducted and no HAP exceeded 0.5% of its Permissible Exposure Limit (PEL). There was no significant impact on the nearest Class I area, which is Mammoth Cave National Park in Kentucky. Additional impact analysis showed no significant impact on economic growth, soils, vegetation or visibility in the areas surrounding the portland cement facility.

EPA issued a new NAAQS for Particulate Matter less than 2.5 microns ($PM_{2.5}$)on July 17, 1997. There are 3 primary origins of $PM_{2.5}$: 1)primary particulates in the solid state, 2)condensable particulates and 3)secondary particulate formed through atmospheric reactions of gaseous precursor emissions. There will be a 5-year scientific review of this standard which includes installation of $PM_{2.5}$ monitors throughout the state to better define background concentrations and source specific information. EPA is expected to release a new dispersion model to better predict $PM_{2.5}$ concentrations. There are no assumed fractions of $PM_{2.5}$ to PM_{10} at this time. As more information becomes available, a more detailed analysis of $PM_{2.5}$ can be conducted.

Part A

Pollutants Analyzed for Air Quality Impact

IAC 2-2 PSD requirements apply in attainment and unclassifiable areas and require an air quality impact analysis of each regulated pollutant emitted in significant amounts by a major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1. CO, NO_2, SO_2, VOC (ozone) and PM_{10} will be emitted from the proposed portland cement facility and an air quality analysis is required for PM_{10} which exceeded its significant emission rate as shown in Table 1. There will be decreases in CO, NO_2, SO_2 and VOC emissions from the existing permitted emissions and modeling is not required. Previous modeling at the higher emissions showed no violations of NAAQS or PSD increment and air quality benefits for CO, NO_2, SO_2, VOC (ozone) are expected as a result.

TABLE 1 - Significant Emission Rates (tons/yr)				
Pollutant	**Current Permitted Emissions**	**Semi-Dry Process Emissions**	**Resulting Modification Emissions**	**Significant Emission Rate**
PM_{10}	302.4	724.6	422.2	15.0
NO_2	4389.0	3051.0	-1338.0	40.0
SO_2	3278.0	2971.0	-307.0	40.0
CO	2838.0	2422.0	-416.0	100.0
VOC	24.4	22.5	-1.9	40.0
Lead	0.31	0.57	0.26	0.6
Fluorides	0.0	0.39	0.39	3.0

Part B

Significant Impact Area

An air quality analysis was performed to determine the significant ambient air impact area of the source's emissions. Maximum modeled concentrations for each pollutant over its significant emission rate are listed below in Table 2 and are compared to each pollutant's significant impact increments for Class II areas.

TABLE 2 - Significant Impact Analysis from proposed modification (ug/m3)				
Pollutant	**Year**	**Time-Averaging Period**	**Modeled Source Impacts**	**Significant Impact Increments**
PM_{10}	1990	24-hour	19.7	5.0
PM_{10}	1987	Annual	2.5	1.0
Pb	1987	Quarterly	2.5e-04	0.1[a]

a - monitoring de minimus value

Refined modeling will be required for PM_{10} since maximum concentrations are above PSD significant impact levels. The impacts from the proposed portland cement facility indicated the PM_{10} significant impact area (SIA) would be 2000 meters.

Pre-Construction Monitoring and Background Concentrations

Modeling results indicate that PM_{10} impacts were above pre-construction monitoring de minimus levels specified in 326 IAC 2-2. 24-hour PM_{10} maximum impacts from the modification were 19.7 micrograms per cubic meter (ug/m3), above the significant monitoring de minimus limit of 10.0 ug/m3.

Lone Star has satisfied the pre-construction monitoring requirement, using PM_{10} monitoring data upwind of the site at the Brklech Home monitor in Vermillion County, which is considered representative of the area.

Background concentrations for use in the NAAQS analysis were required since PM_{10} concentrations exceeded its significant impact increments. The background concentrations, taken from the Brklech Home monitor from 1995 through 1997, are 52.0 ug/m3 for a 24-hour averaging period and 24.0 ug/m3 for an annual averaging period.

Part C

Analysis of Source Impact on NAAQS and PSD Increment

The Office of Air Management modeling used the Industrial Source Complex Short Term (ISCST3) model, Version 3, dated 97363 for PM_{10} emissions. This version utilizes the Schulman-Scire algorithm to account for building downwash effects. Stacks associated with the proposed portland cement facility are below Good Engineering Practice (GEP) stack heights. The aerodynamic downwash parameters were calculated using EPA's Building Profile Input Program (BPIP). The Industrial Source Complex Long Term (ISCLT3) model, Version 3, dated 97363 was used for Lead emissions.

The meteorological data used in the ISCST3 model consisted of surface data from the Indianapolis Airport National Weather Service station merged with the mixing heights from Peoria, Illinois Airport for the five-year period (1987-1991). Meteorological data was obtained from the EPA Support Center for Regulatory Air Model electronic Bulletin Board and processed by PCRAMMET. The ISCLT3 data consists of joint frequencies of six wind speeds, sixteen wind directions and six stability categories compiled into a meteorological file. Average surface temperatures and mixing heights were determined from the Indianapolis Airport National Weather Service station and were included in the Lead input files. OAM modeling utilized receptor grids out to 10 kilometers and discrete receptors were placed 100 meters apart on Lone Star's property lines. Modeling was performed for PM_{10} and Lead using the emission rates listed in Table 5 of the PSD application.

NAAQS Compliance Analysis and Results

Emission inventories of PM_{10} sources in Indiana within a 50 kilometer radius of the portland cement facility were supplied to the consultants from the Aerometric Information Retrieval System (AIRS). EPA and IDEM approved a screening method, using the ISCST3 model, to eliminate PM_{10} NAAQS and PSD sources that had no significant impact in Lone Star's significant impact area. This method modeled all PM_{10} NAAQS and PSD sources in the 50 kilometer radius from the site. Any source that modeled less than the significant impact increment in the significant impact area of Lone Star was eliminated from the NAAQS and PSD inventories. Sources which did not screen out of the NAAQS and PSD inventories were included in the PM_{10} refined air quality modeling.

NAAQS modeling was conducted to compare to the PM_{10} NAAQS limits. OAM modeling results are shown in Table 3. All maximum concentrations of PM_{10} were below the NAAQS limits and further modeling was not required.

TABLE 3 - National Ambient Air Quality Standards Analysis (ug/m3)						
Pollutant	**Year**	**Time-Averaging Period**	**Modeled Source Impacts**	**Background**	**Total**	**NAAQS Limits**
PM_{10}	1987	Highest 2nd high 24-hour	84.7	52.0	136.7	150.0
PM_{10}	1987	Annual	12.1	24.0	36.1	50.0

Part D

Analysis and Results of Source Impact on PSD Increment

Maximum allowable increases (PSD increments) are established by 326 IAC 2-2 for NO_2, SO_2 and PM_{10}. This rule also limits a source to no more than 80 percent of the available PSD increment to allow for future growth. Since the impacts for PM_{10} from the proposed modification were modeled above significant impact increments, a PSD increment analysis for the existing major sources in Putnam County and its surrounding counties was required. All PSD sources surrounding the portland cement facility were screened. Lone Star established the PSD minor source baseline date on May 16th, 1996 with its PSD application submittal for the wet process kiln.

TABLE 4 - PSD Analysis (ug/m3)					
Pollutant	**Year**	**Time-Averaging Period**	**Modeled Concentrations**	**PSD Increment**	**Impact on PSD Increment**
PM_{10}	1987	Highest 2nd high 24-hour	19.0	30.0	63.3%
PM_{10}	1987	Annual	2.5	17.0	14.7%

326 IAC 2-2-6 describes the availability of PSD increment and maximum allowable increases as "increased emissions caused by the proposed major PSD source ... will not exceed 80% of the available maximum allowable increases over the baseline concentrations for ... particulate matter ...". Table 4 shows the results of the PSD increment analysis for PM_{10}. No violations of 80 percent of the PSD increment for PM_{10} occurred.

Part F

Hazardous Air Pollutant Analysis and Results

OAM presently requests data concerning the emission of 189 Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments which are either carcinogenic or otherwise considered toxic and may be used by industries in the State of Indiana. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Management's construction permit application Form Y.

Any one HAP over 10 tons/year or all HAPs with total emissions over 25 tons/year will be subject to toxic modeling analysis for the proposed portland cement facility. Total HAP emissions are 0.41 tons/yr and Fluoride emissions of 0.4 tons/yr, below the de minimus emission limits, and a HAP modeling analysis was not necessary.

TABLE 5 - HAPS Analysis

Hazardous Air Pollutants	Total HAP Emissions	HAP Concentrations	PEL	Percent of PEL
	(tons/year)	(ug/m3)	(ug/m3)	(%)
Arsenic	5.69e-03	4.00e-05	1.00e+01	4.00e-04
Beryllium	2.88e-04	9.90e-06	2.00e+00	4.95e-04
Fluorides	3.93e-01	1.14e-03 [a]	2.50e-01 [b]	---
Lead	3.07e-01	2.35e-02	5.00e+01	4.70e-02
Mercury	9.59e-02	7.30e-04	1.00e+02	7.30e-04
TOTAL	8.02e-01			

a - modeling based on 24-hour averaging period
b - significant monitoring concentration for 24-hour averaging period

Even though an analysis was not required, OAM performed HAP modeling using the ISCST3 model for all applicable HAPs. Maximum 8 hour off-property concentrations were determined and the concentrations were recorded as a percentage of each HAP's Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA). No HAP exceeded 0.5% of its PEL. In Table 5 above, the result of the HAP analysis with the emission rates, modeled concentrations and the percentages of the PEL for each HAP are listed.

Part G

Additional Impact Analysis

The Lone Star PSD permit application provided an additional impact analysis performed by August Mack. This analysis included an impact on economic growth, soils, vegetation and visibility. Industrial and residential growth is predicted to have negligible impact in the area since only two persons will be employed upon completion of the project and the construction phase will employ approximately 40 to 60 persons from local and regional areas. Any commercial growth, resulting from the proposed modification, will occur at a gradual rate and will be accounted for in the background concentrations from air quality monitors. There will be no adverse impact on air quality in the area due to industrial, residential or commercial growth.

According to the modeled concentrations for the criteria pollutant PM_{10}, there are no soils which might be adversely affected by the proposed modification. Additionally, the maximum modeled concentrations of PM_{10} are well below the threshold limits necessary to have adverse impacts on surrounding livestock, commercial crop and vegetation.

The nearest Class I area to the portland cement facility is the Mammoth Cave National Park located approximately 283 km to the southeast in Kentucky. The operation of the portland cement facility will not adversely affect the visibility at this Class I area. August Mack performed a visibility analysis using US EPA's VISCREEN and results showed Lone Star's emissions would fall well below the threshold values of 2.0 for perceptibility and 0.05 for green contrast. Results of the additional impact analysis conclude the Lone Star's proposed modification will have no adverse impact on economic growth, soils, vegetation or visibility in the immediate vicinity or on any Class I areas.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) ANALYSIS REPORT

The best available control technology (BACT) analyses for the new kiln operations have been conducted in accordance with the top-down guidance policy outlined in the 1990 draft USEPA *New Source Review Workshop Manual*. The USEPA RACT/BACT/LAER Clearinghouse and related state permits were reviewed for control technology information.

PM/PM10 BACT for Semi-Dry Process Cement Kiln

Process Operations

The semi-dry process cement kiln shall have a maximum rated capacity of 376 MMBtu per hour. The kiln shall be coal-fired with a maximum potential firing rate of 36 tons of coal per hour and a maximum raw material feed rate of 324 tons per hour, which results in a maximum production rate of 183 tons clinker per hour. The clinker production process requires the kiln to be operated at high temperatures on a very consistent basis. A specific temperature profile is required to initiate the chemical and physical reactions required to transform the raw materials into clinker. The burning zone temperature under normal operating conditions will be in the range of 2,400 degrees Fahrenheit to 2,800 degrees Fahrenheit. The raw materials, introduced to the kilns as a slurry mixture, must reach a temperature of 2,700 degrees Fahrenheit for the chemical and physical reactions to occur which produce clinker.

Control Technology Feasibility Study for the EAF and LMF:

The following technologies for control of PM/PM10 emissions from the cement kiln were evaluated:

(a) Electrostatic Precipitator (ESP); and
(b) Baghouse System.

The ESP and baghouse technologies have similar control efficiencies and are both technically feasible. Approximately 40 percent of current cement plants are equipped with ESPs, while the remaining 60 percent are equipped with baghouse systems. The existing kiln operation at Lone Star is equipped with an ESP. Therefore, the modified kiln system will utilize the existing ESP as its control system.

The following table represents a comparison of the proposed BACT limitations with other limitations from the RACT/BACT/LAER Clearinghouse (RBLC):

Facility	PM Emission Limitations				
	Proposed BACT	Proposed Control	RBLC		
			Source	Control	Limit
376 MMBtu/hr Semi-Dry Kiln (183 tph clinker)	0.016 gr/dscf 60.4 lbs/hr 0.33 lb/ton clinker 0.16 lb/ton feed	ESP	Ashgrove Cement -UT 2/93 (150 tpy kiln)	Baghouse	0.016 gr/dscf
			Carolina Cement - NC 8/92 (298 MMBtu/hr)	ESP	45.4 lb PM/hr; 36.3 lb PM_{10}/hr
			Florida Crushed Stone 2/93 (83 tph clinker)	Baghouse	0.2 lb PM/ton feed
			Great Star Cement - NV 10/95	Baghouse	23.7 lb PM_{10}/hr; 0.015 gr/dscf
			Holnam, Inc. - UT 6/92 and 4/94	ESP	0.016 gr/dscf
			Roanoke Cement - VA 7/94 (108 tph clinker)	ESP	192 ton PM/yr; 164 ton PM_{10}/yr

As shown in the above table, the proposed PM/PM10 emission limitation for the semi-dry kiln process is consistent with similar BACT decisions for the dry kiln process. Therefore, the particulate emission limit from the kiln exhaust shall not exceed 0.016 grains per dry standard cubic feet which is equivalent to **60.4 pounds PM/PM10 per hour, 0.33 pounds PM per ton clinker, and 0.16 pounds PM per ton feed**. This satisfies the NSPS requirement and the proposed MACT standard of 0.30 pounds PM per ton of feed.

PM/PM10 BACT for Clinker Cooler

Process Operations

The clinker formed in the kiln are transferred to the clinker cooler. The clinker cooler recoups up to 30 percent of the heat input to the kiln system, locks in desirable product qualities by freezing mineralogy, and makes it possible to handle the cooled clinker with conventional conveying equipment.

Control Technology Feasibility Study for the EAF and LMF:

The following technologies for control of PM/PM10 emissions from the cement kiln were evaluated:

(a) Electrostatic Precipitator (ESP); and
(b) Baghouse System.

The ESP and baghouse technologies have similar control efficiencies and are both technically feasible. Almost all of the existing clinker cooler processes are equipped with baghouse systems. The existing clinker cooler system at Lone Star is equipped with an baghouse. Therefore, the modified clinker cooler system will utilize the existing baghouse as its control system.

Special membrane bags, such as goretex bags, were also investigated for additional baghouse efficiency. These types of bags have been utilized in other industries and have achieved outlet grain loading values of 0.0018 gr/dscf for electric arc furnaces. The outlet grain loading is dependent on a number of factors including temperature, particulate size and type, and inlet particulate loadings. Due to the large particle size and abrasive quality of the particles associated with cement plant operations, the special membrane bags are ineffective. The membrane layer is very delicate and is quickly degraded by the abrasive quality of the particles associated with cement plants. Based on this information, the special membrane bags are not considered technically feasible for the cement industry.

The proposed PM/PM10 emission limitation for the clinker cooler is consistent with similar BACT decisions. The baghouse technology was chosen as BACT which has a control efficiency of 99.9 percent. This is equivalent to **0.015 grains per dry standard cubic feet**. The PM/PM10 emission limitations from the clinker cooler are **7.26 pounds PM per hour and 0.02 pounds per ton of feed**, which is less than the NSPS requirement and the proposed MACT standard of 0.10 pounds per ton of feed.

Modified Sources of PM Emissions

New and Modified Transfer Equipment

BACT for all fabric filters associated with new and modified transfer equipment as a result of this project shall be 0.01 grains per dry standard cubic feet.

Modified Primary Crusher

The primary gyratory rock crusher shall use a water mist spray as BACT to control the PM and PM10 emissions by 90 percent. Because the crusher must have an opening large enough for a dumptruck to unload, a baghouse is not appropriate. The particulate emissions from this operation shall not exceed 15 percent opacity, which satisfies the NSPS requirements.

Modified Secondary Crusher

The secondary raw material crusher shall use a baghouse as BACT to control the PM and PM10 emissions by at least 99 percent. This process shall not exceed 015 grains per dry standard cubic feet and 1.60 pounds PM/PM10 per hour, which is consistent with BACT. This facility shall also not exceed an opacity of 7 percent, which satisfies the NSPS requirements.

New/Modified Raw Material Ball Mill

The raw material ball mill is a new facility that consists of one ball mill, one mill sump, six screens, one screen sump, two kiln feed basins, and one kiln feed tank. This ball mill system is enclosed and all emissions are vented to the kiln system. The particulate matter is controlled by the kiln ESP system which exhausts to Stack 3-1. The opacity from Stack 3-1 shall not exceed an opacity of 10 percent, which satisfies the NSPS requirements.

New Fly Ash Operation

The fly ash operation is a new source of emissions and consists of two fly ash silos, four rotary feeders, one fly ash bin and one gate and airslide to feed the fly ash into the kiln system. The system is controlled by baghouses, each with an outlet grain loading of 0.01 grains per dry standard cubic feet, which is consistent with similar BACT determinations. This facility shall also not exceed an opacity of 10 percent, which also satisfies the NSPS requirements.

Modified Coal Mill Operation

The coal mill operation consists of transfer equipment, two coal bins and one coal mill. The coal bins and coal mill are equipped with fabric filters with an outlet grain loading of 0.01 grains per dry standard cubic feet to control particulate emissions. The transfer equipment are either enclosed or use water mist suppression to control particulate emissions by at least 90 percent. These control technologies and limitations are consistent with similar BACT determinations. These facilities shall also not exceed an opacity of 10 percent, which satisfies the NSPS requirements.

New/Modified No. 3 Finish Mill System

The modified No. 3 finish mill system consists of one finish mill, four air slides, one bucket elevator, one cement bin and associated transfer equipment, and one air separator. These facilities are equipped with fabric filters with an outlet grain loading of 0.01 grains per dry standard cubic feet to control particulate emissions. This control technology limitation is consistent with similar BACT determinations. This facility shall also not exceed an opacity of 10 percent, which satisfies the NSPS requirements.

Unmodified Existing Sources of PM Emissions

The current emission control equipment is considered BACT for all existing facilities that have not been modified. However, the permit does require that any future modifications to these existing facilities or its associated control equipment must meet 0.01 grains per dry standard cubic feet. The existing facilities shall also be operated in accordance with the *Fugitive Dust Control Plan* submitted on September 19, 1997.

NSPS APPLICABILITY TABLE

Facility	Facility ID	Installation/Modification Date	NSPS Requirement	NSPS Limit
Overburden Removal	1-1	Not Applicable	Not Required	
Overburden Pile	1-2	Not Applicable	Not Required	
Drilling	1-3	Not Applicable	Not Required	
Blasting	1-4	Not Applicable	Not Required	
Truck Loading	1-5	Prior to 8/3/83	Not Required	
Haul Road	1-6	Not Applicable	Not Required	
Hopper	1-7	Prior to 8/3/83	Not Required	
Primary Crusher	1-8	Proposed Modification	Subpart OOO	15% Opacity
Vibrating Feeder/Belt Conveyor	1-9	Proposed Modification	Subpart OOO	10% Opacity
Limestone Pile	1-10	Prior to 8/17/71	Not Required	
Transfer Equipment	1-11	Proposed Modification	Subpart OOO	10% Opacity
Haul Road	1-12	Not Applicable	Not Required	
Shale Piles	1-13	Prior to 8/17/71	Not Required	
Apron Feeder	1-14	Prior to 8/17/71	Not Required	
Secondary Crusher	FF1-15	Proposed Modification	Subpart OOO	7% opacity + 0.05 g/dscm
Screenhouse	FF 1-16	Prior to 8/3/83	Not Required	
Transfer Equipment	FF 1-17	Proposed Modification	Subpart F	10% Opacity
Raw Material Bins	1-18	Proposed Modification	Subpart F	10% Opacity
Haul Road	1-19	Not Applicable	Not Required	
Sand Piles/Bottom Ash Piles	1-20	Prior to 8/17/71	Not Required	
2 Fly Ash Silos/4 Rotary Feeders	FF 1-21	Proposed Modification	Subpart F	10% Opacity
Fly Ash Feed Bin	FF 1-22	Proposed Modification	Subpart F	10% Opacity
Gate/Airslide Transfer Equipment	BE 1-23	Proposed Modification	Subpart F	10% Opacity
Coal Storage	2-1	Prior to 10/24/74	Not Required	
Transfer Equipment	2-2	Prior to 10/24/74	Not Required	
Reject Pile	2-3	Prior to 10/24/74	Not Required	
Belt Collector/Magnetic Separator	2-4	Proposed Modification	Subpart Y	10% Opacity
Reject Pile	2-5	Prior to 10/24/74	Not Required	
1 Gate	2-6	Proposed Modification	Subpart Y	10% Opacity

2 Belt Conveyors/3 Gates	2-7	Proposed Modification	Subpart Y	10% Opacity
Reject Pile	2-8	Prior to 10/24/74	Not Required	
Coal Bin	FF 2-9	Proposed Modification	Subpart Y	10% Opacity
1 Weigh Feeder/1 Belt Conveyor/ 1 Rotary Feeder	BE 2-10	Proposed Modification	Subpart Y	10% Opacity
Coal Mill	FF 2-11	Proposed Modification	Subpart Y	10% Opacity
2 Screw Conveyors/1 Rotary Feeder	BE 2-12	Proposed Modification	Subpart Y	10% Opacity
Coal Bin	FF 2-13	Proposed Modification	Subpart Y	10% Opacity
Kiln/Calciner/Hammermill Dryer	ESP3-1	Proposed Modification	Subpart F	20% Opacity
Transfer Equipment	BE 3-2	Prior to 8/17/71	Not Required	
2 Return Bins/1 Waste Dust Bin	FF 3-3	Prior to 8/17/71	Not Required	
Truck Loading	BE 3-4	Prior to 8/17/71	Not Required	
1 Conditioning Tower	FF 3-5	Proposed Modification	Subpart F	10% Opacity
Transfer Equipment	BE 3-6	Proposed Modification	Subpart F	10% Opacity
Dust Bin	FF 3-7	Proposed Modification	Subpart F	10% Opacity
Truck Loading	BE 3-8	Proposed Modification	Subpart F	10% Opacity
Clinker Cooler/Clinker Breaker/ Dropout Chamber/Heat Exchanger	FF 3-9	Proposed Modification	Subpart F	0.10 lb PM/ton dry feed; 10% Opacity
Transfer Equipment	BE 3-10	Proposed Modification	Subpart F	10% Opacity
Transfer Equipment	FF 3-11	Proposed Modification	Subpart F	10% Opacity
Transfer Equipment	FF 3-12	Proposed Modification	Subpart F	10% Opacity
Covered Outside Clinker Pile	3-13	Prior to 8/17/71	Not Required	
7 Clinker Silos	FF 3-14	Prior to 8/17/71	Not Required	
Transfer Equipment	FF 3-15	Proposed Modification	Subpart F	10% Opacity
Gypsum Pile	3-16	Prior to 8/17/71	Not Required	
Transfer Equipment	FF 3-17	Prior to 8/17/71	Not Required	
2 Belt Conveyors	FF 3-19	Proposed Modification	Subpart F	10% Opacity
1 Belt Conveyor	FF 3-20	Proposed Modification	Subpart F	10% Opacity
1 Belt Conveyor/1 Gate	BE 3-21	Prior to 8/17/71	Not Required	
3 Conveyor Belts/1 Clinker Bin/1 Gypsum Bin	FF 4-1	Prior to 8/17/71	Not Required	
Finish Mill No. 1	FF 4-2	Prior to 8/17/71	Not Required	
Transfer Equipment	FF 4-3	Prior to 8/17/71	Not Required	

Transfer Equipment	FF 4-4	Prior to 8/17/71	Not Required	
Finish Mill No. 2	FF 4-5	Prior to 8/17/71	Not Required	
Transfer Equipment	FF 4-6	Prior to 8/17/71	Not Required	
4 Raw Material Silos/1 Belt Conveyor	4-7	Prior to 8/17/71	Not Required	
Transfer Equipment	FF 4-8	Prior to 8/17/71	Not Required	
Finish Mill No. 3	FF 4-9	Proposed Modification	Subpart F	10% Opacity
Transfer Equipment	FF 4-10	Proposed Modification	Subpart F	10% Opacity
Transfer Equipment	FF 4-11	Proposed Modification	Subpart F	10% Opacity
Air Separator	FF 4-12	Proposed Modification	Subpart F	10% Opacity
Group 5 Silos	FF 5-1	Prior to 8/17/71	Not Required	
Group 5 Silos	FF 5-2	Prior to 8/17/71	Not Required	
Group 4 Silos	FF 5-3	1967	Not Required	
Group 4 Silos	FF 5-4	1967	Not Required	
Transfer Equipment/Truck Loading	FF 5-5	Prior to 8/17/71	Not Required	
Transfer Equipment/ Railroad Car Loading	FF 5-6	Prior to 8/17/71	Not Required	
Transfer Equipment	FF 5-7	Prior to 8/17/71	Not Required	
1 Hopper	FF 5-8	Prior to 8/17/71	Not Required	
Group 2 Silos	FF 5-9	1924	Not Required	
Silo No. 8	FF 5-10	Prior to 8/17/71	Not Required	
Silo No. 10	FF 5-11	Prior to 8/17/71	Not Required	
Group 3 Silos (31S)	FF 5-12	August 1989	Not Required	
Group 3 Silos (27S)	FF 5-13	August 1989	Not Required	
Group 3 Silos (22S)	FF 5-14	August 1989	Not Required	
Group 3 Silos (24S)	FF 5-15	August 1989	Not Required	
Group 3 Silos (30S)	FF 5-16	August 1989	Not Required	
Group 3 Silos (25S)	FF 5-17	August 1989	Not Required	
Screens Elevator	FF 5-18	Prior to 8/17/71	Not Required	
Elevator	FF 5-19	Prior to 8/17/71	Not Required	
Transfer Equipment	FF 5-20	Prior to 8/17/71	Not Required	
Bulk Tank 831	FF 5-21	1952	Not Required	
Bulk Tank 832	FF 5-22	1952	Not Required	
Bulk Tank 833	FF 5-23	1952	Not Required	

Bulk Tank 834/835	FF 5-24	1952	Not Required	
Truck Loading	FF 5-25	Prior to 8/17/71	Not Required	
Haul Road	5-26	Not Applicable	Not Required	
Packing Machine No. 1	FF 6-1	Prior to 8/17/71	Not Required	
Packing Machine No. 2	FF 6-2	Prior to 8/17/71	Not Required	
Packing Machine No. 3	FF 6-3	Prior to 8/17/71	Not Required	
Packing Machine No. 4	FF 6-4	Prior to 8/17/71	Not Required	

STACK SUMMARY INFORMATION

Facility	Facility ID	Facility Type	Volume Flow (acfm)	Stack Diameter (in)	Gas Velocity (ft/min)	Stack Temp (^{0}F)
Overburden Removal	1-1	Area Source	N/A	N/A	N/A	N/A
Overburden Pile	1-2	Area Source	Included in 1-1			
Drilling	1-3	Area Source	N/A	N/A	N/A	N/A
Blasting	1-4	Area Source	N/A	N/A	N/A	N/A
Truck Loading	1-5	Area Source	N/A	N/A	N/A	N/A
Haul Road	1-6	Area Source	N/A	N/A	N/A	N/A
Hopper	1-7	Area Source	N/A	N/A	N/A	N/A
Primary Crusher	1-8	Area Source	N/A	N/A	N/A	N/A
Vibrating Feeder/Belt Conveyor	1-9	Area Source	N/A	N/A	N/A	N/A
Limestone Pile	1-10	Area Source	N/A	N/A	N/A	N/A
Transfer Equipment	1-11	Area Source	N/A	N/A	N/A	N/A
Haul Road	1-12	Area Source	N/A	N/A	N/A	N/A
Shale Piles	1-13	Area Source	N/A	N/A	N/A	N/A
Apron Feeder	1-14	Area Source	N/A	N/A	N/A	N/A
Secondary Crusher	FF1-15	Point Source	12480	21.9382	4754	75
Screenhouse	FF 1-16	Point Source	10000	22.24081	3707	75
Transfer Equipment	FF 1-17	Point Source	12650	30	2577	75
Raw Material Bins	1-18	Area Source	N/A	N/A	N/A	N/A
Haul Road	1-19	Area Source	N/A	N/A	N/A	N/A
Sand Piles/Bottom Ash Piles	1-20	Area Source	N/A	N/A	N/A	N/A
2 Fly Ash Silos/4 Rotary Feeders	FF 1-21	Point Source	1700	8	4870	75
Fly Ash Feed Bin	FF 1-22	Point Source	8855	24	2819	75
Gate/Airslide Transfer Equipment	BE 1-23	Area Source	N/A	N/A	N/A	N/A
Coal Storage	2-1	Area Source	N/A	N/A	N/A	N/A
Transfer Equipment	2-2	Area Source	N/A	N/A	N/A	N/A
Reject Pile	2-3	Area Source	N/A	N/A	N/A	N/A

Belt Collector/Magnetic Separator	2-4	Area Source	N/A	N/A	N/A	N/A
Reject Pile	2-5	Area Source	N/A	N/A	N/A	N/A
1 Gate	2-6	Area Source	N/A	N/A	N/A	N/A
2 Belt Conveyors/3 Gates	2-7	Area Source	N/A	N/A	N/A	N/A
Reject Pile	2-8	Area Source	N/A	N/A	N/A	N/A
Coal Bin	FF 2-9	Point Source	3850	16	2757	75
1 Weigh Feeder/1 Belt Conveyor/1 Rotary Feeder	BE 2-10	Area Source	N/A	N/A	N/A	N/A
Coal Mill	FF 2-11	Point Source	51900	30	10573	176
2 Screw Conveyors/1 Rotary Feeder	BE 2-12	Area Source	N/A	N/A	N/A	N/A
Coal Bin	FF 2-13	Point Source	1650	10	3025	75
Kiln/Calciner/Hammermill Dryer	ESP 3-1	Point Source	761000	132	8008	380
Transfer Equipment	BE 3-2	Area Source	N/A	N/A	N/A	N/A
2 Return Bins/1 Waste Dust Bin	FF 3-3	Point Source	8232	19.41337	4005	200
Truck Loading	BE 3-4	Area Source	N/A	N/A	N/A	N/A
1 Conditioning Tower	FF 3-5	Point Source	Included in 3-1 (vent to same stack)			
Transfer Equipment	BE 3-6	Area Source	N/A	N/A	N/A	N/A
Dust Bin	FF 3-7	Point Source	7260	22	2750	200
Truck Loading	BE 3-8	Area Source	N/A	N/A	N/A	N/A
Clinker Cooler/Clinker Breaker/Dropout Chamber/Heat Exchanger	FF 3-9	Point Source	56400	45	5107	250
Transfer Equipment	BE 3-10	Area Source	N/A	N/A	N/A	N/A
Transfer Equipment	FF 3-11	Point Source	5000	10	9167	200
Transfer Equipment	FF 3-12	Point Source	3570	12	4545	200
Covered Outside Clinker Pile	3-13	Area Source	N/A	N/A	N/A	N/A
7 Clinker Silos	FF 3-14	Point Source	4600	10	8434	200
Transfer Equipment	FF 3-15	Point Source	4600	8	13178	200
Gypsum Pile	3-16	Area Source	N/A	N/A	N/A	N/A
Transfer Equipment	FF 3-17	Point Source	4600	8	13178	75

Pregrind Mill/Feeder/Bin	FF 3-18	Point Source	20000	36	2829	250
2 Belt Conveyors	FF 3-19	Point Source	3570	12	4545	200
1 Belt Conveyor	FF 3-20	Point Source	7315	22	2771	200
1 Belt Conveyor/1 Gate	BE 3-21	Area Source	N/A	N/A	N/A	N/A
						200
3 Conveyor Belts/1 Clinker Bin/1 Gypsum Bin	FF 4-1	Point Source	6507	16	4660	200
Finish Mill No. 1	FF 4-2	Point Source	12096	24.72155	3629	200
Transfer Equipment	FF 4-3	Point Source	75000	90	1698	200
Transfer Equipment	FF 4-4	Point Source	7600	24	2419	200
Finish Mill No. 2	FF 4-5	Point Source	12096	24.20104	3787	200
Transfer Equipment	FF 4-6	Point Source	12096	24	3850	200
4 Raw Material Silos/1 Belt Conveyor	4-7	Area Source	N/A	N/A	N/A	N/A
Transfer Equipment	FF 4-8	Point Source	7437	16.88803	4781	98
Finish Mill No. 3	FF 4-9	Point Source	23000	36	3254	155
Transfer Equipment	FF 4-10	Point Source	6380	20	2924	160
Transfer Equipment	FF 4-11	Point Source	4180	16	2994	160
Air Separator	FF 4-12	Point Source	75000	48	5968	197
Group 5 Silos	FF 5-1	Point Source	10000	18.05407	5625	140
Group 5 Silos	FF 5-1	Point Source	10000	18.05407	5625	140
Group 4 Silos	FF 5-3	Point Source	10944	23.93654	3502	140
Group 4 Silos	FF 5-4	Point Source	2640	11.22723	3840	140
Transfer Equipment/Truck Loading	FF 5-5	Point Source	10944	23.93654	3502	140
Transfer Equipment/ Railroad Car Loading	FF 5-6	Point Source	2640	11.22723	3840	140
Transfer Equipment	FF 5-7	Point Source	2640	17.40779	1597	140
1 Hopper	FF 5-8	Point Source	10944	21.37229	4393	140
Group 2 Silos	FF 5-9	Point Source	5000	13.25545	5217	140
Silo No. 8	FF 5-10	Point Source	2500	14	2339	140
Silo No. 10	FF 5-11	Point Source	2094	8	5999	140

Group 3 Silos (31S)	FF 5-12	Point Source	1633	7.312733	5599	140
Group 3 Silos (27S)	FF 5-13	Point Source	1633	7.312733	5599	140
Group 3 Silos (22S)	FF 5-14	Point Source	1633	7.312733	5599	140
Group 3 Silos (24S)	FF 5-15	Point Source	1633	7.312733	5599	140
Group 3 Silos (30S)	FF 5-16	Point Source	1633	7.312733	5599	140
Group 3 Silos (25S)	FF 5-17	Point Source	1633	7.312733	5599	140
Screens Elevator	FF 5-18	Point Source	Included in 5-13 (vent to same fabric filter)			
Elevator	FF 5-19	Point Source	Included in 5-17 (vent to same fabric filter)			
Transfer Equipment	FF 5-20	Point Source	Included in 5-16 (vent to same fabric filter)			
Bulk Tank 831	FF 5-21	Point Source	4233	16.88803	2721	140
Bulk Tank 832	FF 5-22	Point Source	4233	8	12127	140
Bulk Tank 833	FF 5-23	Point Source	4233	17.40779	2561	140
Bulk Tank 834/835	FF 5-24	Point Source	4233	17.40779	2561	140
Truck Loading	FF 5-25	Point Source	Included in 5-23 (vent to same fabric filter)			
Haul Road	5-26	Area Source	N/A	N/A	N/A	N/A
Packing Machine No. 1	FF 6-1	Point Source	770	10	1412	140
Packing Machine No. 2	FF 6-2	Point Source	7200	19.67396	3411	140
Packing Machine No. 3	FF 6-3	Point Source	7200	19.67396	3411	140
Packing Machine No. 4	FF 6-4	Point Source	7200	20.18506	3240	140