



K A N S A S

RODERICK L. BREMBY, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

DEPARTMENT OF HEALTH AND
ENVIRONMENTAL SERVICES

AIR EMISSION SOURCE CONSTRUCTION PERMIT

Source ID No.: 1330001

Effective Date: December 30, 2004

Source Name: Ash Grove Cement Company

SIC Codes: 3241, 4953

Site Location: 1801 North Santa Fe
Chanute, Kansas 66720

Site Owner Name: Ash Grove Cement Company

Site Owner's Mailing Address: 11011 Cody Street
Overland Park, Kansas 66210

Site Operator for Approved Activity: Ash Grove Cement Company

Site Operator's Mailing Address: 1801 North Santa Fe
Chanute, Kansas 66720

Contact Person for Site Owner: Fran Streitman
Vice President, Environmental Affairs
Telephone number (913) 451-8900

Contact Person for Site Operator: Bruce Newell
Plant Manager
Telephone number (620) 431-4500

This permit is issued pursuant to K.S.A. 65-3008 as amended.

Description of Activity Subject to Air Pollution Control Regulations

The Ash Grove Cement Company (Ash Grove) received a Prevention of Significant Deterioration (PSD) permit from the department to construct a new dry process pre-heater/pre-calciner cement kiln at the company's Chanute, Kansas facility in August of 1999. During construction of the new plant, a number of changes from the original equipment specifications were required. Ash Grove applied for and received air construction approvals and/or permits as required in order for the permitted activity to accurately reflect the as built specifications of the new plant. On July 30, 2004, the department received an air permit application from Ash Grove to allow use of alternative non-hazardous waste fuels. Comparing the past actual emission levels of carbon monoxide to the present potential to emit, as required by 40 CFR 52.21, indicates that the burning of the new fuels results in an emissions increase of carbon monoxide above the PSD regulatory significance level. Therefore, Ash Grove must determine and apply the Best Available Control Technology (BACT) to control of carbon monoxide emissions in order to receive approval to burn the proposed alternative fuels. This permit includes the BACT requirements for carbon monoxide for the proposed permit modification and also incorporates the as built specifications of the plant into a single document. Therefore, this permit supercedes the PSD permit issued by the department in August 1999.

Significant Applicable Air Pollution Control Regulations

The following air quality regulations were determined to be applicable to this source:

K.A.R. 28-19-350, *Prevention of Significant Deterioration (PSD) of Air Quality*, adopting by reference 40 CFR 52.21.

K.A.R. 28-19-20, *Particulate Matter Emission Limitations*

K.A.R. 28-19-650, *Opacity Requirements*

K.A.R. 28-19-720, *New Source Performance Standards*, adopting by reference 40 CFR Part 60, Subpart F, *Standards of Performance for Portland Cement Plants*, and Subpart Y, *Standards of Performance for Coal Preparation Plants*.

K.A.R. 28-19-750, *Hazardous Air Pollutants; Maximum Achievable Control Technology (MACT)*, adopting by reference 40 CFR Part 63, Subpart EEE, *National Emission Standards for Hazardous Air Pollutants From Hazardous Waste Combustors*, and Subpart LLL, *National Emission Standards for the Portland Cement Manufacturing Industry*. Effective dates, applicability and compliance requirements for these standards shall be as specified in each MACT standard upon promulgation by the United States Environmental Protection Agency (EPA).

Air Emission Unit Technical Specifications

Ash Grove shall install, operate, and maintain the following new and modified process and material handling equipment at the Chanute, Kansas plant:

- a. One preheater/precalciner kiln system with an annual average design feed rate of 331 tons/hr of dry raw material mix and a maximum design heat input of 826.2 million Btu per hour. The kiln shall be fired with a combination of coal, natural gas, used oil, solid and liquid hazardous waste-derived fuel, and alternative non-hazardous waste-derived fuels. Good combustion practices (GCP), as described herein and in the permit application shall be used as best available control technology (BACT) to minimize emissions of carbon monoxide (CO). Fabric filters shall be installed, operated and maintained to control particulate matter emissions from this unit.
- b. One vertical, in-line raw mill with an annual average design capacity of 375 tons of raw material per hour. A fabric filter shall be installed, operated and maintained to control particulate matter emissions from this unit.
- c. One clinker cooler with an annual average design capacity of 194 tons per hour. A fabric filter shall be installed, operated and maintained to control particulate matter emissions from this unit.
- d. One vertical roller mill for crushing coal with an annual average design processing rate of 28 tons per hour, and associated coal handling equipment. A fabric filter shall be installed, operated and maintained to control particulate matter emissions from this unit.
- e. Two modified finish mill systems (i.e., Finish Mills No. 1 and No. 3) with a combined annual average design processing rate of 100 tons per hour. Fabric filters shall be installed, operated and maintained to control particulate matter emissions from these units.
- e. A new finish mill system (i.e., Finish Mill No. 4) with an annual average design processing rate of 150 tons per hour. Fabric filters shall be installed, operated and maintained to control particulate matter emissions from this unit.
- g. Belt conveyors, screw conveyors, drag chain conveyors, pneumatic conveyors, metal pan conveyors and bucket elevators for moving raw material, clinker, additives and finished cement. Fabric filters shall be installed, operated and maintained to control particulate matter from conveyor transfer points.
- h. New storage bins and silos for raw and in-process materials. Fabric filters shall be installed, operated and maintained to control particulate matter emissions from these

units.

Ash Grove shall install, operate and maintain the following air pollution control equipment associated with the new and modified process units at the Chanute plant.

Fabric Filter: Model 12M300C16(6); Manufactured by: Fuller Bulk Handling
Emission Source: Kiln, Preheater/Preheater, Raw Mill; 413.BF1
Rated Control Efficiency: 99% Capture Efficiency: 100%
Bag Fabric Type: Woven Fiberglass w/PTFE Membrane No. of Bags: 3600
Gas Flow: 320,000 cfm @ 380°F Emission Point: Main Stack

Fabric Filter: Model 8M255C16(6); Manufactured by: Fuller Bulk Handling
Emission Source: Kiln Bypass; 414.BF1
Rated Control Efficiency: 99% Capture Efficiency: 100%
Bag Fabric Type: Woven Fiberglass w/PTFE Membrane No. of Bags: 2040
Gas Flow: 145,000 cfm @ 380°F Emission Point: Main Stack

Fabric Filter: Model 8M300C12(6); Manufactured by: Fuller Bulk Handling
Emission Source: Clinker Cooler; 417.BF2
Rated Control Efficiency: 99% Capture Efficiency: 100%
Bag Fabric Type: Woven Fiberglass w/PTFE Membrane No. of Bags: 2400
Gas Flow: 214,000 cfm @ 392°F Emission Point: Clinker Cooler Stack

Fabric Filter: Model 2M555S12(6); Manufactured by: Fuller Bulk Handling
Emission Source: Finish Mill Separator; 514.BF1
Rated Control Efficiency: 99% Capture Efficiency: 100%
Bag Fabric Type: Polyester Felt No. of Bags: 1110
Gas Flow: 78,000 cfm @ 170°F Emission Point: Separator Stack

Fabric Filter: Model 255C12(6); Manufactured by: Fuller Bulk Handling
Emission Source: Finish Mill #3; 514.BF2
Rated Control Efficiency: 99% Capture Efficiency: 100%
Bag Fabric Type: Polyester Felt w/PTFE membrane No. of Bags: 255
Gas Flow: 19,000 cfm @ 215°F Emission Point: Finish Mills Stacks

Fabric Filter: Model Unspecified; Manufactured by: : Unspecified
Emission Source: Finish Mill No. 4
Rated Control Efficiency: 99% Capture Efficiency: 100%
Bag Fabric Type: Unspecified No. of Bags: Unspecified
Gas Flow: Undetermined Emission Point: Undetermined

Fabric Filter: Model Unspecified; Manufactured by: Unspecified
Emission Source: Finish Mill System No. 4 Separator
Rated Control Efficiency: 99% Capture Efficiency: 100%
Bag Fabric Type: Unspecified No. of Bags: Unspecified
Gas Flow: Undetermined Emission Point: Undetermined

Fabric Filter: Model 510S12(6); Manufactured by: Fuller Bulk Handling
Emission Source: Coal Mill; 41B.BF2
Rated Control Efficiency: 99% Capture Efficiency: 100%
Bag Fabric Type: Acrylic Felt w/PTFE membrane No. of Bags: 510

Gas Flow: 38,500 cfm @ 176°F

Emission Point: Main Stack

Ash Grove shall install and operate the following dust collectors associated with new transfer points, feed bins and storage bins and silos proposed for the Chanute plant.

Emission Point: 211.BF1, Raw Material Conveyor Transfer Points

FF Model No.: 144C10

No. of Bags: 144

Gas Flow Rate: 9,300 acfm

Air-to-Cloth Ratio: 4.95:1

Emission Point: 211.BF2

FF Model No.: BA-12

No. of Bags: 756

Gas Flow Rate: 22,000 acfm

Air-to-Cloth Ratio: 2.25:1

Emission Point: 211.BF4

FF Model No.: 216A

No. of Bags: 216

Gas Flow Rate: 6,000 acfm

Air-to-Cloth Ratio: 2.14:1

Emission Point: 213.BF4

FF Model No.: 505-6380-81

No. of Bags: 16

Gas Flow Rate: 2,000 acfm

Air-to-Cloth Ratio: 2.5:1

Emission Point: 213.BF5

FF Model No.: 505-6380-81

No. of Bags: 16

Gas Flow Rate: 2,000 acfm

Air-to-Cloth Ratio: 2.5:1

Emission Point: 213.BF1, Raw Material Conveyor Transfer Points

FF Model No.: 121C10

No. of Bags: 121

Gas Flow Rate: 8,700 acfm

Air-to-Cloth Ratio: 5.52:1

Emission Point: 213.BF2, Raw Material Conveyor Transfer Points

FF Model No.: 56C10

No. of Bags: 256

Gas Flow Rate: 14,400 acfm

Air-to-Cloth Ratio: 4.32:1

Emission Point: 213.BF3, Raw Material Conveyor Transfer Points

FF Model No.: 144C10

No. of Bags: 144

Gas Flow Rate: 10,000 acfm

Air-to-Cloth Ratio: 4.96:1

Emission Point: 311.BF1, Limestone Reclaim Conveyor Drop Point

FF Model No.: DLMV 30/10

No. of Bags: 30

Gas Flow Rate: 2,500 acfm

Air-to-Cloth Ratio: 7.74:1

Emission Point: 311.BF2, Limestone Reclaim Conveyor Drop Point

FF Model No.: DLMV 30/10

No. of Bags: 30

Gas Flow Rate: 2,500 acfm

Air-to-Cloth Ratio: 7.74:1

Emission Point: 313.BF1, Raw Material Hopper Feeder Belt Drop Point

FF Model No.: DLMV 30/10

No. of Bags: 30

Gas Flow Rate: 1,500 acfm

Air-to-Cloth Ratio: 9.31:1

Emission Point: 313.BF2, Raw Material Conveyor Transfer Points

FF Model No.: 81CX10 No. of Bags: 81
Gas Flow Rate: 3,450 acfm Air-to-Cloth Ratio: 3.27:1

Emission Point: 315.BF1, Storage Bin, Weighbelt, Conveyor Drop Point
FF Model No.: 196C10 No. of Bags: 196
Gas Flow Rate: 12,600 acfm Air-to-Cloth Ratio: 4.15:1

Emission Point: 315.BF2, Storage Bin, Weighbelt, Conveyor Drop Point
FF Model No.: 304C10 No. of Bags: 304
Gas Flow Rate: 20,250 acfm Air-to-Cloth Ratio: 5.12:1

Emission Point: 316.BF1, New Belt Conveyor Feed to New Raw Mill
FF Model No.: 100C10 No. of Bags: 100
Gas Flow Rate: 6,000 acfm Air-to-Cloth Ratio: 4.6:1

Emission Point: 317.BF1, Raw Material Air Slide
FF Model No.: 121C10 No. of Bags: 121
Gas Flow Rate: 6,500 acfm Air-to-Cloth Ratio: 4.18:1

Emission Point: 317.BF2, Raw Material Air Slide, Bucket Elevator
FF Model No.: 121C10 No. of Bags: 121
Gas Flow Rate: 6,500 acfm Air-to-Cloth Ratio: 4.18:1

Emission Point: 411.BF1, FRF Blending Silo
FF Model No.: 80C10 No. of Bags: 80
Gas Flow Rate: 2,300 acfm Air-to-Cloth Ratio: 2.21:1

Emission Point: 419.BF1, Conveyor Drop Points
FF Model No.: 121C10 No. of Bags: 121
Gas Flow Rate: 7,400 acfm Air-to-Cloth Ratio: 4.7:1

Emission Point: 412.BF1, Raw Meal Air Slide
FF Model No.: 81C10 No. of Bags: 81
Gas Flow Rate: 2,650 acfm Air-to-Cloth Ratio: 2.51:1

Emission Point: 412.BF2, Air Slides
FF Model No.: 81C10 No. of Bags: 81
Gas Flow Rate: 2,650 acfm Air-to-Cloth Ratio: 2.51:1

Emission Point: 413.BF2, Micro-fine Lime Storage Bin
FF Model No.: JV-54-4X No. of Bags: 54
Gas Flow Rate: 1,280 acfm Air-to-Cloth Ratio: 5.38:1

Emission Point: 413.BF3
FF Model No.: 36TA10FM No. of Bags: 36
Gas Flow Rate: 1,425 acfm Air-to-Cloth Ratio: 3.0:1

Emission Point: 413.BF4
FF Model No.: 36TA10FM No. of Bags: 36
Gas Flow Rate: 1,700 acfm Air-to-Cloth Ratio: 3.0:1

Emission Point: 417.BF1, Clinker Cooler Drop Point, Bag Filter Screw Conveyor Drop Point
FF Model No.: 81C10 No. of Bags: 81

Gas Flow Rate: 4,200 acfm Air-to-Cloth Ratio: 3.98:1

Emission Point: 419.BF1, Conveyor Drop Points

FF Model No.: 121C10 No. of Bags: 121

Gas Flow Rate: 7,400 acfm Air-to-Cloth Ratio: 4.7:1

Emission Point: 419.BF2, Conveyor Belt and Clinker Storage Silo

FF Model No.: 121C10 No. of Bags: 121

Gas Flow Rate: 7,400 acfm Air-to-Cloth Ratio: 4.7:1

Emission Point: 419.BF3, Conveyor Drop Points, Storage Bins

FF Model No.: 100C10 No. of Bags: 100

Gas Flow Rate: 6,500 acfm Air-to-Cloth Ratio: 4.99:1

Emission Point: 419.BF4, Conveyor Drop Points

FF Model No.: 121C10 No. of Bags: 121

Gas Flow Rate: 7,400 acfm Air-to-Cloth Ratio: 4.7:1

Emission Point: 419.BF5

FF Model No.: 25-S-6-20-C No. of Bags: 25

Gas Flow Rate: 2,000 acfm Air-to-Cloth Ratio: 4.5:1

Emission Point: 41B.BF1, 750 ton Coal Silo

FF Model No.: 36TA10FM No. of Bags: 36

Gas Flow Rate: 1,300 acfm Air-to-Cloth Ratio: 2.77:1

Emission Point: 41G.BF1

FF Model No.: FS-175 No. of Bags: 60

Gas Flow Rate: 1,000 acfm Air-to-Cloth Ratio: 5.7:1

Emission Point: 41B.BF3, Coal Bin Supplying Coal Feeders

FF Model No.: Pfister Filter No. of Bags: N.A.

Gas Flow Rate: 1,300 acfm Air-to-Cloth Ratio: 4.35:1

Emission Point: 501.BF1, Conveyor Drop Point

FF Model No.: DLMV30/15 No. of Bags: 20

Gas Flow Rate: 2,250 acfm Air-to-Cloth Ratio: 6.97:1

Emission Point: 501.BF2, Conveyor Drop Points

FF Model No.: DLMV 30/15 No. of Bags: 20

Gas Flow Rate: 2,250 acfm Air-to-Cloth Ratio: 6.97:1

Emission Point: 501.BF3, Bucket Elevator, Conveyor Drop Points

FF Model No.: 144C10 No. of Bags: 144

Gas Flow Rate: 9,200 acfm Air-to-Cloth Ratio: 4.9:1

Emission Point: 501.BF4, Conveyor Drop Point

FF Model No.: DLMV45/15 No. of Bags: 20

Gas Flow Rate: 2,750 acfm Air-to-Cloth Ratio: 5.68:1

Emission Point: 503.BF1, Storage Bin Air Vents

FF Model No.: 144C10 No. of Bags: 144

Gas Flow Rate: 9,000 acfm Air-to-Cloth Ratio: 4.6:1

Emission Point: 505.BF1, Cement Silo Air Vent
FF Model No.: 81C10 No. of Bags: 81
Gas Flow Rate: 5,600 acfm Air-to-Cloth Ratio: 5.31:1

Emission Point: 513.BF1
FF Model No.: DLMV3Q/10 F6 No. of Bags: 30
Gas Flow Rate: 2,250 acfm Air-to-Cloth Ratio: 6.97:1

Emission Point: 515.BF1, Cement Silo Air Vent
FF Model No.: 81C10 No. of Bags: 81
Gas Flow Rate: 5,600 acfm Air-to-Cloth Ratio: 5.31:1

Emission Point: 525.BF1, Cement Silo Air Vent
FF Model No.: 81C10 No. of Bags: 81
Gas Flow Rate: 5,600 acfm Air-to-Cloth Ratio: 5.31:1

Emission Point: 533.BF1
FF Model No.: DLMV3Q/10 F6 No. of Bags: 30
Gas Flow Rate: 2,250 acfm Air-to-Cloth Ratio: 6.97:1

Emission Point: 535.BF1, Alleviator Vent
FF Model No.: 304.C10 No. of Bags: 304
Gas Flow Rate: 10,000 acfm Air-to-Cloth Ratio: 2.52:1

Emission Point: 541.BF1, Material Handling in Finish Mill System #4
FF Model No.: 81C10 No. of Bags: 81
Gas Flow Rate: 5,500 acfm Air-to-Cloth Ratio: 5.2:1

Emission Point: 543.BF1, Material Handling in Finish Mill System #4
FF Model No.: 144C10 No. of Bags: 144
Gas Flow Rate: 9,350 acfm Air-to-Cloth Ratio: 5.0:1

Emission Point: 611.BF1, Bulk Loading Bin, Bucket Elevator, Air Slides, Drop Points
FF Model No.: 121C10 No. of Bags: 121
Gas Flow Rate: 9,000 acfm Air-to-Cloth Ratio: 5.71:1

Emission Point: Bulk Waste Fuel System Baghouse #1
Rated Control Efficiency: 0.01 grains/dscf Capture Efficiency: 100%
FF Model No.: Model Unspecified No. of Bags: Unspecified
Gas Flow Rate: 12,000 Air-to-Cloth Ratio: Unspecified

Emission Point: Bulk Waste Fuel System Baghouse #2
Rated Control Efficiency: 0.01 grains/dscf Capture Efficiency: 100%
FF Model No.: Model Unspecified No. of Bags: Unspecified
Gas Flow Rate: 12,000 Air-to-Cloth Ratio: Unspecified

Air Emissions Estimates from the Proposed Activity

During the construction of the new facility, several design changes occurred and several new sources are permitted. The air emissions estimates for PM₁₀ have been revised to reflect the as-built equipment as specified in the following table. In addition, the emission estimates have been revised to reflect changes for burning alternative non-hazardous waste fuels.

Table 1

Pollutant	Annual Air Pollutant Emission (Tons per Year)		Estimated Operating Emissions ^a (Tons per Year)
	Pre-Permit Actual Emissions	Post-Permit Potential-To-Emit ^b	
PM ₁₀	630 ⁱ	639	212.32
SO ₂	592.5 ^c	1037	439
NO _x	1947 ^c	2623	1774
VOC	15.3 ^c	52.92 ^d	15.80
CO	429.5 ^c	1409 ^c	319
Lead	8.316 ^f	0.85 ^g	4.17E-3
Fluorides	0.48 ^h	0.764 ^h	0.45
Sulfuric Acid Mist	9.07 ^h	14.55 ^h	8.62
Hydrogen Sulfide	None	None	None
Total HAPs	86.43	135.10 ^d	82.96
HCl	74.05	118.79 ^h	70.37

a Based on 2003 Actual Emissions.

b Potential-to-emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, processed, shall be treated as part of its design if the limitation or the effect it would have on emission is federally enforceable. For emergency engines, the maximum hours of operation can be assumed to be 500 hours per year according to the U.S. EPA [Ref. EPA memorandum entitled "Calculating Potential-to-Emit for Emergency Generators", September 6, 1995]. a Estimated operating emissions are based on the expected operating hours and conditions.

c Emission estimates based on CEMS data.

d Emission computed by compilation of stack test data, operating permit limitations, and AP-42 factors

e Emissions based on vendor information and BACT analysis in permit application

f Emissions based on stack test.

h Emissions based on AP-42 emission factors.

i Represents the primary operational scenario as presented in the revised Construction Permit Application. Alternative operating scenarios and emission potentials are also authorized as presented in the revised Construction Permit Application.

BACT Air Emission Limitations

K.A.R. 28-19-350 — *Prevention of Significant Deterioration (PSD) of Air Quality*, adopting by reference 40 CFR 52.21, requires evaluation of emission reduction techniques to identify the best available control technology (BACT) for each pollutant for which there will be a significant net emissions increase as a result of the proposed modifications. The purpose of BACT is to effect the maximum degree of emission reduction achievable, taking into account energy, environmental and economic impacts for each pollutant under review. Evaluation of the estimated emissions for the

proposed Ash Grove modifications indicates that there will be a significant net emissions increase for carbon monoxide (greater than 100 tons per year). Ash Grove conducted the required BACT analysis for carbon monoxide. The analysis determined that the most efficient and cost effective control technology would consist of installation, operation and maintenance of a computerized network of process control and emissions monitoring equipment, combined with a comprehensive employee training program.

Operation of the cement plant by trained personnel using computer-aided process control and monitoring equipment is commonly referred to as implementation of “*Good Combustion Practices*” or GCP. Using GCP, the BACT emission limit for the Ash Grove Chanute plant is established as a permit condition at 1,409 tons of carbon monoxide per year.

Emission limits for sulfur oxides (SO₂) and oxides of nitrogen (NO_x) are also established as permit conditions at 1,037 and 2,623 tons per year, respectively. These emission limits are established as permit conditions to ensure that emissions from the proposed modifications do not result in a net emissions increase above the significance levels listed in 40 CFR 52.21(b)(23).

Table 2

Pollutant	Emission Limit
Carbon Monoxide	5,000 pounds per hour* and 1,409 tons Per Year**
Sulfur Oxides	1,037 Tons Per Year**
Oxides of Nitrogen	2,623 Tons Per Year**

(*) The emission limit for carbon monoxide consists of a 5,000 pound per hour 8-hour block average limit combined with a 1,409 ton per year annual emission limit. The 8-hour block average limit shall be monitored continuously and a value generated 3 times daily.

(**) The annual emission limits for carbon monoxide, sulfur oxides and oxides of nitrogen are the sum of 12 consecutive one month averages, updated monthly. The first 12 month averaging period shall begin upon start-up of the modified plant. During the first year of operation of the modified plant, pollutant emission rates shall be calculated, using emissions data generated from previous plant operations, i.e., one month from start-up of the modified plant, the pollutant emissions from the previous 11 months shall be added to the average pollutant emission rate measured during the first month of operation of the modified plant; at the end of the second month, ten months of pre-modification data shall be added to 2 months of post-plant modification data and so on until the end of the first year.

To ensure compliance with the emission limits established by this permit, Ash Grove shall install, operate and maintain continuous emission monitoring (CEM) equipment, as described in the *Monitoring and Compliance Requirements* section of this permit, that is capable of measuring and recording the emission rates for carbon monoxide, oxides of nitrogen, sulfur oxide, stack gas oxygen and opacity. Calibration checks, as required by this permit, shall be performed on all monitoring equipment to ensure that the accuracy of the monitoring equipment is maintained at acceptable levels. All emissions measurement and monitoring data shall be recorded and stored on-site in the

plant's computer system where the data is to be made readily available for inspection and review as specified in the *General Provisions* section of this permit.

Summary of PM and Opacity Requirements

Table 3

Affected Facility	PM Emission Limit	Opacity Limit (percent)
In-line Raw Mill/Kiln	0.30 lb./ton of dry kiln feed material excluding fuel 0.02 grains/dscf	20*
Coal Mill	0.02 grains/dscf	20*
Coal Handling and Conveying Equipment	N.A.	20*
Clinker Cooler	0.10 lb./ton of dry kiln feed material excluding fuel 0.02 grains/dscf	10
Clinker Storage	N.A.	10
Raw Material Storage	N.A.	10
Finish Mill Systems	N.A.	10
Bulk Loading and Unloading Stations	N.A.	10
Finished Product Storage	N.A.	10
Conveyor Transfer Points	N.A.	10

*The NSPS opacity limit for a coal mill is 20 percent. The NSPS opacity limit for an in-line raw mill/kiln system is also 20 percent. Exhaust gases from these two sources will be commingled in the main stack; hence, the opacity limit of 20% shall apply to the main stack.

Permit Conditions

1. Each air pollution control device shall be installed, operated and maintained according to the manufacturer's specifications or recommendations.
2. Each air pollution control device shall be operating at all times whenever the emissions source that it is designated to control is operating.
3. Air pollution control devices designed to capture particulate matter emitted from in-plant material conveyance system transfer points shall be operated and maintained such that

particulate matter is diverted to and captured by the control device at all times that a conveyance system is operating.

4. A dust-abating surfactant shall be applied to all unpaved haul roads leading from the quarry to the cement plant and to all unpaved roadways that are located on or within the cement plant perimeter that are traveled by haul trucks, regardless of whether the haul truck(s) are owned by Ash Grove. At a minimum, dust-abating surfactant shall be applied in a manner and at a frequency consistent with the manufacturer's specifications as necessary to achieve a 90% control efficiency of PM₁₀ emissions.
5. To implement BACT for the preheater/precalciner kiln system, Ash Grove shall install, operate and maintain a GCP emission control system, as described herein and in the permit application, to minimize emission of carbon monoxide.
6. Ash Grove shall provide a course of training consisting of classroom and hands-on training in GCP (the "GCP Training Program").

A. Each person working at the Ash Grove Chanute, Kansas facility in the capacity of a production manager, production supervisor, process engineer, shift supervisor or control room operator shall successfully complete the GCP Training Program, or an equivalent program, prior to assuming duties related to, or involving implementation of, the GCP BACT technology.

B. The GCP Training Program shall cover the following topics:

- Machine-specific safety awareness
- MSDS awareness
- Pollutant Monitoring Requirements
- Compliance with GCP Air PSD Permit Requirements
- GCP PSD Air Permit Record Keeping Requirements

Instrument Loops

- PID control
- PLC control
- Control room screens

Process

- Description of process
- Control of gas flow
- Material flow
- Combustion theory
- Heat transfer
- Chemistry of clinker and cement

Pyroprocessing – Precalciner Kiln

- Mechanical components
- Control loops
- Operating parameters
- Start-up and shut-down
- Material and gas flow in preheater
- Heat-up procedure
- Controlling burning zone temperature and oxygen
- Heat recovery
- Controlling clinker cooling and bed depth
- Operating fuel systems
- Malfunctions and corrective action.

C. The GCP Training Program shall be administered by a qualified instructor(s).

D. Employees shall be tested on their understanding of the contents of the GCP program. Written records shall be maintained, as necessary, to document successful completion of the GCP training program by each person working in the capacities listed in item 6.A. above.

Pre-Performance Test Meeting

Ash Grove shall arrange a pre-performance test meeting with the department, at least thirty (30) days in advance of the date of conducting any performance tests required by this permit. The purpose of the meeting shall be to outline and discuss the schedule and implementation plans for conducting the required test(s). The department may elect to have an observer(s) on-site at the Ash Grove facility during all performance testing required by this permit.

Performance Testing

In accordance with 40 CFR 60.8, within 60 days of achieving the maximum production rate at which the preheater/precalciner kiln system will be operated, but not later than 180 days after initial startup of the preheater/precalciner kiln system, Ash Grove shall conduct a performance test of the system (main stack) and clinker cooler to measure their respective particulate matter emission rates and shall furnish a written report of the results of such performance tests to the department.

The particulate matter emission rate (E) shall be computed for each run using the following equation:

$$E = (c_s Q_{sd}) / (PK)$$

where:

E = PM emission rate, lb/ton of kiln feed.

c_s = concentration of PM, g/dscf

Q_{sd} = volumetric flow rate of effluent gas, dscf/hr

P = total kiln feed rate (dry basis), ton/hr

K = conversion factor, 453.6 g/lb.

1. Suitable methods shall be used to determine the kiln feed rate (P), excluding fuels, for each run.
2. In accordance with 40 CFR 60.11(b), Ash Grove shall determine compliance with opacity standards in this permit by conducting observations in accordance with Reference Method 9 in Appendix A of 40 CFR Part 60 or with a continuous opacity monitoring system (COMS) as provided for in 40 CFR 60.11(e)(5) and 60.13.

For the purpose of demonstrating initial compliance, opacity observations shall be conducted concurrently with the initial performance test required in 40 CFR 60.8, unless one of the conditions listed in 40 CFR 60.11(e)(1) is applicable. If Ash Grove elects to demonstrate compliance with opacity standards by using a COMS in lieu of Method 9, Ash Grove must notify the Department in writing at least 30 days prior to conducting the initial performance test.

3. If COMS data are used to demonstrate compliance with the opacity standard during the initial performance test, COMS data results shall be used to determine opacity compliance during subsequent tests required by the department until Ash Grove notifies the Department that Method 9 shall be used.
4. Results of the COMS opacity determination shall be submitted along with the results of the performance test required under 40 CFR 60.8.

Ash Grove is responsible for demonstrating that the COMS meets the requirements specified in 40 CFR 60.13(c), that the COMS has been properly maintained and operated, and that the resulting data have not been altered in any way.

5. Compliance with the particulate matter emission limits of 40 CFR 60.62(a) and (b) applicable to the kiln and the clinker cooler shall be determined based on the results of the most recent performance test. When determining compliance of the kiln system, the particulate matter emissions from the coal mill, as measured during the most recent performance test of the coal mill baghouse, shall be subtracted from the emission rate measured at the main stack.
6. Ash Grove shall perform a PM₁₀ (particulate matter less than 10 microns in diameter) emission inventory of the plant and associated quarrying operations no less than once per calendar year.
7. A written report of the plant wide PM₁₀ emissions inventory shall be submitted to the Department by each February 15 for the previous calendar year. The most recent performance test results from the main stack and clinker cooler stack shall be used when

determining the annual, plant-wide PM10 emission inventory.

8. In accordance with 40 CFR part 60, Appendix A, EPA Reference Method 1 shall be used to select the sampling site and the number of traverse sampling points.
9. In accordance with 40 CFR Part 60, Appendix A, EPA Reference Method 3 shall be used for gas analysis.
10. In accordance with 40 CFR Part 60, Appendix A, EPA Reference Method 5 (front half only), shall be used to determine the particulate matter concentration and the volumetric flow rate of the stack effluent gas.
11. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30.0 dscf) for the kiln, and at least 60 minutes and 1.15 dscm (40.6 dscf) for the clinker cooler.

Monitoring Requirements and Compliance

1. In accordance with 40 CFR 60.63, Ash Grove shall monitor and record the daily production rates and kiln feed rates.
2. In accordance with 40 CFR 60.63, Ash Grove shall install, calibrate, maintain, and operate in accordance with 40 CFR 60.13 continuous opacity monitoring systems (COMS), and record the output of the systems to measure the opacity of emissions discharged into the atmosphere from the main stack and the clinker cooler stack. Excess emissions that must be reported are defined as all 6-minute periods during which the average opacity exceeds that allowed in Table 3.
3. Ash Grove shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS), and record the output of the system, for measuring the concentration of SO₂ discharged to the atmosphere in gas from the main stack.
4. Ash Grove shall install, calibrate, maintain, and operate a CEMS, and record the output of the system, for measuring the concentration of NO_x discharged to the atmosphere in gas from the main stack.
5. Ash Grove shall install, calibrate, maintain, and operate a CEMS, and record the output of the system, for measuring the concentration of CO discharged to the atmosphere in gas from the main stack.
6. Ash Grove shall install, calibrate, maintain, and operate a system to continuously measure and record the volumetric flow rate and temperature of gas (i.e., stack gas flow rate monitor) discharged to the atmosphere from the main stack.
7. Ash Grove shall install, calibrate, maintain and operate a system to continuously measure and record the stack gas oxygen concentration in the alkali bypass system and between the second and third preheater stages. The values recorded by the oxygen monitors shall be used

to ensure proper operation of the GCP technology system.

8. Ash Grove shall operate the all of the CEMS and stack gas flow rate monitor when the kiln system is operated except for CEMS breakdowns, repairs, calibration checks, and zero and span adjustments. Ash Grove is not required to operate the CEMS or stack gas flow rate monitor during periods when the kiln is not operating. Kiln operation shall be defined as any period in which fuel is being fed to the pyroprocessing kiln system and any one of the three pyroprocessing system fans are in operation.
9. Ash Grove shall follow the procedures under 40 CFR 60.13 for installation, evaluation, and operation of the COMS and CEMS, including operation of the COM system at all times, except during period of COM system breakdown, repair, calibration checks and zero and span adjustments.
10. Ash Grove shall operate all CEMS in accordance with the applicable procedures under Performance Specifications 1, 2, and 4 in 40 CFR 60, Appendix B.
11. Ash Grove shall perform quarterly accuracy determinations and daily calibration drift tests in accordance with Procedure 1 in 40 CFR 60, Appendix F.
12. For the SO₂, NO_x, and CO monitors, the span values of each CEMS shall be between 1.25 and 2 times the average emission level of SO₂, NO_x, or CO, respectively.
13. Where there are gaps in emissions data recorded by CO, SO₂, or NO_x, CEMS, Ash Grove shall use the average of the one-minute values of data previously recorded during the last 30 days.
14. For each eight (8) hour period that the pyroprocessing kiln system is operated, Ash Grove shall compute the 8-hour block average emission rate of CO, based on CEMS data. Ash Grove shall record each 8-hour block average CO emission rate three times each day.
15. For each month that Ash Grove operates the pyroprocessing kiln system, Ash Grove shall compute the total monthly emission rate of CO, SO₂, and NO_x based on hourly averages of CEMS data. Each month Ash Grove shall compute, and record the 12-month rolling total emission rates for CO, SO₂, and NO_x, based on the total of the monthly emission rates for the previous 12 months.
16. Ash Grove may feed alternative fuels, which includes tire derived fuel (TDF), bulk waste fuel (BWF), and pails of non-hazardous waste fuel to the preheater/precalciner kiln system using the existing feed systems and those included in this permit, so long as the total feed stream characteristics or emissions from the kiln system do not result in an exceedance of the existing operating parameter limits established during the comprehensive performance test. Table L-1 of the Title V operating permit summarizes the emission limits imposed under each mode of operation for the in-line kiln/raw mill system. Alternative waste fuels may only be fed under the existing operating parameter limits and modes of operation established for combustion of hazardous waste derived fuels (i.e., LWDF and SWDF), except as

specified in Permit Condition 20 below. These modes of operation are defined in the Title V operating permit as Mode 3 and Mode 4.

17. The feedstream analysis plan incorporated by reference into the Title V operating permit shall be used for the characterization of all alternative fuel that is used in the in-line kiln/raw mill system.
18. While operating in Modes 3 or 4, Ash Grove may feed conventional fuel, hazardous waste derived fuel, alternative fuels (i.e., tire derived fuel, bulk waste fuel, and non-hazardous waste fuel pails), or any combination of these fuels so long as the established operating parameter limits are not exceeded. Regardless of the amount of waste derived fuel being fed, all of the hazardous waste derived fuel operating parameter limits specified in Table L-1 of the Title V operating permit shall apply at all times while operating in Modes 3 or 4.
19. If an exceedance of operating parameter limits occurs while feeding TDF, BWF, or non-hazardous pail in Modes 3 or 4, the operator shall take immediate steps to ramp down the alternate waste fuel feedrate. Burning of all non-hazardous alternative waste fuels shall be completely stopped within 10 minutes of the first recorded exceedance of any operating parameter limit. Feeding of alternate waste fuel shall not be resumed unless/until all operating parameters are within acceptable limits, as defined by Table L-4 of the Class I Operating Permit.

Burning of non-hazardous alternative waste fuels shall not impact the Automatic Waste Feed Cutoff (AWFCO) requirements for hazardous waste-derived fuel. As specified in Section 5.2 of the Class I Operating Permit, the feeding of hazardous waste-derived fuel shall be controlled by an AWFCO system, and shall be used to instantaneously and

automatically stop the flow of hazardous waste-derived fuel to the kiln in the event that any of the operating parameter limits in Table L-1 of the Class I Operating Permit are exceeded. During an AWFCO period, no hazardous waste-derived fuel may be used.

20. After successful demonstration of compliance while burning TDF, BWF, and/or non-hazardous waste fuel pails in Modes 3 and 4, Ash Grove may, upon approval by KDHE, begin burning TDF, BWF, and non-hazardous waste fuel pails in Modes 1 and 2.
21. The overall maximum combined production rate for all finish mill systems combined shall not exceed 2,100,000 tons in each consecutive 12 month period.
22. In accordance to 40 CFR 63.1340(c) as amended December 6, 2002 the primary and secondary crushers are not designated as affected sources. Therefore, the existing primary (211.CR1) and secondary crushers (211.CR2) are not subject to the Subpart LLL.
23. The primary (211.CR1) and secondary crushers (211.CR2) are subject to:
 - A. K.A.R. 28-19-20 Particulate matter emission limitation which limits the quantity of

particulate emissions from processing equipment in proportion to the rate at which materials are processed.

B. K.A.R. 28-19-650(a) Opacity of visible air emissions from the crushers shall not exceed 40 percent.

24. The flare, in the Air Emission Source Construction Approval dated July 11, 2001, does not satisfy the definition of an incinerator for K.A.R. 28-19-41(B). The flare is subject to K.A.R. 28-19-650(a)(3) opacity of visible air emissions from the flare shall not exceed 20 percent

Recordkeeping

1. Ash Grove shall keep and maintain records in accordance with the requirements of 40 CFR 60.7.
2. In accordance with 40 CFR 60.7(b), Ash Grove shall maintain records of any periods during which a COMS or CEMS required by this permit is inoperative.
3. Ash Grove shall maintain records of the COMS and CEMS data for the previous two years. The data shall be made available to the Department at reasonable times for inspection and copying as specified in the *General Provisions* section of this permit.
4. Ash Grove shall maintain records of computations of the monthly average emission rates and the 12-month rolling average emission rates for CO, SO₂, and NO_x for the previous two years.
5. Ash Grove shall maintain employee trainee records. Ash Grove shall maintain records of each trained employee's attendance of the GCP Training Program and the results of tests given to determine the employee's understanding of the GCP Training Program. These training records shall be made available to the Department for inspection and copying as specified in the *General Provisions* section of this permit.
6. For the purposes of recordkeeping and reporting, only exceedances that occur while hazardous waste remains in the combustion chamber shall be counted towards the excessive exceedance reporting requirements of 40 CFR 63.1206(c)(3)(vi).
7. The owner or operator is required to monitor and record the production rate of each finish mill system and the combined production total of all finish mill systems. Each record shall be updated monthly, no later than the last day of the month following the month to which the record relates. Each record shall be kept on-site for a minimum of five (5) years from the date of the record.

Notification

1. In accordance with 40 CFR 60.7(a)(1), Ash Grove shall notify the Department in writing of the specific date that construction or modification commences on each of the following new or modified emission units affected by this permit: the new in-line raw mill/kiln system, the new clinker cooler, the modified Finish Mills No. 1 and No. 3, and the new Finish Mill No. 4. Ash Grove shall notify the Department of the specific date that general construction commences on the project. Notification shall be postmarked no later than 30 days after such date.
2. In accordance with 40 CFR 60.7(a)(2), Ash Grove shall notify the Department in writing of the anticipated date of initial startup of each of the following new or modified emission units affected by this permit: the new in-line raw mill/kiln system, the new clinker cooler, the modified Finish Mills No. 1 and No. 3, and the new Finish Mill No. 4. The notice shall be postmarked not more than 60 days or less than 30 days prior to such date.
3. In accordance with 40 CFR 60.7(a)(3), Ash Grove shall notify the Department in writing of the actual date of initial startup of each of the following new or modified emission units affected by this permit: the new in-line raw mill/kiln system, the new clinker cooler, the modified Finish Mills No. 1 and No. 3, and the new Finish Mill No. 4. The notice shall be postmarked not more than 15 days after such date.
4. In accordance with 40 CFR 60.7(a)(4), Ash Grove shall notify the Department in writing of any physical or operational change that may increase the emission rate of any air pollutant to which an emission standard applies, unless that change is specifically exempted under 40 CFR 60.14(e). This notice shall be postmarked at least 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change.
5. In accordance with 40 CFR 60.7(a)(5), Ash Grove shall notify the Department in writing of the date upon which demonstration of the performance of a COMS or CEMS required by this permit commences in accordance with 40 CFR 60.13(c). Notification shall be postmarked not less than 30 days prior to such date.
6. In accordance with 40 CFR 60.7(a)(6), Ash Grove shall notify the Department in writing of the anticipated date for conducting the opacity observations required by 40 CFR 60.11(e)(1). If appropriate, the notification shall also include an invitation to the Department to provide a visible emissions observer during a COMS performance test. This notification shall be postmarked not less than 30 days prior to such date.
7. In accordance with 40 CFR 60.7(a)(7), Ash Grove shall notify the Department in writing that COMS results shall be used to determine compliance with the applicable opacity standard during a performance test required by 40 CFR 60.8 in lieu of Method 9 observation data. This notification shall be postmarked not less than 30 days prior to the date of the performance test.

8. Ash Grove shall submit a written excess emissions and monitoring systems performance report to the Department each calendar quarter. Written excess emissions and monitoring systems performance reports shall include the information required in 40 CFR 60.7(c) and (d) and shall be postmarked by the 30th day following the end of the calendar quarter. The report shall include the monthly average emission rates and 12-month rolling total emission rates of CO, SO₂, and NO_x for each month in the quarter. Ash Grove may propose a format for these reports that is different from the format contained in Figure 1 of 40 CFR 60. The reports are required for COMS on the main and cooler stacks and the CEMS for SO₂, NO_x, and CO on the main stack.

General Provisions

1. This document shall become void if construction or modification has not commenced within 18 months of the effective date, or if the construction or modification is interrupted for a period of 18 months or longer.
2. A construction permit or approval must be issued by KDHE prior to commencing any construction or modification of equipment or processes which result in an increase in potential-to-emit equal to or greater than the thresholds specified in K.A.R. 28-19-300. A construction permit and PSD review is also required prior to commencing any construction or modification of equipment or processes at the source, if there is a significant net emissions increase, or if the potential of the source to emit any pollutant is equal to or greater than the levels specified in 40 CFR part 52.21.
3. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow representatives of the KDHE (including authorized contractors of the KDHE) to:
 - a. enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under conditions of this document;
 - b. have access to and copy, at reasonable times, any records that must be kept under conditions of this document;
 - c. inspect at reasonable times, any facilities, equipment (including monitoring and control equipment) practices or operations regulated or required under this document; and
 - d. sample or monitor, at reasonable times, for the purposes of assuring compliance with this document or as otherwise authorized by the Secretary of the KDHE, any substances or parameters at any location.
4. Any condition(s), limitation(s), restriction(s), monitoring requirement(s), etc. in this permit, containing any reference(s) to 40 CFR Part 60, *New Source Performance Standards (NSPS)*, including to those in any appendix(es), shall, in and of themselves, define the applicability of the reference.
5. The emission unit or stationary source that is the subject of this document shall be operated

in compliance with all applicable requirements of the Kansas Air Quality Act and the federal Clean Air Act.

6. This document is subject to periodic review and amendment as deemed necessary to fulfill the intent and purpose of the Kansas Air Quality Statutes and Regulations and rules promulgated in accordance therewith.
7. This document does not relieve the permittee of the obligation to obtain other approvals, permits, licenses or documents of sanction which may be required by other federal, state or local government agencies.

Permit Engineer

John S. Ramsey
Engineering Associate
Air Construction/Operating Permits & Compliance Section

Date Signed

JSR:saw
c: SEDO
C-5855