



**COMMONWEALTH OF VIRGINIA
Department of Environmental Quality**

**West Central Regional Office
STATEMENT OF LEGAL AND FACTUAL BASIS
Title V Permit Minor Modification**

Chemical Lime Company of Virginia, Inc.

2093 Big Stony Creek Road
State Route 635
Ripplemead, Virginia 24150

Location: Kimballton, Virginia, Giles County
Registration No: 20225
County-Plant No: 071-0001

Permit No. VA 20225

Title V Effective Date: June 10, 2003

Title V Minor Modification Date: October 31, 2003

Expiration Date: June 10, 2008

As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Chemical Lime Company of Virginia, Inc. has applied for a minor permit modification to the Title V Operating Permit for its lime manufacturing facility. The Department has reviewed the application and has prepared a modified Title V Operating Permit.

Engineer/Permit Contact: _____ Date: _____

REQUESTED MODIFICATION

On August 20, 2003, the West Central Regional Office received a request from Chemical Lime Company of Virginia, Inc. (CLC) for a minor permit modification for their Title V operating permit. The request is to modify the permit in order to resolve inconsistencies with 9 VAC 5-40-280, the sulfur dioxide standard for existing sources. The resulting modifications clarify the applicable standard and add alternative mass balance procedures for demonstrating compliance with the allowable emission limits.

REASON FOR MODIFICATION

CLC contested Condition III A. 8. of the Title V permit issued June 10, 2003 on July 15, 2003 through state appeal procedures. After several discussions on how to resolve their concerns, an agreement was reached to change the permit to include alternate compliance methods for SO₂ limitations, and to more clearly state the SO₂ limitations from existing kilns.

APPLICABILITY OF 9 VAC 5-80-210

Minor permit modification procedures can only be used for those permit modifications that:

1. Do not violate any applicable requirement.

Clarification of emission limits and addition of alternative recordkeeping requirements will not result in the violation of any applicable requirements.

2. Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit such as a change to the method of monitoring to be used, a change to the method of demonstrating compliance or a relaxation of reporting or recordkeeping requirements.

There will be no changes to existing recordkeeping or reporting requirements. The modification adds alternative monitoring and recordkeeping requirements for surrogate parameters of determining compliance.

3. Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis.

The modification does not change any of the above referenced determinations. The existing source SO₂ standard, as applicable to combustion installations, is clarified

4. Does not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable federal requirement and that the source has assumed to avoid an applicable federal requirement to which the source would otherwise be subject.

Such terms and conditions include:

- a. A federally enforceable emissions cap assumed to avoid classification as a Title I modification; and
- b. An alternative emissions limit approved pursuant to regulations promulgated under §112(i)(5) of the federal Clean Air Act.

CLC does not have any of these types of limits in their Title V operating permit.

5. Are not Title I modifications.

The requested modification is not a Title I modification.

6. Are not required to be processed as a significant modification under 9 VAC 5-80-230 or as an administrative permit amendment under 9 VAC 5-80-200.

The requested modification does not qualify as an administrative permit amendment or a significant modification.

The modification can be processed using the minor permit modification procedures as defined in 9 VAC 5-80-210.

CHANGES TO TITLE V OPERATING PERMIT

The changes to Title V operating permit are very minimal. The changes are as follows:

Condition III. A. 7 will be changed to clarify the fuel burning installation limitations as follows:

7. **Standard for Sulfur Dioxide – Existing Source Combustion Installations:**
Area 1 Kilns: Unit Numbers 1306, 1405, and 1506 (K1-1, K1-2 and K1-3),
and Area 2 Kilns: Unit Numbers 2304, 2404 and 2504 (K2-1-KS-1, K2-2-KS-1 and K2-3-KS-1) – No owner or other person shall cause or permit to be discharged into the atmosphere from any combustion installation any sulfur dioxide emissions in excess of those resulting from the following equation: $S = 2.64K$, where S = the allowable emission of sulfur dioxide expressed in lbs/hr, and K = the sum of the heat input values of the operational kilns at their rated capacities.

The allowable SO₂ emissions of the installation is the sum of the allowable emission rates of the operational kilns at their rated capacity. For the purposes of this condition, *operational* means that the unit is capable of operating without reconstruction or modification as defined by 9 VAC 5-80-1100.

(9 VAC 5-40-250, 9 VAC 5-40-280 B and 9 VAC 5-80-110)

The rated capacity column will be removed from Condition III. A. 8 as this is a reiteration of information contained in Section II of this permit and is not a federally-enforceable parameter. The allowable SO₂ emission (lbs/hr) column will also be removed, because C. III.A.7 addresses the allowable SO₂ emissions from combustion installations.

8. **Emissions Limits** - Emissions from the operation of the following existing point sources (at corresponding stack exhausts) shall not exceed the limits specified below:

Source ID	Stack ID	Source Description	Allowable PM emission lbs/hr
1306 (K1-1-1)	S1306 (K1-4-ST-1A)	Area #1 Rotary Kiln #1	41.4
1310 (K1-1-C-1)	S1310 (K1-1-ST-1B)	Area #1 Kiln #1 Cooler	23.55
1405 (K1-2)	S1405 (K1-4-ST-2A)	Area #1 Rotary Kiln #2	41.4
1407 (K1-2-C-1)	S1407 (K1-2-ST-2B)	Area #1 Kiln #2 Cooler	23.55
1502 (K1-3)	S1502 (K1-4-ST-3A)	Area #1 Rotary Kiln #3	63.3
1506 (K1-3-C-1)	S1506 (K1-3-ST-3B)	Area #1 Kiln #3 Cooler	35.4
2304 (K2-1-KS-1)	S2304 (K2-1-ST-1,2)	Area #2 Rotary Kiln #1	28.2
2309 (K2-1-LS-1)	S2309 (K1-17-ST-1A)	Area #2 Kiln #1 Cooler	35.4
2310 (K2-1-SKP-1)	S2309 (K1-17-ST-1A)	Skip Conveyor	
2404 (K2-2-KS-1)	S2404 (K2-2-ST-1,2)	Area #2 Rotary Kiln #2	44.0
2408 (K2-2-LS-1)	S2309 (K1-17-ST-1A)	Area #2 Kiln #2 Cooler	35.4

Source ID	Stack ID	Source Description	Allowable PM emission lbs/hr
2409 (K2-2-VF-1)	S2309 (K1-17-ST-1A)	Vibrating Feeder	
2410 (K2-2-BC-1)	S2309 (K1-17-ST-1B)	Belt Conveyor	
2411 (K2-2-SK-1)	S2309 (K1-17-ST-1A)	Skip Conveyor	
2504 (K2-3-KS-1)	S2304 (K2-1-ST-1,2)	Area #2 Rotary Kiln #3	44.1
2510 (K2-3-LS-1)	S2309 (K1-17-ST-1A)	Area #2 Kiln #3 Cooler	35.4
2511 (K2-1-VF-4,-5,-6 &-7)	S2309 (K1-17-ST-1A)	Vibrating Feeders	
2512 (K2-3-BC-4)	S2309 (K1-17-ST-1A)	Belt Conveyor	
2513 (K2-3-YB-1 & -2)	S2309 (K1-17-ST-1A)	Drag Conveyor	
2514 (K2-3-BC-5)	S2309 (K1-17-ST-1A)	Belt Conveyor	
2515 (K2-3-WB-1)	S2309 (K1-17-ST-1A)	Waste Bin Loadout	
(K1-8-CR-1)	S2000 (K1-8-ST-1)	KVS Crusher	51.3
(K1-8-SN-1)	S2000 (K1-8-ST-1)	Morgensen Sizer Screen	
1702 (K1-10-BE-1)	S1704 (K1-10-ST-1)	Bucket elevator	147.45
1704 (K1-10-SN-1)	S1704 (K1-10-ST-1)	2 deck screen	
1708 (K-10-BC-1)	S1704 (K1-10-ST-1)	Belt Conveyor	
1710 (K1-10-LS-1 & -2)	S1710 (K1-10-ST-2)	Truck/ railcar load	147.45
1721 (K1-11-BE-1)	S1721 (K1-9-ST-1)	Bucket elevator	142.72
1725 (K1-11-BC-1)	S2010 (K1-9-ST-1)	Belt Conveyor	147.45
1727 (K1-11-BC-1)	S2010 (K1-9-ST-1)	Truck/ railcar loading	
1730 (K1-19-SI-1)	S1730(K1-9-ST-2)	Fines bin	142.72
1807 (K1-12-HY-1)	S1807 (K1-12-ST-6)	Shaeffer Hydrator	30.5
1831 (K1-12-B-9)	S1831 (K1-12-ST-5)	West Side Product Bin	21.7

Source ID	Stack ID	Source Description	Allowable PM emission lbs/hr
1833 (K1-12-B-10)	S1831 (K1-12-ST-5)	East Side Product Bin	
1843 (K1-12-LS-4)	S1980 (K1-12-ST-8)	Truck Loading	51.3
1844 (K1-12-B-8)	S1980 (K1-12-ST-8)	Cal-Dol fines bin	
1845 (K1-12-LS-5)	S1980 (K1-12-ST-8)	Truck Loading	
2805 (K1-18-PM-1)	S2820 (K1-18-ST-4)	Pug Mill	12.0
2806 (K1-18-H-2)	S2820 (K1-18-ST-4)	Kritzer Hydrator	
2811 (K1-18-BEL-2)	S2811 (K1-18-ST-2)	Bucket elevator	19.2
2815 K1-18-HM-1)	S2811 (K1-18-ST-2)	Hammermill	
2812 (K1-18-SBI-2)	S2840 (K1-18-ST-3)	Surge Bin	51.3
2814 (K1-18-RF-2)	S2840 (K1-18-ST-3)	Rotary Feeder	
2824 (K1-18-LS-1)	S2840 (K1-18-ST-3)	Loading Spout	
2825 (K1-18-TB-1)	S2840 (K1-18-ST-3)	Tube Baggers	
2830 (K1-18-WBI-1)	S2840 (K1-18-ST-3)	Waste Bin	
2820 (K1-18-SC-5)	S2830 (K1-18-ST-1)	Screw Conveyor	44.6
2821 (K1-18-LBI-1)	S2830 (K1-18-ST-1)	Loading Bin #1	
2822 (K1-18-LBI-2)	S2830 (K1-18-ST-1)	Loading Bin #2	
1955 (K1-14-RM-1)	S1955 (K1-14-ST-1)	Mill #1	10.4
1960 (K1-14-RM-2)	S1960 (K1-14-ST-2)	Mill #2	10.4
1965 (K1-14-RM-3)	S1965 (K1-14-ST-3)	Mill #3	10.4
1970 (K1-14-B-4)	S1970 (K1-14-ST-4)	Storage Bin	44.6

(9 VAC 5-40-260, 9 VAC 5-40-280, and 9 VAC 5-80-110)

Condition III. B. 3 will be changed to clarify the coal/coke sulfur content and heat value ASTM methods used to determine compliance with SO₂ allowable emission limitations via mass balance:

3. **Coal/Coke Sulfur Content:** A sample of the coal and coke blend delivered to the kiln burner(s) shall be collected at least once per week and composited for a monthly analysis. The composite shall be analyzed for percent (%) sulfur by weight and heat input (BTU/lb) by Area. The analyses shall meet the requirements of ASTM Methods D3177 or D4239 (sulfur content), ASTM Method D3286 or D5865 (heating value) or a DEQ approved equivalent method. The approved procedure for collecting the samples shall list all pertinent information regarding sample size and number, where sample is taken, etc.
(9 VAC 5-80-110)

Condition III. C. 1. (a) and (b) will be changed and (f) added to clarify the fuel burning installation records necessary to determine compliance with limitations:

C. Recordkeeping

1. The permittee shall maintain records of all emission data and operating parameters necessary to demonstrate compliance with this permit. The content of and format of such records shall be arranged with the Director, West Central Regional Office.
 - a. Annual throughput of each type of kiln fuel per kiln, including start-up fuels, calculated monthly as the sum of each consecutive twelve (12) month period.
 - b. Sulfur content and heat input value of coal/coke used in the kilns, if compliance with Sulfur Dioxide limitations as contained in Condition III.A.7. of this permit will be determined as prescribed in Condition III.B.3. of this permit.
 - c. Annual throughput of crushed stone in each Area, calculated monthly as the sum of each consecutive twelve (12) month period.
 - d. Annual production of lime from the kiln systems, calculated monthly as the sum of each consecutive twelve (12) month period.
 - e. Monitoring device records for each baghouse and scrubber.
 - f. Monthly hours of operation of each kiln.

These records shall be available on site for inspection by the DEQ and shall be current for the most recent five (5) years.
(9 VAC 5-80-110)

COMPLIANCE DEMONSTRATION:

Compliance with the lb/hr sulfur dioxide allowable emission limits can be demonstrated by mass balance using heat input analyses:

$S = 2.64K$, where S = the emission of sulfur dioxide expressed in lbs/hr, and K = the sum of the heat input values of the operational kilns at their rated capacities.

Compliance with the lb/hr Sulfur dioxide emission limit may be calculated in the following manner:

$$[\% \text{ sulfur in coal/coke blend} \times (\text{lbs coal/coke/month}) / (\text{total kiln operating hours/month}) \times 2]^* = \text{total lbs/hr of SO}_2$$

* Molecular wt. of SO₂ (64) twice that of elemental sulfur (32).

Actual sulfur dioxide emissions from the kilns may be calculated using the following equation: emission rate (lbs/hr) = throughput (tons/hr) x emission factor (lbs/ton). The emission factor shall be based on stack test data for this facility (using test data from tests conducted by PES Environmental, report dated 1/16/97, and MRI report dated 1/16/97). If these are not available, the appropriate emission factor given in Table 11.17-6 of AP-42 (1/95) in conjunction with current sulfur analyses may be used.

Testing

The permit modification does not require source tests. Compliance with specific emission limits can be demonstrated using production data, coal/coke analyses, fuel use data and/or appropriate emission factors. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

PUBLIC PARTICIPATION

The public participation requirements of 9 VAC 5-80-270 do not apply to minor permit modifications. Therefore, a public notice is not required. 9 VAC 5-80-210 D. requires that "affected states" and EPA be notified of the of the minor permit modification request within five days of receipt of a complete application. The only state meeting the definition of "affected state" (see 9 VAC 5-80-60) is West Virginia. West Virginia and EPA were notified within five days of receipt of a complete application, on August 27, 2003. The EPA 45-day review of the proposed permit modification began on September 15, 2003 and ended on October 30, 2003, with no comments received.