

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
DIVISION OF AIR POLLUTION CONTROL

Summary Report Relative to Permit Application

Submitted By: Ash Grove Cement Company
Foreman (Little River County)

CSN: 410001

Permit No.: 75-AR-7

Date Issued: 11/13/91

Submittals: July 1, 1991

Summary

The Ash Grove Cement Company owns and operates a portland cement plant near Foreman. Historically, air permits for this facility have only listed the major emission points; however, Ash Grove was recently asked to submit an application which contained information on all sources regardless of size. This permit is being issued pursuant to that application.

Emissions will not be increased as a result of this permit nor will Ash Grove be allowed to modify their method of operation.

The raw materials used in the production of cement include chalk, sand, and iron ore. The chalk is received from a near-by quarry and stored in an A-frame structure. The sand and iron ore are stored in open piles. From the storage piles, the raw materials are transferred to bins in the "main building". Here, they are proportioned, mixed with water, and ground into a slurry.

The limestone slurry is then pumped to one of three rotary kilns. The slurry is fed into the upper end of the kiln and travels slowly to the lower end. As the material travels towards the flame it is dried, decarbonated, and calcined. Finally, at the lower end of the kiln, the material burns and fuses together to form clinker.

The clinker is cooled, then mixed with gypsum, and sometimes chalk, to form cement. The exact proportions depend on whether portland cement or masonry cement is being made. The mixture is ground to the desired fineness. After grinding, the cement is stored for later packaging and shipping.

Installation: N/A

Reviewed By: Mike Porta

Applicable Regulation: Air Code SIP

Operation: N/A

Approved By: James B. Jones Jr.

Specific Conditions

1. The permittee shall maintain and operate the KVB gas monitoring system as described in Attachment I to this permit.
2. The permittee shall continue to calibrate, maintain, and operate a continuous monitoring system, and record the output of the system, for measuring total hydrocarbon emissions to the atmosphere from each kiln capable of burning waste derived fuel (WDF). This data may be used for enforcement purposes and to determine compliance with this permit and with all applicable State and Federal regulations.
3. The feed of WDF to any kiln shall be stopped if the exhaust gases of that kiln have a hourly averaged total hydrocarbon (THC) concentration greater than 20 ppm as measured by a total hydrocarbon analyzer. The waste feed may not resume until the hourly average THC concentration is below 20 ppm.
4. When the total hydrocarbon analyzer is not in operation, the feed of WDF to any kiln shall be stopped if the exhaust gases of that kiln have:
 - a) a nitrogen oxides (NO_x) concentration less than 200 ppm as measured by the KVB gas monitoring system or
 - b) an hourly averaged carbon monoxide (CO) concentration greater than 100 ppm as measured by the KVB gas monitoring system.

In the case of NO_x, the waste feed may not resume until the exhaust gas concentration is above 200 ppm. In the case of CO, the waste feed may not resume until the hourly averaged concentration is below 100 ppm.

5. When required to demonstrate compliance with the emission limits specified in Table I, the permittee shall use the following test methods:

Pollutant	Test Method
Particulate	EPA reference method 5
Sulfur Dioxide	EPA reference method 6
Hydrogen Chloride	Ion Chromatography
Metals	Multiple Metals Train
Opacity	EPA reference method 9

The permittee may substitute an equivalent test method provided it is approved by the Director before it is used.

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6. The waste derived fuel shall meet the specifications listed in Table II and Table IIa on an as received basis. Each parameter for which a specification is listed shall be measured in accordance with the conditions below.
7. The permittee shall sample at least one load of liquid WDF per day. This data will be evaluated to determine if the fuel shipments are meeting required specifications and to determine if the fuel vendor's sample analysis is accurate. The permittee shall use the test methods specified in Attachment III when conducting the sampling required by this condition unless, prior to use, an equivalent test method has been approved by the Director.
8. The solid WDF shall be sampled in accordance with Attachment II. The permittee shall use the test methods specified in Attachment III when conducting the sampling required by this condition unless, prior to use, an equivalent test method has been approved by the Director. The sample is to be analyzed for Btu, chlorides, and ash content before any solid WDF from the load in question is introduced into the kiln. In addition, a composite of each shipment shall be made and analyzed weekly for all parameters listed in Table IIa except for those parameters already tested (Btu, chlorides, and ash).
9. In addition to WDF and coal, the permittee may also burn oil, natural gas, and/or carbon black.
10. The permittee shall burn no more than one container of solid WDF per kiln revolution. The total weight of each container shall be no more than 80 pounds.
11. The permittee shall comply with the emission limits specified in Table I. If an emission limit is specified with more than one set of units, all apply.
12. Unless otherwise specified, visible emissions from any source at this facility shall not exceed 20% opacity as measured by USEPA Method 9.

TABLE Ia

Allowable Emission Rates--Particulate Sources				
Source #	Description	Opacity Limit %	TSP/PM ₁₀ Limit	
			lb/hr	TPY
SN-1	Kiln #1	20%	19.5	85.41
SN-2	Kiln #2	20%	19.5	85.41
SN-3	Kiln #3	20&	27.0	118.26
SN-4	Chalk Pile	20%	1.38	6.04
SN-5	Discharge of Gypsum Belt	20%	0.112	0.49
SN-6	Gypsum Pile	10%	0.05	0.22
SN-7	Clinker Cooler Dust Collector	20%	25.0	109.50
SN-10	Sand-Iron Ore Storage Pile	10%	0.001	0.00
SN-11	Sand Storage Pile	10%	0.02	0.09
SN-12	Iron Ore Storage Pile	10%	0.001	0.00
SN-13	Truck Dumping into Gypsum Hooper	10%	0.03	0.13
SN-14	Discharge of Gypsum Feeder	10%	0.01	0.04
SN-15	Discharge of Sand-Iron Ore Feeder	10%	0.04	0.18
SN-16	#2 Finish Mill Dust Collector	10%	1.71	7.49
SN-17	#2 Finish Mill Discharge Dust Collector	10%	1.13	4.95
SN-18	#4 Finish Mill Dust Collector	10%	2.13	9.33
SN-19	#4 Finish Mill Discharge Dust Collector	10%	2.65	11.61
SN-20	Dryer Scrubber	10%	1.43	6.26
SN-21	Long Term Coal Pile	20%	0.77	3.37
SN-22	Coke Pile	20%	0.83	3.64
SN-23	Coal Dump Hoppers (2)	20%	0.52	2.28
SN-24	Coal Hoppers Feeders	20%	0.52	2.28
SN-25	Coal Stacker Belt	20%	0.52	2.28
SN-26	Kaiser Silo Dust Collector	10%	0.94	4.12

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Allowable Emission Rates--Particulate Sources				
Source #	Description	Opacity Limit %	TSP/PM ₁₀ Limit	
			lb/hr	TPY
SN-27	Oil Well Dust Collector	10%	0.31	1.36
SN-28	Delta Silo Dust Collector	10%	0.69	3.02
SN-29	Rail Silo Dust Collector	10%	1.37	6.00
SN-30	Type III Dust Collector	10%	0.31	1.36
SN-31	Masonry Cement Dust Collector	10%	0.31	1.36
SN-32	Rail Loadout Dust Collector	10%	0.86	3.77
SN-33	Portland Packer Dust Collector	10%	0.94	4.12
SN-34	Masonry Packer Dust Collector	10%	0.94	4.12
SN-35	Truck Loadout Dust Collector	10%	0.88	3.85
SN-36	Active Coal Pile	20%	0.88	3.85
SN-37	Type III Loadout Bin Dust Collector	10%	0.51	2.23
SN-38	Type II Loadout Bin Dust Collector	10%	0.77	3.37
SN-39	Carbon Black Dust Collector	10%	0.09	0.39
SN-40	#1 CKD Bin Dust Collector	10%	0.28	1.23
SN-41	#2 CKD Bin Dust Collector	10%	0.28	1.23
SN-42	Clinker Transfer Point Dust Collector	10%	0.77	3.37
SN-43	Clinker Transfer Point Dust Collector	10%	0.77	3.37
SN-44	Clinker Transfer Point Dust Collector	10%	0.77	3.37
SN-45	Clinker Transfer Point Dust Collector	10%	0.31	1.36
SN-46	Clinker Transfer Point Dust Collector	10%	0.31	1.36
SN-47	Clinker Transfer Point Dust Collector	10%	0.31	1.36
SN-48	Clinker Transfer Point Dust Collector	10%	0.31	1.36
SN-49	Clinker Transfer Point Dust Collector	10%	0.51	2.23
SN-50	Clinker Transfer Point Dust Collector	10%	0.17	0.74
SN-51	Clinker Transfer Point Dust Collector	10%	0.17	0.74

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Allowable Emission Rates--Particulate Sources				
Source #	Description	Opacity Limit %	TSP/PM ₁₀ Limit	
			lb/hr	TPY
SN-52	Clinker Transfer Point Dust Collector	10%	0.17	0.74
SN-53	Clinker Transfer Point Dust Collector	10%	0.17	0.74
SN-54	Clinker Transfer Point Dust Collector	10%	0.17	0.74
SN-55	Clinker Transfer Point Dust Collector	10%	0.17	0.74
SN-56	#1 Clinker Silo Dust Collector	10%	0.77	3.37
SN-57	#2 Clinker Silo Dust Collector	10%	0.31	1.36
SN-58	Blister Bin Dust Collector	10%	0.41	1.80
SN-59	Outside Clinder Belt Discharge	20%	1.0	4.38
SN-60	Clinker Transfer Tower Dust Collector	20%	3.42	14.98
SN-61	Secondary Crusher Discharge	10%	0.05	0.22
	Total		126.2540	552.99

TABLE Ib

Allowable Emission Rates Non-Particulate and Multiple Pollutant Sources				
Source	Pollutant	Emission Limit		
		lb/hr	alt. units	tpy
SN-1 Kiln #1	TSP	*	0.3 lb/ton of dry feed	*
	SO ₂	450.	----	1,971.0
	HCl	46.8	0.18 lb/mm Btu	205.0
	Pb	0.06	----	0.263
	Cr	0.086	----	0.38

Allowable Emission Rates Non-Particulate and Multiple Pollutant Sources				
Source	Pollutant	Emission Limit		
		lb/hr	alt. units	tpy
SN-2 Kiln #2	TSP	*	0.3 lb/ton of dry feed	*
	SO ₂	450.0	---	1,971.0
	HCl	46.8	0.18 lb/mm Btu	205.0
	Pb	0.06	---	0.263
	Cr	0.086	---	0.38
SN-3 Kiln #3	TSP	*	0.3 lb/ton of dry feed	*
	SO ₂	674.0	---	2,952.1
	HCl	71.0	0.18 lb/MM Btu	311.0
	Pb	0.10	---	0.438
	Cr	0.144	---	0.631
SN-8 #2 HWDF Storage Tank	VOC	0.066	---	0.289
SN-9 #1 HWDF Storage Tank	VOC	0.066	---	0.289

*See Table Ia for particulate limits

Table Ic

Emission Rate Summary	
Pollutant	Total Emissions tpy
TSP	553
SO ₂	6,894.1
HCl	721
Pb	0.964
Cr	1.39

TABLE II

Liquid Waste Derived Fuel Specifications	
Parameter	Specifications
Heat of Combustion	Range: 6,000-20,000 Btu/lb Average: 11,700 Btu/lb
Ash Content	10% (by weight) or less
Sulphur Content	1% (by weight) or less
Moisture Content	No Visible Standing Water
Heavy Metals ¹	Less than 0.3% (by weight)
Chlorine Content	Less than 3.5% (by weight) as burned Less than 10% (by weight) as received
Flash Point	Less than 140°F
Pesticides or Pesticide By-Products	Less than 50 ppm pesticides or pesticide by-products

TABLE III

Solid Waste Derived Fuel Specifications	
Parameter	Specifications
Heat of Combustion	Greater than 6,000 Btu/lb
Ash Content	40% (by weight) or less
Sulphur Content	1% (by weight) or less
Moisture Content	No Visible Standing Water
Heavy Metals ¹	Less than 0.72% (by weight)
Chlorine Content	Less than 8% (by weight) as burned
Pesticides or Pesticide By-Products	Less than 50 ppm pesticides or pesticide by-products

¹ "Heavy Metals" means arsenic, silver, cadmium, lead, chromium, selenium, and mercury.