

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0045-AOP-R3 AFIN: 32-00014

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
8001 National Drive
Little Rock, Arkansas 72219-8913

2. APPLICANT:

Arkansas Lime Company
600 Limedale Road
Batesville, Arkansas 72503

3. PERMIT WRITER:

Michael H. Watt

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Limestone Quarry and Lime Manufacturing
NAICS Code: 212312 and 32741

5. SUBMITTALS:

8/2/04, 3/7/05, 3/23/05, and 5/4/05

6. REVIEWER'S NOTES:

Arkansas Lime Company owns and operates a limestone quarry and lime manufacturing plant near Batesville, in Independence County, Arkansas. The Batesville plant currently includes two identical preheater rotary lime kilns. This Prevention of Significant Deterioration (PSD) permit modification will allow for construction and operation of a third Preheater Rotary Lime Kiln (Kiln 3). This is also the Title V Renewal for this facility and also includes Compliance Assurance Monitoring (CAM) and Lime MACT requirements.

Kiln 3 will have a maximum daily lime production capacity of 687 tons per day. It will be fueled with a combination of coal, coke, and/or natural gas. Existing stone and lime product processing equipment will provide sufficient material handling for Kiln 3.

In addition to the kiln expansion, other changes will be made in this permit. They include but are not limited to:

1. Establishing new %O₂ ranges used to demonstrate compliance with the NO_x and CO limits for each kiln,
2. Numerous updates to the Insignificant Activities List,
3. Changes in the averaging period for production limits,
4. Changes in the monitoring requirements for NO_x emissions,
5. Installation of a new Modified PLS Products Loading Station (SN-36P),
6. Quantifying emissions of HCl from the kilns, and
7. Increasing SO₂ capture efficiency in the kilns from 92% to 95%.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

There are no enforcement actions pending at this time.

8. APPLICABLE REGULATIONS:

PSD Applicability

Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)?	Y
Has the facility undergone PSD review in the past?	Y
Is the facility categorized as a major source for PSD?	Y
≥ 100 tpy and on the list of 28?	Y
≥ 250 tpy all other?	Y

PSD Netting

Was netting performed to avoid PSD review in this permit?	N
---	---

Source and Pollutant Specific Regulatory Applicability

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
01Q, 02Q, 03Q, 07Q, 09Q, 10Q, 27Q, 31Q, 35Q, 36Q, 01P, 19P, 30P, 33P, 34P, and 36P	PM and PM ₁₀	40 CFR 60, Subpart OOO New Source Performance Standards for Non Metallic Mineral Processing Plants
11Q, 24Q, and 30Q	PM and PM ₁₀	40 CFR 60, Subpart HH New Source Performance Standards for Lime Manufacturing Plants
21Q, 28Q, and Coal systems	PM and PM ₁₀	40 CFR 60, Subpart Y New Source Performance Standards for Coal Preparation Plants
07Q, 11Q, 24Q, 27Q, 30Q, and 35Q	PM and PM ₁₀	40 CFR 63, Subpart AAAAA National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants
11Q, 24Q, 25Q, 26Q, 27Q, 28Q, 30Q through 39Q	PM, PM ₁₀ , SO ₂ , CO, NO _x	40 CFR 52 Prevention of Significant Deterioration
11Q, 13Q, 15Q, 24Q, 25Q, 32Q, 12P, 18P, and 19P	PM and PM ₁₀	40 CFR 64 Compliance Assurance Monitoring

9. EMISSION CHANGES:

The following table summarizes plantwide emission changes associated with this permitting action.

Plantwide Permitted Emissions (tpy)			
Pollutant	Permit #0045-AOP-R2	Permit #0045-AOP-R3	Change
PM	255.9	222.37	-33.53
PM ₁₀	163.0	172.7	+9.7
SO ₂	453.9	425.1	-28.8
VOC	28.7	43.0	+14.3
CO	687.9	1,030.3	+342.4
NO _x	802.8	1,202.1	+399.3
HCl	0	105.12	+105.12

10. MODELING:

Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
PM10	56.6	50	Annual	2.24	4.48%
		150	24-Hour	21.2	14.13%
SO ₂	215.4	80	Annual	2.29	2.86%
		1300	3-Hour	53.4	4.01%
		365	24-Hour	13.3	3.64%
CO	258.7	10,000	8-Hour	269.0	2.69%
		40,000	1-Hour	269.0	0.67%
NO _x	301.6	100	Annual	2.91	2.91%

Non-Criteria Pollutants:

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = $0.11 \times \text{TLV}$	Proposed lb/hr	Pass?
HCl	2.98	0.32	32.0	N

2nd Tier Screening (PAIL)

ISCST3 air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
HCl	3.2	0.0023	YES

11. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01Q	AP-42, Section 11.19.2	0.00124 lb PM/ton 0.00059 lb PM ₁₀ /ton	None	n/a	
02Q	AP-42, Section 11.19.2	0.00124 lb PM/ton 0.00059 lb PM ₁₀ /ton	None	n/a	
03Q	AP-42, Section 11.19.2	0.00176 lb PM/ton 0.00084 lb PM ₁₀ /ton	None	n/a	
04Q	EPA's Control of Open Fugitive Dust Sources	See document	None	n/a	
05Q	AP-42, Section 11.19.2-2	0.00021 lb PM/ton 0.00010 lb PM ₁₀ /ton	None	n/a	
06Q	AP-42, Section 12.2.1 and 12.2.2	Factor based on usage	None	n/a	
07Q	AP-42, Section 11.19.2-2	Numerous Factors	None	n/a	
09Q	AP-42, Section 11.19.2	0.00176 lb PM/ton 0.00084 lb PM ₁₀ /ton	None	n/a	
10Q	AP-42, Section 11.19.2	0.00176 lb PM/ton 0.00084 lb PM ₁₀ /ton	None	n/a	
11Q	PM MACT PM ₁₀ MACT SO ₂ Mass balance VOC AP-42 CO BACT levels NO _x BACT levels	0.12 lb/tsf 0.12 lb/tsf 3% by weight 0.6 lb/ton 3.0 lb/ton produced 3.5 lb/ton produced	Dust Coll. Dry Scrub	99% PM 92% SO ₂	
12aQ	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
12bQ	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
13Q	Grain Loading	0.010 gr/dscf	Dust Coll.	99% PM	
14Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
15Q	AP-42, Section 11.19.2	0.00061 lb PM/ton 0.00043 lb PM ₁₀ /ton	Dust Coll.	99% PM	
16Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
17Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
18Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
19Q	FIRE 6.23	0.0030 lb PM/ton 0.0009 lb PM ₁₀ /ton	None	n/a	
20a/bQ	AP-42, Section 11.19.2	0.14910 lb PM/ton 0.07100 lb PM ₁₀ /ton	None	n/a	
21Q	AP-42, Section 11.19.2-2	0.00294 lb PM/ton 0.00140 lb PM ₁₀ /ton	None	n/a	
22Q	AP-42, Section 11.19.2-2	0.0021 lb PM/ton 0.0001 lb PM ₁₀ /ton	None	n/a	
24Q	PM MACT PM ₁₀ MACT SO ₂ Mass balance VOC AP-42 CO BACT levels NO _x BACT levels	0.10 lb/tsf 0.10 lb/tsf 3% by weight 0.6 lb/ton 3.0 lb/ton produced 3.5 lb/ton produced	Dust Coll. Dry Scrub	99% PM 92% SO ₂	
25Q	Grain Loading	0.010 gr/dscf	Dust Coll.	99% PM	
26Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
27Q	AP-42, Section 11.19.2-2	0.000402 lb PM/ton 0.00019 lb PM ₁₀ /ton	None	n/a	
28Q	AP-42, Section 11.19.2-2	0.00118 lb PM/ton 0.00557 lb PM ₁₀ /ton	None	n/a	
29Q	AP-42, Section 12.2.1 and 12.2.2	Factor based on usage	None	n/a	
30Q	PM MACT PM ₁₀ MACT SO ₂ Mass balance VOC AP-42 CO BACT levels NO _x BACT levels	0.10 lb/tsf 0.10 lb/tsf 3% by weight 0.6 lb/ton 3.0 lb/ton produced 3.5 lb/ton produced	Dust Coll. Dry Scrub	99% PM 92% SO ₂	
31Q	AP-42, Section 11.19.2-2	0.00268 lb PM/ton 0.00127 lb PM ₁₀ /ton	None	n/a	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
32Q	Grain Loading	0.010 gr/dscf	Dust Coll.	99% PM	
33Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
34Q	AP-42, Section 11.19.2-2	0.000441 lb PM/ton 0.00021 lb PM ₁₀ /ton	None	n/a	
35Q	AP-42, Section 11.19.2-2	0.000402 lb PM/ton 0.00019 lb PM ₁₀ /ton	None	n/a	
36Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
37Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
38Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
39Q	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
40Q	AP-42, Section 11.19.2-2	0.0159 lb PM/ton 0.00754 lb PM ₁₀ /ton	None	n/a	
41Q	AP-42, Section 11.19.2-2	0.0159 lb PM/ton 0.00754 lb PM ₁₀ /ton	None	n/a	
01P	AP-42, Section 11.19.2-2	0.0915 lb PM/ton 0.0915 lb PM ₁₀ /ton	None	n/a	
12P	Grain Loading and Natural Gas factors	0.020 gr/dscf	Dust Coll.	99% PM	
13P	Grain Loading	0.020 gr/dscf	Dust Coll.	99% PM	
14P	AP-42, Section 11.19.2-2	0.0915 lb PM/ton 0.0915 lb PM ₁₀ /ton	None	n/a	
15P	AP-42, Section 11.19.2-2	0.0915 lb PM/ton 0.0915 lb PM ₁₀ /ton	Dust Coll.	99% PM	
16P	Grain Loading	0.015 gr/dscf	None	n/a	
18P	Grain Loading and Natural Gas factors	0.020 gr/dscf	Dust Coll.	99% PM	
19P	Grain Loading and Natural Gas factors	0.020 gr/dscf	Dust Coll.	99% PM	
20P	AP-42, Section 11.19.2-2	0.0915 lb PM/ton 0.0915 lb PM ₁₀ /ton	None	n/a	
24P	AP-42, Section 11.19.2-2	0.0915 lb PM/ton 0.0915 lb PM ₁₀ /ton	None	n/a	
26P	AP-42, Section 12.2.1 and 12.2.2	Factor based on usage	None	n/a	
29P	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
30P	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
33P	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
34P	Grain Loading	0.015 gr/dscf	Dust Coll.	99% PM	
35P	AP-42, Section 11.19.2-2	0.0338 lb PM/ton 0.0338 lb PM ₁₀ /ton	None	n/a	
36P	AP-42, Section 11.19.2-2	0.0159 lb PM/ton 0.00754 lb PM ₁₀ /ton	None	n/a	

12. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
11Q	PM VOC CO	5 and 202 25A 10	Annually Every 5 Years Annually	Dept. Guidance
24Q	PM NO _x VOC CO	5 and 202 7E 25A 10	Annually Annually Every 5 Years Annually	PSD
30Q	PM NO _x VOC CO	5 and 202 7E 25A 10	Annually Annually Every 5 Years Annually	PSD

13. MONITORING OR CEMS

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
11Q	Opacity	COM	Continuous	N
11Q	%O ₂	CEM	Continuous	N
24Q	Opacity	COM	Continuous	N
24Q	%O ₂	CEM	Continuous	N
30Q	Opacity	COM	Continuous	N

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
30Q	%O ₂	CEM	Continuous	N

14. RECORD KEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01Q	Tons of Limestone	1,700,000 per 12 month period	Monthly	N
02Q	Tons of Limestone	1,640,000 per 12 month period	Monthly	N
03Q	Tons of Limestone	3,362,000 per 12 month period	Monthly	N
05Q	Number of Railcars	19,700 per 12 month period	Monthly	N
07Q	Tons of Limestone	23,448,000 per 12 month period	Monthly	N
09Q	Tons of Limestone	822,000 per 12 month period	Monthly	N
10Q	Tons of Limestone	900,000 per 12 month period	Monthly	N
11Q	Tons of Coal/Coke	47,254 per 12 month period	Daily	N
11Q	Tons of Lime	687.0 per day	Daily	Y
11Q	Ash Mineral Content	None Listed	Each New Mine	N
11Q	Particulate Emission Rate before 1/5/07	0.60 lb/ton of Stone Fed	Each Run	N
11Q	Particulate Emission Rate after 1/5/07	0.12 lb/ton of Stone Fed	Each Run	N
11Q	Sulfur Content of Fuel	4% by weight daily 3% by weight 30 day average	Daily	N
11Q	NO _x emissions	3.5 lb/ton of Lime	Continuous %O ₂	N
12Q	Hours of Operations	1,460 per 12 month period	Monthly	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
17Q	Tons of Lime	456,250 per 12 month period	Monthly	N
19Q	Tons of Coal/Coke	94,502 per 12 month period	Monthly	N
22Q	Tons of Limestone	100,000 per 12 month period	Monthly	N
24Q	Tons of Coal/Coke	47,254 per 12 month period	Daily	N
24Q	Tons of Limestone	687.0 per day	Daily	Y Annual total
24Q	Ash Mineral Content	None Listed	Each New Mine	N
24Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
24Q	Particulate Emission Rate	0.10 lb/ton of Stone Fed	Each Run	N
24Q	Sulfur Content of Fuel	4% by weight daily 3% by weight 30 day average	Daily	N
24Q	NO _x emissions	3.5 lb/ton of Lime	Continuous %O ₂	N
25Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
27Q	Tons of Limestone	450,000 per 12 month period	Monthly	N
27Q	Particulate Emission Rate	0.05 gr/dscf	Annual	N
28Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
30Q	Tons of Coal/Coke	47,254 per 12 month period	Daily	N
30Q	Tons of Limestone	687.0 per day	Daily	Y Annual total
30Q	Ash Mineral Content	None Listed	Each New Mine	N
30Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
30Q	Particulate Emission Rate	0.10 lb/ton of Stone Fed	Each Run	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
30Q	Sulfur Content of Fuel	4% by weight daily 3% by weight 30 day average	Daily	N
30Q	NO _x Emissions	3.5 lb/ton of Lime	Continuous %O ₂	N
30Q	CO Emissions	3.0 lb/ton of Lime	Continuous %O ₂	N
31Q	Tons of Limestone	1,100,000 per 12 month period	Monthly	N
31Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
32Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
33Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
34Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
35Q	Tons of Limestone	450,000 per 12 month period	Monthly	N
35Q	Particulate Emission Rate	0.05 gr/dscf	Annual	N
36Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
37Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
38Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
39Q	Particulate Emission Rate	0.015 gr/dscf	Annual	N
01P	Tons of Limestone	432,000 per 12 month period	Monthly	N
14P	Tons of Bagged Hydrated Lime	70,080 per 12 month period	Monthly	N
15P	Tons of Lime	350,400 per 12 month period	Monthly	N
20P	Tons of Pulverized Limestone	262,800 per 12 month period	Monthly	N
24P	Tons of Pulverized Limestone	35,040 per 12 month period	Monthly	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
35P	Particulate Emission Rate	0.05 gr/dscf	Annual	N

15. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01Q	15%	NSPS OOO	Weekly Observations
02Q	15%	NSPS OOO	Weekly Observations
03Q	10%	NSPS OOO	Weekly Observations
04Q	20%	Dept. Guidance	Daily Observations
05Q	20%	Dept. Guidance	Daily Observations
07Q	10%	NSPS OOO MACT AAAAA	Weekly Observations
09Q	10%	NSPS OOO	Weekly Observations
10Q	10%	NSPS OOO	Weekly Observations
11Q	15%	NSPS HH MACT AAAAA	COM
12a&bQ	5%	Dept. Guidance	Weekly Observations
13Q	5%	CAM	Daily Observations
14Q	5%	Dept. Guidance	Weekly Observations
15Q	5%	CAM	Daily Observations
16Q	5%	Dept. Guidance	Weekly Observations
17Q	5%	Dept. Guidance	Weekly Observations
18Q	5%	Dept. Guidance	Weekly Observations
19Q	20%	Dept. Guidance	Daily Observations
20Q	20%	Dept. Guidance	Daily Observations
21Q	20%	Dept. Guidance	Daily Observations
22Q	20%	Dept. Guidance	Daily Observations
24Q	15%	NSPS HH MACT AAAAA	COM
25Q	5%	CAM	Weekly Observations

SN	Opacity	Justification for limit	Compliance Mechanism
26Q	5%	Dept. Guidance	Weekly Observations
27Q	10%	MACT AAAAA	Weekly Observations
28Q	20%	Dept. Guidance	Daily Observations
30Q	15%	NSPSHH MACT AAAAA	COM
31Q	20%	NSPS OOO	Daily
32Q	5%	CAM	Daily Observations
33Q	5%	Dept. Guidance	Weekly Observations
34Q	20%	Dept. Guidance	Daily Observations
35Q	10%	MACT AAAAA	Weekly
36Q	5%	Dept. Guidance	Weekly Observations
37Q	5%	Dept. Guidance	Weekly Observations
38Q	5%	Dept. Guidance	Weekly Observations
39Q	5%	Dept. Guidance	Weekly Observations
01P	10%	NSPS OOO	Weekly
12P	5%	CAM	Daily
13P	5%	Dept. Guidance	Weekly Observations
14P	5%	Dept. Guidance	Weekly Observations
15P	5%	Dept. Guidance	Weekly Observations
16P	5%	Dept. Guidance	Weekly Observations
18P	5%	CAM	Daily
19P	5%	CAM	Daily
20P	20%	Dept. Guidance	Daily Observations
24P	5%	Dept. Guidance	Weekly Observations
29P	5%	Dept. Guidance	Weekly Observations
30P	7%	NSPS OOO	Weekly Observations
33P	10%	NSPS OOO	Weekly Observations
34P	10%	NSPS OOO	Weekly Observations

SN	Opacity	Justification for limit	Compliance Mechanism
35P	20%	Dept. Guidance	Daily Observations
36P	10%	NSPS OOO	Weekly Observations

16. DELETED CONDITIONS:

Former SC	Justification for removal
10, 11, 22, 23, 37, 38, 217, and 218	Startup Conditions met and no longer needed.
55	Closed CAO
76 – 80	CAM is superceded by MACT
139 - 143	CAM is superceded by MACT
169	Lime Plant Limestone Conveyors and Transfer Points were removed
170 – 173	Vertical Kiln Stone Stockpiles (SN-02P) was removed
174-181	Vertical Kilns (SN-03P through SN-08P) were removed
191	Crusher will remain permitted
204	Loadouts (SN-22P and SN-23P) were removed
207 and 208	Haul roads were paved as required
213 through 218	NSPS Initial testing was performed as required
222-235	Undersize Stone Conveyors and Drop Points and Kiln Feed/Undersize Stone Screen (SN-42P and SN-43P) were removed

17. VOIDED, SUPERCEDED, OR SUBSUMED PERMITS:

List all active permits voided/superceded/subsumed by the issuance of this permit.

Permit #
0045-AOP-R2

Permit #: 0045-AOP-R3

AFIN: 32-00014

Page 15 of 15

18. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

Phillip Murphy, P.E.