



STATEMENT OF BASIS

Cheney Lime & Cement Company – Landmark Plant
Alabaster, Alabama
Shelby County
Facility No. 411-0019

This proposed Title V Major Source Operating Permit (MSOP) renewal is issued under the provisions of ADEM Admin. Code R. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans, and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

Cheney Lime and Cement Company (hereinafter, "Cheney") operates an existing limestone quarrying and lime manufacturing facility located in Alabaster, Shelby County, Alabama. This plant is known as the Landmark Plant. Contrary to the company name, the Landmark Plant does not produce cement.

The facility is a major source of Particulate Matter (PM), Sulfur Dioxide (SO₂), Nitrogen Oxides (NO_x), and Carbon Monoxide (CO) emissions. Additionally, Cheney is a synthetic minor source of Hazardous Air Pollutants (HAP) and a true minor source of Volatile Organic Compound (VOC) emissions.

The existing MSOP was issued on August 30, 2011, with an expiration date of August 29, 2016. Per ADEM Rule 335-3-16-.12(2), an application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of the permit. Based on this rule, application for renewal was due to the Department no later than February 29, 2016, but no earlier than January 19, 2015. The renewal application was submitted to the Department on February 29, 2016. The proposed renewal MSOP will expire on **DATE TBD**.

RENEWAL NOTES

The following events, which have occurred since the last renewal permit was issued on August 30, 2011, have been incorporated:

December 28, 2011: The Department received an application for proposed improvements to the existing hydrator plant. Calculated emissions from the proposed project were considered to be insignificant. A letter of non-applicability was issued by the Department on January 12, 2012.

January 25, 2013: The Department received an application for proposed modifications to the existing Kiln 2 baghouse. A letter of non-applicability was issued by the Department on February 25, 2013.

October 24, 2013: The Department received an application for the proposed installation of a grinding reject transfer, storage, and load-out system with baghouse. Air Permit 411-0019-X014 was issued for the proposed process by the Department on October 24, 2013.

October 22, 2015: The Department received an application for proposed improvements to the existing hydrator plant. Calculated emissions from the proposed project were considered to be insignificant. A letter of non-applicability was issued by the Department on November 3, 2015.

No. 1 Lime Kiln with Baghouse

Lime Kiln No. 1 is an existing horizontal rotary calcining kiln. The kiln is approximately 220 feet long by 9 feet in diameter. This kiln was manufactured in 1969, installed in 1970, and modified in 1995. According to permit application forms, the maximum rated throughput capacity of this kiln is approximately 63,400 pounds of limestone per hour and 11,840 pounds of coal/coke per hour.

Processed limestone is fed to the kiln from the stone plant. Calcination of limestone occurs in the kiln as a result of heat produced by the combustion of pulverized coal and coke. The resulting product, known as *quicklime*, is air cooled and conveyed into Lime System No. 1.

Kiln exhaust gases are routed through an “*M-tube*” cooler/heat exchanger prior to entering a baghouse. Emissions from this source are monitored via a Continuous Opacity Monitoring System (COMS).

This process is comprised of the following sources:

Emission Point	Source Description	Control
001	No. 1 Lime Kiln with Baghouse	Baghouse

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

- 335-3-4:** Control of Particulate Emissions
- 335-3-5:** Control of Sulfur Compound Emissions
- 335-3-16:** Major Source Operating Permits

335-3-4-.01: “Visible Emissions”

ADEM Admin Code r. 335-4-.01(3-5), states no person shall discharge particulate emissions of an opacity greater than twenty (20%) percent opacity, as determined by a six (6) minute average, except that during each calendar quarter, the permittee may discharge into the atmosphere from the stack particulate with an opacity exceeding 20% for not more than 24 60-minute period of any calendar day, if such periods do not exceed 2.0% of the source calendar quarter operating hours for which opacity standard is applicable and for which the COMS is indicating valid data.

The permittee shall not discharge into the atmosphere from the baghouse exhaust particulate emissions of an opacity greater than 22% averaged over each calendar day (ADEM Admin Code r. 335-4-.01(3-5)).

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.03: "Fuel Burning Equipment"

According to ADEM Administrative Code r. 335-3-1-.02(1)(ee), *fuel burning equipment* is defined as any equipment, device, or contrivance and all appurtenances thereto, including ducts, breechings, fuel-feeding equipment, ash removal equipment, combustion controls, stacks, and chimney, used primarily, but not exclusively, to burn any fuel for the purpose of indirect heating in which the material being heated is not contacted by and adds no substance to the products of combustion.

The kiln does not meet the definition of *fuel burning equipment* as this source would be considered a direct fired unit. Therefore, the PM emissions limits outlined in ADEM Admin. r. Code 335-3-4-.03 do not apply.

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

The No. 1 Lime Kiln shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "*Process Weight Equation*".

335-3-5-.01: "Fuel Combustion"

According to ADEM Administrative Code r. 335-3-1-.02(1)(ee), *fuel burning equipment* is defined as any equipment, device, or contrivance and all appurtenances thereto, including ducts, breechings, fuel-feeding equipment, ash removal equipment, combustion controls, stacks, and chimney, used primarily, but not exclusively, to burn any fuel for the purpose of indirect heating in which the material being heated is not contacted by and adds no substance to the products of combustion.

The kiln does not meet the definition of *fuel burning equipment* as this source would be considered a direct fired unit. Therefore, the PM emissions limits outlined in ADEM Admin. r. Code 335-3-4-.03 do not apply.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, "*Major Source Operating Permits*".

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), "the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart".

Lime Kiln No. 1 was constructed prior to 1977 and has not undergone modification as defined by this subpart since prior to 1977. Therefore, the No. 1 lime kiln is not subject to this subpart.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

Lime kilns are not considered affected sources under this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

On July 25, 2005, the Department received a letter requesting hazardous air pollutant (HAP) emissions limitations from each kiln located at the Cheney facility. The purpose of the requests was to allow the facility to be classified as an area source with respect to 40 CFR 63 Subpart AAAAA. Additional information was received on December 22, 2005. [See ADEM Engineering Analysis dated January 3, 2006].

Subsequently, on January 31, 2006, the Department issued Air Permit No. 411-0019-X001 which included federally enforceable HAP emissions limits. In the Title V renewal application received by ADEM on March 1, 2016, Cheney requested to adjust the HCl MACT avoidance limits for Kiln 1 and 2 to more correctly reflect to actual HCl emissions rate (with a 2xs safety factor) from each Kiln based on a stack test performed in November of 2004. These limits are as follows:

Pollutant	Emissions Limit
HCl	0.078 lb/ton lime produced
HAP _{single}	9.9 TPY ^a
HAP _{total}	24.5 TPY ^b

^a Any single HAP. Combined with Kiln No. 2.

^b Any combination of HAP. Combined with Kiln No. 2.

Since Kiln No. 1 is currently subject to federally enforceable Anti-MACT HAP emissions limits, it is not subject to Subpart AAAAA.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the Lime Kiln for particulate matter, since the kiln has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the kiln. All other pollutants from the kiln are not emitted in quantities greater than the major source threshold, nor is the kiln meeting a limit via a control device for any other pollutant. Therefore, CAM does not apply to any other pollutant for the Lime Kiln.

During the first MSOP renewal (*issued January 4, 2007*), the facility established a CAM plan for this source. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: opacity, baghouse inspections, and particulate matter emissions tests.

The opacity of emissions exiting the baghouse is measured continuously via a Continuous Opacity Monitoring System (COMS). The COMS is required to be calibrated and maintained in accordance with manufacturer specifications and 40 CFR 60.13 and Performance Specification No. 1 (PS-1) of 40 CFR 60, Appendix B.

Baghouse and bag conditions are observed through quarterly maintenance inspections. These inspections may include, but may not be limited to the following: bag wear, auger load, doors seals, exterior condition, etc.

A particulate matter (PM) emissions test, performed in accordance with Method 5 of 40 CFR 60, Appendix A must be performed on an annual basis. Consecutive tests shall not be conducted less than 6 months or more than 18 months apart.

The CAM plan for this source is included in **Appendix A**.

Emissions

Pollutant	Allowable Emissions		Expected Emissions	
	(lb/hr)	(TPY)	(lb/hr)	(TPY)
PM	30.1 ⁴	135.3	3.84 ¹	6.6
PM ₁₀	N/A	N/A	2.11 ²	3.63
PM _{2.5}	N/A	N/A	1.04 ²	1.78
SO ₂	N/A	N/A	30.2 ²	72.1
NO _x	N/A	N/A	55 ³	119
CO	N/A	N/A	26.6 ²	63.6
VOC	N/A	N/A	0.36 ²	0.91
HCl	0.078 lb/ton ⁵	9.9 ⁶	0.039 lb/ton ¹	3.03

¹ Based on stack test data

² Based on AP-42 factors

³ Based on AIRS, 3/90 emission factor

⁴ Process Weight Limit

⁵ MACT avoidance limit in lb/ton of lime produced

⁶ Combined limit with Kiln 2

Lime Hydrator Plant with Baghouse

On February 22, 2008, the Department received air permit application forms for the proposed replacement of the existing lime hydrator wet scrubber with a baghouse. The project also included the proposed installation of a 2.5 MMBtu/hr natural gas fired burner. Air Permit No. 411-0019-X004 was issued for the proposed project on May 15, 2008.

Cheney operates one lime hydrator plant. Quicklime that is produced in the kilns is fed via a screw conveyor and bucket elevator to an enclosed hydrator unit where the lime is blended with water to convert CaO to hydrated lime (Ca(OH)₂). The hydrated lime is then conveyed to four (4) storage silos.

This area is comprised of the following source:

Emission Point #	Description
004	Lime Hydrator Plant with Baghouse

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

- 335-3-4:** Control of Particulate Emissions
- 335-3-14:** Air Permits
- 335-3-16:** Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During on six (6) minute period a person may discharge into the atmosphere from any source of forty (40%) percent opacity.

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

This source shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "Process Weight Equation".

335-3-14-.04: "Air Permits Authorizing Construction in Clean Air Areas"

The following source is subject to federally enforceable **BACT** emissions limits, which were developed in order to comply with the applicable provisions of ADEM Administrative Code r. 335-3-14-.04, *Prevention of Significant Deterioration*:

Particulate emissions from this source shall not exceed the BACT limit of 3.0 lbs/hr.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, "Major Source Operating Permits".

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), "the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart".

This rule doesn't apply to units other than kilns at lime manufacturing plants.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

These units are not considered affected sources under this subpart as it processes lime product which does not meet the definition of a *nonmetallic mineral* in this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

This facility has enforceable limits in place to remain a minor source of HAPs. Therefore, this rule does not apply.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the Hydrator for particulate matter, since the unit has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the unit.

The facility established a CAM plan for this source in previous Title V renewal applications. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: Pressure drop across the baghouse, visible emissions readings, and baghouse inspections.

Pressure drop across the baghouse shall be measure with a magnahelic pressure gauge and recorded each day.

Visible emissions shall be conducted and recorded weekly.

Baghouse and bag conditions are observed through quarterly maintenance inspections. The CAM plan for this source is included in **Appendix A**.

EMISSIONS

Pollutant	Allowable Emissions lb/hr	Expected Emissions	
		(lb/hr)	(ton/yr) ³
PM	3.0 ⁴	0.35 ¹	1.53
SO ₂	N/A	.002 ²	0.007
NO _x	N/A	0.250 ²	1.095
CO	N/A	.210 ²	.920
VOC	N/A	0.014 ²	0.060

¹ Based on manufacture’s information for dust collector and AP-42 factor for natural gas combustion

² Based on AP-42 factors for natural gas combustion

³ Based on max production and fuel usage

⁴ BACT Limit

No. 2 Lime Kiln with Preheater and Baghouse

Processed limestone is fed via hydraulic plungers to a counter flow preheater that draws kiln exit gases through the stone bed preheating the stone as it is fed. From the preheater, the stone enters the rotary kiln where calcination of limestone occurs in the kiln as a result of heat produced by the combustion of pulverized coal and coke. The resulting product, known as *quicklime*, is air cooled and conveyed into Lime System No. 2.

Kiln exhaust gases are routed through a baghouse equipped with a Continuous Opacity Monitoring System (COMS).

This area is comprised of the following source:

Emission Point #	Description
005	No. 2 Lime Kiln with Preheater and Baghouse

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

- 335-3-4:** Control of Particulate Emissions
- 335-3-5:** Control of Sulfur Compound Emissions
- 335-3-14:** Air Permits
- 335-3-16:** Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(3-5), states no person shall discharge particulate emissions of an opacity greater than twenty (20%) percent opacity, as determined by a six (6) minute average, except that during each calendar quarter, the permittee may discharge into the atmosphere from the stack particulate with an opacity exceeding 20% for not more than 24 60-minute period of any calendar day, if such periods do not exceed 2.0% of the source calendar quarter operating hours for which opacity standard is applicable and for which the COMS is indicating valid data.

This unit is subject to more stringent opacity standards contained in 40 CFR 60 Subpart HH.

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.03: "Fuel Burning Equipment"

According to ADEM Administrative Code r. 335-3-1-.02(1)(ee), *fuel burning equipment* is defined as any equipment, device, or contrivance and all appurtenances thereto, including ducts,

breechings, fuel-feeding equipment, ash removal equipment, combustion controls, stacks, and chimney, used primarily, but not exclusively, to burn any fuel for the purpose of indirect heating in which the material being heated is not contacted by and adds no substance to the products of combustion.

The kiln does not meet the definition of *fuel burning equipment* as this source would be considered a direct fired unit. Therefore, the PM emissions limits outlined in ADEM Admin. r. Code 335-3-4-.03 do not apply.

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

The No. 2 Lime Kiln shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "*Process Weight Equation*".

335-3-5-.01: "Fuel Combustion"

According to ADEM Administrative Code r. 335-3-1-.02(1)(ee), *fuel burning equipment* is defined as any equipment, device, or contrivance and all appurtenances thereto, including ducts, breechings, fuel-feeding equipment, ash removal equipment, combustion controls, stacks, and chimney, used primarily, but not exclusively, to burn any fuel for the purpose of indirect heating in which the material being heated is not contacted by and adds no substance to the products of combustion.

The kiln does not meet the definition of *fuel burning equipment* as this source would be considered a direct fired unit. Therefore, the PM emissions limits outlined in ADEM Admin. r. Code 335-3-4-.03 do not apply.

335-3-14-.04: "Air Permits Authorizing Construction in Clean Air Areas"

The following source is subject to federally enforceable **BACT** emissions limits, which were developed in order to comply with the applicable provisions of ADEM Administrative Code r. 335-3-14-.04, *Prevention of Significant Deterioration*:

The No. 2 Lime Kiln (005) shall not discharge to the atmosphere particulate emissions in excess of 0.02 gr/acf and 25.71 lb/hr.

The sulfur content of the fuel blend delivered to the No. 2 Lime Kiln (005) burner shall not exceed 3.03%.

The No. 2 Lime Kiln's sulfur dioxide removal efficiency, based on comparison of sulfur dioxide emitted to the conversion of all inlet fuel sulfur dioxide, shall be 93% or greater, and the maximum sulfur dioxide emission rate shall not exceed 42.42 lb/hr.

The nitrogen oxide emissions from the No. 2 Lime Kiln shall not exceed 2.8 lb/ton of lime produced and 70.0 lb/hr.

The carbon monoxide emissions from the No. 2 Lime Kiln shall not exceed 2.0 lb/ton of lime produced and 50.0 lb/hr.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, "Major Source Operating Permits".

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), "the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart".

Lime Kiln No. 2 is subject to the applicable emissions limits in §60.342.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

Lime kilns are not considered affected sources under this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

On July 25, 2005, the Department received a letter requesting hazardous air pollutant (HAP) emissions limitations from each kiln located at the Cheney facility. The purpose of the requests was to allow the facility to be classified as an area source with respect to 40 CFR 63 Subpart AAAAA. Additional information was received on December 22, 2005. [See ADEM Engineering Analysis dated January 3, 2006].

Subsequently, on January 31, 2006, the Department issued Air Permit No. 411-0019-X001 which included federally enforceable HAP emissions limits. In the Title V renewal application received by ADEM on March 1, 2016, Cheney requested to adjust the HCl MACT avoidance limits for Kiln 1 and 2 to more correctly reflect to actual HCl emissions rate (with a 2xs safety factor) from each Kiln based on a stack test performed in November of 2004. These limits are as follows:

Pollutant	Emissions Limit
HCl	0.034 lb/ton lime produced
HAP _{single}	9.9 TPY ^a
HAP _{total}	24.5 TPY ^b

^a Any single HAP. Combined with Kiln No. 1.

^b Any combination of HAP. Combined with Kiln No. 1.

Since Kiln No. 2 is currently subject to federally enforceable Anti-MACT HAP emissions limits, it is not subject to Subpart AAAAA.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the Lime Kiln for particulate matter, since the kiln has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the kiln. All other pollutants from the kiln are not emitted in quantities greater than the major source threshold, nor is the kiln meeting a limit via a control device for any other pollutant. Therefore, CAM does not apply to any other pollutant for the Lime Kiln.

During the first MSOP renewal (*issued January 4, 2007*), the facility established a CAM plan for this source. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: opacity, baghouse inspections, and particulate matter emissions tests.

The opacity of emissions exiting the baghouse is measured continuously via a Continuous Opacity Monitoring System (COMS). The COMS is required to be calibrated and maintained in accordance with manufacturer specifications and 40 CFR 60.13 and Performance Specification No. 1 (PS-1) of 40 CFR 60, Appendix B.

Baghouse and bag conditions are observed through quarterly maintenance inspections. These inspections may include, but may not be limited to the following: bag wear, auger load, doors seals, exterior condition, etc.

A particulate matter (PM) emissions test, performed in accordance with Method 5 of 40 CFR 60, Appendix A must be performed on an annual basis. Consecutive tests shall not be conducted less than 6 months or more than 18 months apart.

The CAM plan for this source is included in **Appendix A**.

EMISSIONS:

Pollutant	Allowable Emissions		Expected Emissions	
	(lb/hr)	(TPY)	(lb/hr)	(TPY)
PM	25.7 ⁴	112.61	5.85 ¹	11.9
PM ₁₀	N/A	N/A	3.22 ²	6.50
PM _{2.5}	N/A	N/A	1.58 ²	3.20
SO ₂	42.42 ⁴	186	4.53 ¹	115
NO _x	70.0 ⁴	307	30.8 ³	209
CO	50.0 ⁴	219	24.2 ²	112
VOC	N/A	N/A	0.30 ²	1.31
HCl	0.034 ⁵	9.9 ⁶	0.43 ¹	1.86

¹ Based on stack test data

² Based on AP-42 factors

³ Based on allowable emission rate

⁴ BACT Limit

⁵ MACT avoidance limit in lb/ton of lime produced

⁶ Combined limit with Kiln 1

Lime Crushing and Screening Station with Baghouse

Quicklime from the No. 2 Lime Kiln is discharged from the cooler. Next, it is processed through the Lime Crushing and Screening Station (006) for the purpose of sizing the quicklime product for storage and bulk loadout. This system consists of two belt conveyors, two bucket elevators, a roll crusher, screen and screen conveyor. The Lime Crushing and Screening Station is controlled by a baghouse.

This area is comprised of the following source:

Emission Point #	Description
006	Lime Crushing and Screening Station with Baghouse

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

335-3-4: Control of Particulate Emissions

335-3-14: Air Permits

335-3-16: Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During on six (6) minute period a person may discharge into the atmosphere from any source of forty (40%) percent opacity.

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

This source shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "Process Weight Equation".

335-3-14-.04: "Air Permits Authorizing Construction in Clean Air Areas"

The following source is subject to a federally enforceable **BACT** emissions limit, which was developed in order to comply with the applicable provisions of ADEM Administrative Code r. 335-3-14-.04, *Prevention of Significant Deterioration*:

PM from this source shall not exceed the BACT limit of 0.02 gr/scf (0.94 lb/hr) as required by ADEM Admin. Code r. 335-3-14-.04.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, "Major Source Operating Permits".

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), "the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart".

This rule doesn't apply to units other than kilns at lime manufacturing plants.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

These units are not considered affected sources under this subpart as it processes lime product which does not meet the definition of a *nonmetallic mineral* in this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

This facility has enforceable limits in place to remain a minor source of HAPs. Therefore, this rule does not apply.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the Lime Crushing and Screening process for particulate matter, since the unit has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the unit.

The facility established a CAM plan for this source in previous Title V renewal applications. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: Pressure drop across the baghouse, visible emissions readings, and baghouse inspections.

Pressure drop across the baghouse shall be measure with a magnahelic pressure gauge and recorded each day.

Visible emissions shall be conducted and recorded weekly.

Baghouse and bag conditions are observed through quarterly maintenance inspections. The CAM plan for this source is included in **Appendix A**.

EMISSIONS:

Pollutant	Allowable Emissions ³		Expected Emissions	
	(lb/hr)	(TPY)	(lb/hr) ¹	(TPY) ²
PM	0.94	4.13	0.94	4.13

¹ Based on outlet loading according to manufacturer's information

² Based on 8760 hours of operation

³ BACT Limit

No. 2 Lime Kiln Dust Bin with Loadout and Baghouse

Lime kiln dust from the No. 2 Lime Kiln is transferred and stored in the No. 2 Lime Kiln Dust Bin with Loadout. The loadout transports dust into enclosed trucks. The No. 2 Lime Kiln Dust Bin is controlled by a baghouse.

This area is comprised of the following source:

Emission Point #	Description
007	No. 2 Lime Kiln Dust Bin

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

335-3-4: Control of Particulate Emissions

335-3-14: Air Permits

335-3-16: Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During on six (6) minute period a person may discharge into the atmosphere from any source of forty (40%) percent opacity.

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

This source shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "Process Weight Equation".

335-3-14-.04: "Air Permits Authorizing Construction in Clean Air Areas"

The following source is subject to a federally enforceable **BACT** emissions limit, which was developed in order to comply with the applicable provisions of ADEM Administrative Code r. 335-3-14-.04, *Prevention of Significant Deterioration*:

PM from this source shall not exceed the BACT limit of 0.02 gr/scf as required by ADEM Admin. Code r. 335-3-14-.04.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, *"Major Source Operating Permits"*.

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), *"the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart"*.

This rule doesn't apply to units other than kilns at lime manufacturing plants.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

These units are not considered affected sources under this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

This facility has enforceable limits in place to remain a minor source of HAPs. Therefore, this rule does not apply.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the No. 2 Lime Kiln Dust Bin for particulate matter, since the unit has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the unit.

The facility established a CAM plan for this source in previous Title V renewal applications. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: Pressure drop across the baghouse, visible emissions readings, and baghouse inspections.

Pressure drop across the baghouse shall be measure with a magnahelic pressure gauge and recorded each day.

Visible emissions shall be conducted and recorded weekly.

Baghouse and bag conditions are observed through quarterly maintenance inspections. The CAM plan for this source is included in **Appendix A**.

EMISSIONS:

Pollutant	Allowable Emissions ³	Expected Emissions	
		(lb/hr) ¹	(TPY) ²
PM	0.02 gr/scf	0.34	1.5

¹ Based on outlet loading according to manufacturer's information

² Based on 8760 hours of operation

³ BACT Limit

No. 1 Lime Kiln Dust Bin with Loadout and Baghouse

Lime kiln dust from the No. 1 Lime Kiln is transferred and stored in the No. 1 Lime Kiln Dust Bin with Loadout. The loadout transports dust into enclosed trucks. The No. 1 Lime Kiln Dust Bin is controlled by a baghouse.

This area is comprised of the following source:

Emission Point #	Description
008	No. 1 Lime Kiln Dust Bin

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

335-3-4: Control of Particulate Emissions

335-3-14: Air Permits

335-3-16: Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During on six (6) minute period a person may discharge into the atmosphere from any source of forty (40%) percent opacity.

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

This source shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "Process Weight Equation".

335-3-14-.04: "Air Permits Authorizing Construction in Clean Air Areas"

The following source is subject to a federally enforceable **Anti-PSD** emissions limit, which was developed in order to comply with the applicable provisions of ADEM Administrative Code r. 335-3-14-.04, *Prevention of Significant Deterioration*:

PM from this source shall not exceed the Anti-PSD limit of 0.6 lb/hr as required by ADEM Admin. Code r. 335-3-14-.04.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, "Major Source Operating Permits".

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), "the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart".

This rule doesn't apply to units other than kilns at lime manufacturing plants.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

These units are not considered affected sources under this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

This facility has enforceable limits in place to remain a minor source of HAPs. Therefore, this rule does not apply.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the No. 1 Lime Kiln Dust Bin for particulate matter, since the unit has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the unit.

The facility established a CAM plan for this source in previous Title V renewal applications. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: Pressure drop across the baghouse, visible emissions readings, and baghouse inspections.

Pressure drop across the baghouse shall be measure with a magnahelic pressure gauge and recorded each day.

Visible emissions shall be conducted and recorded weekly.

Baghouse and bag conditions are observed through quarterly maintenance inspections. The CAM plan for this source is included in **Appendix A**.

EMISSIONS:

Pollutant	Allowable Emissions ³		Expected Emissions	
	(lb/hr)	(TPY)	(lb/hr) ¹	(TPY) ²
PM	0.6	2.63	0.27	1.18

¹ Based on outlet loading according to manufacturer's information

² Based on 8760 hours of operation

³ Anti-PSD Limit

No. 1 & No. 2 Lime Systems with Common Baghouse

Additional sizing operations are contained in the No. 1 and No. 2 Lime Systems (010). These systems are used to correctly size the quicklime product for distribution to storage and loadout. The No. 1 Lime System consists of a bucket elevator, sizing screen, conveying equipment and lime silos 4-6 and 9-13, each having a loadout spout. The No. 2 Lime System consists of a bucket elevator, conveying equipment, two sizing screens and lime silos 1-3, 7 and 8, each having a loadout spout. A common baghouse controls the particulate emissions from both systems.

This area is comprised of the following source:

Emission Point #	Description
010	No. 1 & No. 2 Lime Systems

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

335-3-4: Control of Particulate Emissions

335-3-14: Air Permits

335-3-16: Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During on six (6) minute period a person may discharge into the atmosphere from any source of forty (40%) percent opacity.

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

This source shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "Process Weight Equation".

335-3-14-.04: "Air Permits Authorizing Construction in Clean Air Areas"

The following source is subject to a federally enforceable **Anti-PSD** emissions limit, which was developed in order to comply with the applicable provisions of ADEM Administrative Code r. 335-3-14-.04, *Prevention of Significant Deterioration*:

PM from this source shall not exceed the Anti-PSD limit of 6.6 lb/hr as required by ADEM Admin. Code r. 335-3-14-.04.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, "Major Source Operating Permits".

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), "the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart".

This rule doesn't apply to units other than kilns at lime manufacturing plants.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

These units are not considered affected sources under this subpart as it processes lime product which does not meet the definition of a *nonmetallic mineral* in this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

This facility has enforceable limits in place to remain a minor source of HAPs. Therefore, this rule does not apply.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the No. 1 and 2 Lime System for particulate matter, since the unit has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the unit.

The facility established a CAM plan for this source in previous Title V renewal applications. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: Pressure drop across the baghouse, visible emissions readings, and baghouse inspections.

Pressure drop across the baghouse shall be measure with a magnahelic pressure gauge and recorded each day.

Visible emissions shall be conducted and recorded weekly.

Baghouse and bag conditions are observed through quarterly maintenance inspections. The CAM plan for this source is included in **Appendix A**.

EMISSIONS:

Pollutant	Allowable Emissions ³		Expected Emissions	
	(lb/hr)	(TPY)	(lb/hr) ¹	(TPY) ²
PM	6.6	28.9	3.1	13.58

¹ Based on outlet loading according to manufacturer's information

² Based on 8760 hours of operation

³ Anti-PSD Limit

Hydrated Lime Pulverizer System with Baghouse

Hydrated lime from four (4) existing storage silos is pulverized to 90-95% less than 200 mesh. The mill is air swept to classify and retain material in the pulverizer until desired size. Discharged air is blown through a high efficiency cyclone (closed loop) with system bleeding air controlled by a baghouse.

This area is comprised of the following source:

Emission Point #	Description
013	Hydrated Lime Pulverizer System

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

335-3-4: Control of Particulate Emissions

335-3-16: Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During on six (6) minute period a person may discharge into the atmosphere from any source of forty (40%) percent opacity.

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

This source shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "Process Weight Equation".

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, "Major Source Operating Permits".

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), "the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart".

This rule doesn't apply to units other than kilns at lime manufacturing plants.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

These units are not considered affected sources under this subpart as it processes lime product which does not meet the definition of a *nonmetallic mineral* in this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

This facility has enforceable limits in place to remain a minor source of HAPs. Therefore, this rule does not apply.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the Hydrated Lime Pulverizer System for particulate matter, since the unit has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the unit.

The facility established a CAM plan for this source in previous Title V renewal applications. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: Pressure drop across the baghouse, visible emissions readings, and baghouse inspections.

Pressure drop across the baghouse shall be measure with a magnahelic pressure gauge and recorded each day.

Visible emissions shall be conducted and recorded weekly.

Baghouse and bag conditions are observed through quarterly maintenance inspections. The CAM plan for this source is included in **Appendix A**.

EMISSIONS:

Pollutant	Allowable Emissions ³	Expected Emissions	
		(lb/hr) ¹	(TPY) ²
PM	10.9 lb/hr	0.9	3.9

¹ Based on outlet loading and dust collector flow

² Based on 8760 hours of operation

³ Based on Process Weight rule at max throughput

Grinding Reject Transfer, Storage, and Load-out System with Baghouse

This system includes the collection of reject material generated by the sizing and classifying of the finished hydrate product. The reject material is pneumatically transferred to the grinding reject storage container which has a capacity of approximately 40 tons. The transferring process will be controlled using a baghouse that will be mounted on the roof of the loadout structure.

This area is comprised of the following source:

Emission Point #	Description
014	Grinding Reject Transfer, Storage, and Loadout System

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

335-3-4: Control of Particulate Emissions

335-3-14: Air Permits

335-3-16: Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During on six (6) minute period a person may discharge into the atmosphere from any source of forty (40%) percent opacity.

335-3-4-.02: "Fugitive Emissions"

Any source of fugitive emissions located at this facility is required to comply with the requirements of ADEM Administrative Code r. 335-3-4-.02(1)(a) through (c) and (3).

335-3-4-.04: "Process Industries, General"

ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

This source shall not discharge to the atmosphere particulate matter emissions in excess of the emissions determined by ADEM Admin Code r. 335-3-4-.04(1), "Process Weight Equation".

335-3-14-.04: "Air Permits Authorizing Construction in Clean Air Areas"

The following source is subject to a federally enforceable **Anti-PSD** emissions limit, which was developed in order to comply with the applicable provisions of ADEM Administrative Code r. 335-3-14-.04, *Prevention of Significant Deterioration*:

PM from this source shall not exceed the Anti-PSD limit of 0.03 gr/scf as required by ADEM Admin. Code r. 335-3-14-.04.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, *"Major Source Operating Permits"*.

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart HH Lime Manufacturing Plants

Subpart OOO Nonmetallic Mineral Processing Plants

Subpart HH: "Lime Manufacturing Plants"

According to §60.340(a) and (c), *"the provisions of this subpart are applicable to each rotary lime kiln used in the manufacture of lime...that commences construction or modification after May 3, 1977, is subject to the requirements of this subpart"*.

This rule doesn't apply to units other than kilns at lime manufacturing plants.

Subpart OOO: "Nonmetallic Mineral Processing Plants"

Per §60.670(a)(1), the following sources are subject to Subpart OOO:

Except as provided in paragraphs (a)(2), (b), (c), and (d) of this section, the provisions of this subpart are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station...

These units are not considered affected sources under this subpart as it processes lime product which does not meet the definition of a *nonmetallic mineral* in this subpart. Therefore, this source would not be subject to these requirements.

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart AAAAA Lime Manufacturing Plants

Subpart AAAAA: Lime Manufacturing Plants

According to §63.7081(a)(1) and (a)(2), the following sources are subject to the applicable requirements of Subpart AAAAA:

You are subject to this subpart if you own or operate a lime manufacturing plant (LMP) that is a major source, or that is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions, unless the LMP is located at a kraft pulp mill, soda pulp mill, sulfite pulp mill, beet sugar manufacturing plant, or only processes sludge containing calcium carbonate from water softening processes.

This facility has enforceable limits in place to remain a minor source of HAPs. Therefore, this rule does not apply.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM is applicable to the Grinding Reject Transfer, Storage, and Loadout System for particulate matter, since the unit has the pre-controlled potential to emit particulate matter emissions greater than 100 TPY, and a baghouse is used to control emissions from the unit.

The facility established a CAM plan for this source in the Title V renewal application. The established monitoring plan ensures compliance with applicable emissions standards through three indicators: Pressure drop across the baghouse, visible emissions readings, and baghouse inspections.

Pressure drop across the baghouse shall be measure with a magnahelic pressure gauge and recorded each day.

Visible emissions shall be conducted and recorded weekly.

Baghouse and bag conditions are observed through quarterly maintenance inspections. The CAM plan for this source is included in **Appendix A**.

EMISSIONS:

Pollutant	Allowable Emissions ³	Expected Emissions	
		(lb/hr) ¹	(TPY) ²
PM	0.03 gr/scf	0.30	1.3

¹ Based on allowable emission rate and dust collector flow

² Based on 8760 hours of operation

³ Anti-PSD Limit

Emergency Engines

These sources are internal combustion engines used for emergency purposes located within the facility.

This area is comprised of the following source:

Emission Point #	Description
K1	53 Hp Diesel Emergency Engine (K1)
K2	53 Hp Diesel Emergency Engine (K2)
O1	36 kW Propane Emergency Engine

Regulatory Review

ADEM Admin. Code r. 335-3

Relevant regulations:

335-3-4: Control of Particulate Emissions

335-3-16: Major Source Operating Permits

335-3-4-.01: "Visible Emissions"

ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During on six (6) minute period a person may discharge into the atmosphere from any source of forty (40%) percent opacity.

335-3-16: "Major Source Operating Permits"

These sources are subject to the applicable requirements contained in ADEM Admin. Code r. 335-3-16, "Major Source Operating Permits".

40 CFR 60: Standards of Performance for New Stationary Sources (NSPS)

Relevant regulations:

Subpart IIII Compression Ignition Internal Combustion Engines

Subpart JJJJ Spark Ignition Internal Combustion Engines

Subpart IIII: "Compression Ignition Internal Combustion Engines"

This rule applies to stationary compression ignition engines that are manufactured after April 1, 2006. The two diesel emergency engines would be considered stationary compression engines but were manufactured before April 1, 2006. Therefore, these units would not be subject to this subpart.

Subpart JJJJ: “Spark Ignition Internal Combustion Engines”

This rule applies to stationary spark ignition engines with a maximum engine power greater than 19 kW (25 HP) that are rich-burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is on or after January 1, 2009 for emergency engines. The propane emergency engine would be considered a rich-burn LPG emergency stationary spark engine manufactured after January 1, 2009. Therefore, unit O1 would be subject to this subpart. This engine is subject to the standards contained in §60.4231(c); monitoring requirements in §60.4237(c); compliance requirements in §60.4243(a); and the notification, reports, and records requirements in §60.4245(a).

40 CFR 63: National Emissions Standards for Hazardous Pollutants (NESHAP)

Relevant regulations:

Subpart ZZZZ Reciprocating Internal Combustion Engines

Subpart ZZZZ: Reciprocating Internal Combustion Engines

These emergency engines are subject to the applicable requirements in 40 CFR Part 63 Subpart ZZZZ. These units are subject to the standards in §63.6625, §63.6640, and Table 2d; monitoring requirements contained in Table 2d; and recordkeeping and reporting requirements contained in §63.6655. The propane emergency engine would meet the requirements of this subpart by meeting the requirements contained in 40 CFR 60 Subpart JJJJ.

40 CFR 64: Compliance Assurance Monitoring (CAM)

CAM does not apply to these units since they are uncontrolled sources.

EMISSIONS:

Pollutant	Expected Emissions					
	014		015		016	
	(lb/hr) ¹	(TPY) ²	(lb/hr) ¹	(TPY) ²	(lb/hr)	(TPY)
PM	0.12	0.03	0.12	0.03	0.02	0.01
SO ₂	0.11	0.03	0.11	0.03	<0.01	<0.01
NO _x	1.64	0.41	1.64	0.41	0.02	<0.01
CO	0.35	0.09	0.35	0.09	1.87	0.47
VOC	0.13	0.03	0.13	0.03	0.83	0.21

¹ Based on AP-42 emissions factors

² Based on 500 hours of operation

Tyler Phillips
Industrial Minerals Section
Energy Branch
Air Division

Date:

APPENDIX A

Compliance Assurance Monitoring Requirements (CAM)

Compliance Assurance Monitoring Plan for Emission Unit 001 (No. 1 Lime Kiln)

	Indicator 1	Indicator 2	Indicator 3
I. Indicator	Opacity (Measured with a Continuous Opacity Monitor)	Baghouse and bag conditions are observed through maintenance inspections performed once per quarter. **	Particulate Matter Emissions Tests (Measured in accordance with EPA Reference Method 5)
II. Indicator Range	Opacity should be 20% or less. Inspection of baghouse is prompted if outside this range for more than 5 consecutive 6-minute periods. An excursion exists if opacity (as indicated by the COMS) exceeds more than one 6-minute average of 20% in 1 hour and/or any 6-minute average of 40% opacity. *	Range is exceeded if failure to perform inspections or take action following report of necessary maintenance.	$E = 3.59(P)^{0.62}$ $P < 30$ TPH $E = 17.31(P)^{0.16}$ $P \geq 30$ TPH An excursion exists if a Method 5 test results in emissions greater than that allowed by the appropriate Process Weight Equation as stated above.
III. Performance Criteria			
A. Data Representativeness	The COM is located at the baghouse outlet. The system has a minimum accuracy of 2% over the range of the monitor.	Not Applicable	The Method 5 is performed as prescribed in Appendix A of 40 CFR Part 60.
B. Verification of Operation Status	Not Applicable	Not Applicable	Not Applicable
C. QA/QC Practices & Criteria	Calibrate and maintain in accordance with manufacturer's specification and 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification I requirements.	Personnel will be trained properly to perform inspections and maintenance and recognize excursions and initiate corrective action.	The Method 5 is performed as prescribed in Appendix A of 40 CFR Part 60.
D. Monitoring Frequency			
Data Collection Procedures	Continuously recorded on strip charts or electronically	At least once per quarter	The Method 5 test shall be performed at least once per year. Consecutive tests shall not be conducted less than 6 months or more than 18 months apart. The Method 5 is performed as prescribed in Appendix A of 40 CFR Part 60.

Averaging Period	6-minute averages	Not Applicable	3-hour average
------------------	-------------------	----------------	----------------

* Should the net opacity exceedances exceed 5%, as determined by the COMS, during any calendar quarter, the Department may require additional particulate matter emissions testing to be conducted prior to the end of the next calendar quarter.

** Quarterly Control Device Inspections Include (But May Not Be Limited To):

- Visual inspection of the positive side of the bags through the maintenance port for fallen bags
- Worn or torn bags
- Auger overload
- Inspection of baghouse doors to ensure properly sealed doors

Compliance Assurance Monitoring Plan for Emission Unit 005 (No. 2 Lime Kiln)

	Indicator 1	Indicator 2	Indicator 3
I. Indicator	Opacity (Measured with a Continuous Opacity Monitor)	Baghouse and bag conditions are observed through maintenance inspections performed once per quarter. **	Particulate Matter Emissions Tests (Measured in accordance with EPA Reference Method 5)
II. Indicator Range	Opacity should be 15% or less. Inspection of baghouse is prompted if outside this range for more than 5 consecutive 6-minute periods. An excursion exists if opacity (as indicated by the COMS) exceeds more than one 6-minute average of 15%. *	Range is exceeded if failure to perform inspections or take action following report of necessary maintenance.	0.6 lb/ton of feed 0.02 gr/acf 25.71 lb/hr An excursion exists if a Method 5 test results in emissions greater than any of the limits listed above.
III. Performance Criteria			
A. Data Representativeness	The COM is located at the baghouse outlet. The system has a minimum accuracy of 2% over the range of the monitor.	Not Applicable	The Method 5 is performed as prescribed in Appendix A of 40 CFR Part 60.
B. Verification of Operation Status	Not Applicable	Not Applicable	Not Applicable
C. QA/QC Practices & Criteria	Calibrate and maintain in accordance with manufacturer's specification and 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification I requirements.	Personnel will be trained properly to perform inspections and maintenance. Operators will be trained properly to recognize excursions and initiate corrective action.	The Method 5 is performed as prescribed in Appendix A of 40 CFR Part 60.
D. Monitoring Frequency			
Data Collection Procedures	Continuously recorded on strip charts or electronically	At least once per quarter	The Method 5 test shall be performed at least once per year. Consecutive tests shall not be conducted less than 6 months or more than 18 months apart. The Method 5 is performed as prescribed in Appendix A of 40 CFR Part 60.

Averaging Period	6-minute averages	Not Applicable	3-hour average
------------------	-------------------	----------------	----------------

* Should the net opacity exceedances exceed 5%, as determined by the COMS, during any calendar quarter, the Department may require additional particulate matter emissions testing to be conducted prior to the end of the next calendar quarter.

** Quarterly Control Device Inspections Include (But May Not Be Limited To):

- Visual inspection of the positive side of the bags through the maintenance port for fallen bags
- Worn or torn bags
- Auger overload
- Inspection of baghouse doors to ensure properly sealed doors

Compliance Assurance Monitoring Plan for Emission Units 006, 007, 008, and 010

	Indicator 1	Indicator 2	Indicator 3
I. Indicator Approach	Pressure drop across the baghouse is measured with a Magnahelic differential pressure gauge.	Weekly visible inspections with Method 9-like procedures.	Bag conditions are observed through maintenance inspections performed once per calendar quarter.
II. Indicator Range	Readings should be maintained at or above 3 in. of H ₂ O. Inspection of baghouse prompted if readings are observed outside this range.	If a visible emission is observed, maintenance inspection or corrective action will be initiated within 2 hours of observed visible emissions.	Range exceeded if failure to perform inspection or take action following report of necessary maintenance.
III. Performance Criteria			
A. Data Representativeness	Pressure taps are located at the baghouse inlet and outlet. The gauge has a minimum accuracy of 0.3 inches of H ₂ O.	Measurements are being made at the emissions point (baghouse exhaust).	Not Applicable
B. Verification of Operation Status	Not Applicable	Not Applicable	Not Applicable
C. QA/QC Practices & Criteria	Pressure taps are located the baghouse inlet and outlet. The pressure taps are checked for pluggage/build-up once per quarter during maintenance inspections.	Trained personnel to perform observations.	Trained personnel to perform inspections and maintenance.
D. Monitoring Frequency	Readings are taken and recorded once per day.	Weekly recording of observations.	Once per calendar quarter.
Frequency Data Collection Procedures			
Averaging Period	Not Applicable	Not Applicable	Not Applicable

Compliance Assurance Monitoring Plan for Emission Units 004, 013, 014

	Indicator 1	Indicator 2	Indicator 3
I. Indicator Approach	Pressure drop across the baghouse is measured with a Magnahelic differential pressure gauge.	Weekly visible inspections with Method 9-like procedures.	Bag conditions are observed through maintenance inspections performed once per calendar quarter.
II. Indicator Range	Readings should be maintained within the range of 2.5 – 11 in. of H ₂ O. Inspection of baghouse prompted if readings are observed outside this range.	If a visible emission is observed, maintenance inspection or corrective action will be initiated within 2 hours of observed visible emissions.	Range exceeded if failure to perform inspection or take action following report of necessary maintenance.
III. Performance Criteria			
A. Data Representativeness	Pressure taps are located at the baghouse inlet and outlet. The gauge has a minimum accuracy of 0.3 inches of H ₂ O.	Measurements are being made at the emissions point (baghouse exhaust).	Not Applicable
B. Verification of Operation Status	Not Applicable	Not Applicable	Not Applicable
C. QA/QC Practices & Criteria	Pressure taps are located the baghouse inlet and outlet. The pressure taps are checked for pluggage/build-up once per quarter during maintenance inspections.	Trained personnel to perform observations.	Trained personnel to perform inspections and maintenance.
D. Monitoring Frequency	Readings are taken and recorded once per day.	Weekly recording of observations.	Once per calendar quarter.
Frequency Data Collection Procedures			
Averaging Period	Not Applicable	Not Applicable	Not Applicable