

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date: **date, 2007**

Region: Mooresville Regional Office
County: Stanly
NC Facility ID: 8400013
Inspector's Name: Denise Fogleman
Date of Last Inspection: 09/07/2006
Compliance Code: C/In Compliance With
Procedural Reqr

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): Carolina Stalite Company Facility Address: Carolina Stalite Company 12423 Old Aquadale Road Norwood, NC 28128 SIC: 3295 / Minerals, Ground Or Treated NAICS: 212399 / All Other Nonmetallic Mineral Mining Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			SIP: 15A NCAC 2D .0614 NSPS: NA NESHAP: NA PSD: NA PSD Avoidance: NA NC Toxics: NA 112(r): NA Other:
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	Application Number: 8400013.05D Date Received: 08/30/2005 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 03225/T28 Existing Permit Issue Date: 01/23/2007 Existing Permit Expiration Date: 02/18/2008
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Review Engineer: Mark Cuilla Review Engineer's Signature: Date: date, 2007		Comments / Recommendations: Issue 03225/T29 Permit Issue Date: date, 2007 Permit Expiration Date: date, 2012	

I. Purpose of Application

This permitting action is a renewal of an existing Title V permit pursuant to 2Q .0513. The existing Title V permit (**03225T28**) was issued on **January 23, 2007**, and is currently scheduled to expire on **February 18, 2008**. The renewal application was received on **August 30, 2005**, or at least nine months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

In addition, the Permittee responded to an **October 24, 2005**, letter from DAQ requesting verification on last MACT/air toxics applicability to this facility. The Permittee responded on **November 21, 2005** and indicated that it was not subject to any MACT standards; therefore, an air toxics demonstration would not be required to comply with 15A NCAC 2Q .0705. This response was added to IBEAM as application **8400013.05E** and consolidated into this renewal.

Also, as part of this permit renewal, the equipment lists have been "cleaned-up" by the Permittee to remove any equipment that is no longer needed on the permit and to verify NSPS status of the remaining existing equipment as well as add additional insignificant sources per a January 15, 2007 request. See ESM changes summary table below for a discussion.

II. Facility Description

The Carolina Stalite Company, Aquadale Properties is a quarry and lightweight aggregate processor. Air emission activities at the facility include raw material processing (quarrying, crushing, and screening) and rotary direct-fired kilns for heating and expanding raw materials to produce lightweight aggregate. The expanded lightweight aggregate material is crushed, screened and sized for shipping. General operations include conveying, handling, and storage activities. The facility also operates lightweight aggregate kilns.

III. History/Background/Application Chronology

December 19, 2004 – Permit application **8400013.05A** was received as a TV minor modification for the addition of a new portable riprap screening operation that includes one grizzly feeder, two conveyors and one diesel engine. In response, permit **03225T23** was issued on **March 24, 2005**.

May 2, 2005 – Permit application **8400013.05B** was received as a TV significant modification to complete the public notice portion of permit **03225T20**. In response, permit **03225T24** was issued on **June 24, 2005**.

May 20, 2005 – Permit application **8400013.05C** was received as a TV minor modification to:

- change the pressure drop range from 3 to 9 inches of water gauge to 1 to 9 inches of water gauge for the bagfilters (**ID Nos. CD-5B, CB-6B, CD-7B and CD-8B**) controlling the kilns (**ID Nos. ES-5, ES-6, ES-7, ES-8 and K8-CLR**);
- update the various negative pressure alarms for different fuels used in the kilns (**ID Nos. ES-5, ES-6, ES-7, ES-8 and K8-CLR**) to one negative pressure alarm of -0.10 inches of water for all fuels for used in the kilns;
- update the minimum stack velocity for any bagfilters (**ID Nos. CD-5B through CD-8B**) from 8 m/sec to 7 m/sec.

In response, permit **03225T25** was issued on **October 11, 2005**.

August 30, 2005 – Permit application **8400013.05D** was received as a TV renewal application and deemed complete for processing.

November 21, 2005 – Permit application **8400013.05E** was received as a TV State-only modification in response to a DAQ letter to the Permittee asking for last MACT/air toxics applicability. This application was consolidated into the renewal application **8400013.05D**.

December 12, 2005 – Permit application **8400013.05F** was received as a TV minor modification for:

- (**8400013.06A**) expansion of the nose of the kiln (**ES-8**). This modification is being done to improve thermal efficiency of the kiln. There was no change in production or emission rate from the source.
- (**8400013.05F**) installation of:
 - one new belt conveyor (**FCS-38**) equipped with water spray (**ID No. FCS-38S**),
 - one new belt conveyor (**FCS-39**) equipped with water spray (**ID No. FCS-39S**),
 - one new belt conveyor (**FCS-40**),
 - one new conveyor (**FCS-42**),
 - one new radial stacker conveyor (**FCS-43**) equipped with water spray (**ID No. FCS-43S**),
 - the relocation of an existing feed hopper (**ID No. FCS-21**) to handle reclaim clinker on **ES-7**. The existing feed hopper was renamed to **ID No. FCS-41** and is equipped with a water spray (**FCS-1Sa**),
 - deletion of the clinker cooler pan conveyor (**ID No. FCS-37**) and primary jaw crusher (**ID No. FCS-1**),
 - modification to the clinker handling operations to install a clinker cooler on the discharge end of kiln (**ES-7**). This modification is being done to improve thermal efficiency of the kiln due to better heat exchange. There will be no change in production or emission rate from the source, and
 - modification of the sulfur dioxide compliance demonstration time period from a 3-hour rolling average period to a 24-hour average block period.

In response, permit **03225T26** was issued on **May 3, 2006**.

February 7, 2006 – Permit application **8400013.06A** was received as a TV 502(b)(10) modification. This application was consolidated into permit application **8400013.05F** on **March 14, 2006** (see notes above).

April 12, 2006 – Permit application **8400013.06B** was received as a TV State-only modification for the replacement of the existing NSPS cone crusher (**ID No. RCS-3**) with another cone crusher (**ID No. RCS-3B**). The new cone crusher (**ID No. RCS-3B**) is controlled by the same existing water spray (**ID No. RCS-5S**). In response, permit **03225T27** was issued on **September 14, 2006**.

October 12, 2006 – Permit application **8400013.06C** was received as a TV State-only modification in response to a requirement that the Permittee complete a facility-wide modeling demonstration after putting new equipment on line. In response, permit **03225T28** was issued on **January 23, 2007**.

January 11, 2007 – I received an email from the Permittee indicating those sources that he wished to be removed from the permit as either no longer being used or having no intention of constructing. In addition, all current sources were reviewed for NSPS applicability and noted clarifications were made. See ESM summary below for a listing of required modifications.

January 15, 2007 – I received a letter from the Permittee requesting to add additional insignificant activities.

January 26, 2007 – DRAFT permit sent to Permittee, Regional Office, and Title V Coordinator for comment prior to public notice and EPA review.

January 31, 2007 – I received RO comments on the DRAFT permit via email from Denise Fogelman. Comments were implemented as needed in final DRAFT version.

March 1, 2007 – I received comments on the DRAFT permit from Permittee. All comments were considered in final DRAFT version.

date, 2007 – DRAFT permit sent to 30-day public notice and 45-day EPA review.

IV. Permit Modifications/Changes and ESM Discussion

The following table describes the modifications to the current permit as part of the renewal process.

Page(s)	Section	Description of Change(s)
Attachment	Insignificant Activities	-updated permit revision number -added sources per Permittee request
Cover	-	-updated permit revision numbers and all dates
TOC	-	-removed reference to Part II as being completed
All	Header	-updated permit revision number
3-6	Equipment table	-corrected NSPS designations where needed (See ESM) -reordered equipment by ID Nos. within each Section -removed equipment per Permittee (See ESM) -removed unnecessary asterisked language
7	2.1 A	-verified equipment descriptions and ID Nos.
7-8	2.1 A (table)	-verified equipment ID Nos. and associated regulations
8	2.1 A.1.b 2.1 A.1.d 2.1 A.1.e	-added ID Nos. -updated generic testing language -updated shell language and added ID Nos.
9	2.1 A.1.g 2.1 A.2.a 2.1 A.2.b 2.1 A.2.c 2.1 A.2.d.iii 2.1 A.2.e	-updated shell language -updated shell language -updated shell language -updated shell language and added ID Nos. -added ID Nos. -added reporting requirements

Page(s)	Section	Description of Change(s)
10	2.1 A.2.f 2.1 A.3 2.1 A.4.a 2.1 A.4.b 2.1 A.4.c 2.1 A.4.d	-updated shell language -added 2D .0516 language per RO comments -added ID Nos. -added ID Nos. -updated shell language -updated shell language and added ID Nos.
11	2.1 A.4.f 2.1 A.5.b 2.1 A.5.c 2.1 A.5.d 2.1 A.5.e 2.1 A.5.f	-updated shell language -added ID Nos. -added ID Nos. -added ID Nos. -updated shell language -updated shell language
12	2.1 A.5.g 2.1 A.5.i 2.1 B 2.1 B (table)	-updated shell language and added ID Nos. -updated shall language -removed reference to removed sources -removed reference to removed sources -added CAM reference
13	2.1 B.1.a 2.1 B.1.c 2.1 B.1.d	-added ID Nos. -amended testing requirements per Regional Office request -added ID Nos.
14	2.1 B.1.e 2.1 B.1.f 2.1 B.1.g 2.1 B.1.h	-added ID Nos. -added ID Nos. -added ID Nos. -added ID Nos.
15	2.1 B.1.i 2.1 B.1.j 2.1 B.1.k 2.1 B.2.a 2.1 B.2.b 2.1 B.2.c	-added ID Nos. -updated shell language -updated shell language and added ID Nos. -added ID Nos. -updated shell language -added ID Nos.
16	2.1 B.2.d 2.1 B.2.e 2.1 B.3.a 2.1 B.3.b	-changed quarterly reporting to semiannual -updated shell language -added ID Nos. -updated shell language
17	2.1 B.3.c 2.1 B.3.e 2.1 B.4.a 2.1 B.4.b 2.1 B.4.c 2.1 B.4.d 2.1 B.4.e	-updated shell language -updated shell language -updated shell language -updated shell language -updated shell language -updated shell language -updated shell language
18	2.1 B.4.f 2.1 B.4.h 2.1 B.5.a 2.1 B.5.b 2.1 B.5.c 2.1 B.5.d 2.1 B.5.e	-updated shell language -updated shell language -added ID Nos. -added ID Nos. -added ID Nos. -added ID Nos. -updated shell language
19	2.1 B.5.f 2.1 B.5.g 2.1 B.5.h 2.1 B.5.i	-updated shell language -added ID Nos. -added ID Nos. -added ID Nos.
20	2.1 B.5.n	-changed quarterly reporting to semiannual

Page(s)	Section	Description of Change(s)
20-23	2.1 B.6	-added new CAM requirements (Note. 2D .0535 requirements for Malfunction Abatement Plan have been removed as being complete)
24	2.1 C.1.c 2.1 C.1.d 2.1 C.2.c	-updated shell language -updated shell language -updated shell language and added ID Nos.
25	2.1 C.2.e 2.1 D 2.1 D (table) 2.1 D.1.b	-updated shell language -removed non-subject equipment listing -verified ID Nos. -added ID Nos.
26	2.1 D.1.c-f	-added MRR requirements language instead of cross referencing requirements
27	2.1 D.3.b 2.1 D.3.c 2.1 D.4.b 2.1 D.4.c	-updated shell language -updated shell language -added ID Nos. -updated shell language
28	2.1 D.4.d	-updated shell language
29	2.2 B	-verified equipment listing
30	2.2 B.1.d 2.2 B.1.e	-added ID Nos. -added ID Nos.
31	2.2 B.1.j 2.2 B.1.p	-added ID Nos. -updated shell language
44	2.2 C	-edited subject kilns to remove deleted equipment
45	2.2 C.1.a 2.2 C.1.b 2.2 C.1.c 2.2 C.1.d	-added ID Nos. -added ID Nos. -added ID Nos. -added ID Nos.
46	2.2 C.1.e 2.2 C.1.f	-added ID Nos. -added ID Nos.
47	2.2 C.1.g	-updated shell language for recycled fuel oil
-	Part II	-removed Part II as being completed

The following table indicates the modifications to ESM as a result of this permit renewal:

Current Description	Change resulting from permit renewal
One railcar unloading hopper (85 ton per hour choke type; ID No. CCH-1)	One railcar unloading hopper (85 tons per hour choke type; ID No. CCH-1)
One lightweight aggregate rotary expansion kiln (20 tons per hour of crushed argillite maximum permitted capacity) fired with coal, No. 2 fuel oil including recycled No. 2 fuel oil, natural gas or non-RCRA regulated waste fuel (96.7 million Btu per hour maximum heat input capacity; ID No. ES-5)	<i>Source end-dated per Permittee's request</i>
One lightweight aggregate rotary expansion kiln (20 tons per hour of crushed argillite maximum permitted capacity) fired with coal, No. 2 fuel oil including recycled No. 2 fuel oil, natural gas or non-RCRA regulated waste fuel (96.7 million Btu per hour maximum heat input capacity; ID No. ES-6)	<i>Source end-dated per Permittee's request</i>

Current Description	Change resulting from permit renewal
<p>One reverse air bagfilter (29,154 square feet of filter area) with evaporative cooling and bleed-in air flue gas cooling system and a flue gas desulfurizing process consisting of dry lime injection system (600 pounds per hour maximum lime injection) or a lime slurry injection system (600 gallons per hour lime slurry injection rate; ID No. CD-5B)</p>	<p><i>Control device end-dated per Permittee's request</i></p>
<p>One reverse air bagfilter (29,154 square feet of filter area) with evaporative cooling and bleed-in air flue gas cooling system and a flue gas desulfurizing process consisting of dry lime injection system (600 pounds per hour maximum lime injection) or a lime slurry injection system (600 gallons per hour lime slurry injection rate; ID No. CD-6B)</p>	<p><i>Control device end-dated per Permittee's request</i></p>
<p>One lightweight aggregate rotary expansion kiln with clinker cooler (20 tons per hour of crushed argillite maximum permitted capacity) fired* with coal, No. 2 fuel oil including recycled No. 2 fuel oil, natural gas or non-RCRA regulated waste fuel** (96.7*** million Btu per hour maximum heat input capacity; ID No. ES-7)</p> <p>*[The Permittee shall operate only two kilns (out of four, ID Nos. ES-5 through ES-8) simultaneously at any given time. Only one kiln out of four (ID Nos. ES-5 through ES-8) shall exhaust to any one bagfilter out of four (ID Nos. CD-5 through CD-8) at any given time.]</p> <p>** [The non-RCRA regulated waste fuel is any fuel that meets the requirements of Section 2.2 C.1.f.]</p> <p>*** [This is a facility-wide cap, which represents the combined heat input of all four kilns; ID Nos. ES-5 through ES-8.]</p>	<p>One lightweight aggregate rotary expansion kiln with clinker cooler (20 tons per hour of crushed argillite maximum permitted capacity) fired with coal, No. 2 fuel oil including recycled No. 2 fuel oil, natural gas or non-RCRA regulated waste fuel* (96.7** million Btu per hour maximum heat input capacity; ID No. ES-7)</p> <p>* [The non-RCRA regulated waste fuel is any fuel that meets the requirements of Section 2.2 C.1.f.]</p> <p>** [This is a facility-wide cap, which represents the combined heat input of both kilns; ID Nos. ES-7 and ES-8.]</p>
<p>One lightweight aggregate rotary expansion kiln with clinker cooler (40 tons per hour of crushed argillite maximum permitted capacity) fired* with coal, No. 2 fuel oil including recycled No. 2 fuel oil, natural gas or non-RCRA regulated waste fuel** (96.7*** million Btu per hour maximum heat input capacity; ID No. ES-8/K8-CLR)</p> <p>*[The Permittee shall operate only two kilns (out of four, ID Nos. ES-5 through ES-8) simultaneously at any given time. Only one kiln out of four (ID Nos. ES-5 through ES-8) shall exhaust to any one bagfilter out of four (ID Nos. CD-5 through CD-8) at any given time.]</p> <p>** [The non-RCRA regulated waste fuel is any fuel that meets the requirements of Section 2.2 C.1.f.]</p> <p>*** [This is a facility-wide cap, which represents the combined heat input of all four kilns; ID Nos. ES-5 through ES-8.]</p>	<p>One lightweight aggregate rotary expansion kiln with clinker cooler (40 tons per hour of crushed argillite maximum permitted capacity) fired with coal, No. 2 fuel oil including recycled No. 2 fuel oil, natural gas or non-RCRA regulated waste fuel* (96.7** million Btu per hour maximum heat input capacity; ID No. ES-8)</p> <p>* [The non-RCRA regulated waste fuel is any fuel that meets the requirements of Section 2.2 C.1.f.]</p> <p>** [This is a facility-wide cap, which represents the combined heat input of both kilns; ID Nos. ES-7 and ES-8.]</p>
<p>One hydrated lime storage silo (31.25 tons storage capacity) supplying lime to a dual-feed lime injection system (ID No. ES-LS2)</p>	<p><i>Source end-dated per Permittee's request</i></p>

Current Description	Change resulting from permit renewal
One primary jaw crusher (20 inches x 36 inches; 225 tons per hour maximum crushing capacity; ID No. FCS-1)	<i>Source end-dated per Permittee's request</i>
One conveyor (30 inches wide) (NSPS, Subpart OOO) (ID No. FCS-11)	One conveyor (30 inches wide) (ID No. FCS-11)
One conveyor (30 inches wide) (NSPS, Subpart OOO) (ID No. FCS-12)	One conveyor (30 inches wide) (ID No. FCS-12)
One short head crusher (85 tons per hour maximum crushing capacity) (NSPS, Subpart OOO) (ID No. FCS-2)	One short head crusher (85 tons per hour maximum crushing capacity) (ID No. FCS-2)
One conveyor (24 inches wide) (NSPS, Subpart OOO) (ID No. FCS-5)	One conveyor (24 inches wide) (ID No. FCS-5)
One cone crusher (150 tons per hour maximum crushing capacity) (NSPS, Subpart OOO) (ID No. RCS-2)	One cone crusher (150 tons per hour maximum crushing capacity) (ID No. RCS-2)
One feed hopper (50 tons maximum capacity) (NSPS, Subpart OOO) (ID No. RCS-21)	One feed hopper (50 tons maximum capacity) (ID No. RCS-21)
NA	Added "One gasoline storage tank (2000 gallons capacity; ID No. I-GasTank)"
NA	Added "One portable rail unloader/conveyor with diesel fired engine (55 hp; ID No. I-RUC-1)"

V. Regulatory Review

The facility is currently subject to the following regulations:

15A NCAC 2D .0501(e), Compliance with National Ambient Air Quality Standards
15A NCAC 2D .0510, Particulates from Sand, Gravel, or Crushed Stone Operations
15A NCAC 2D .0511, Particulates from Lightweight Aggregate Processes
15A NCAC 2D .0515, Particulates from Miscellaneous Industrial Processes
15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources
15A NCAC 2D .0521, Control of Visible Emissions
15A NCAC 2D .0524, New Source Performance Standards (40 CFR 60, Subparts OOO and UUU)
15A NCAC 2D .0535, Excess Emissions Reporting and Malfunctions
15A NCAC 2D .0540, Particulates from Fugitive Non-Process Dust Emission Sources
15A NCAC 2D .1100, Toxic Air Pollutants
15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions
15A NCAC 2Q .0317, Avoidance Conditions (for 15A NCAC 2D .0530 Prevention of Significant Deterioration)

A regulatory review for these existing requirements will not be included in this document.

As a result of this permit renewal, the following regulation has been added:

15A NCAC 2D .0614, Compliance Assurance Monitoring

VI. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS – The facility is currently subject to the New Source Performance Standards as promulgated in 40 CFR 60, Subparts OOO "Nonmetallic Mineral Processing Plants" and UUU "Calciners and Dryers in Mineral Industries". These existing regulations are not affected by this permit renewal. Continued compliance is expected.

NESHAPS/MACT – The facility is not currently subject to a Maximum Achievable Control Technology Standard and has indicated that it is not classified as a Title III major source. This permit renewal does not affect this status.

PSD – The lightweight aggregate kilns are subject to the following Prevention of Significant Deterioration (Avoidance) limits:

- Nitrogen oxides (**ID Nos. ES-7 through ES-8**) – less than 416 tons per consecutive 12-month period;
- Nitrogen oxides (**ID No. ES-8**) – less than 135.4 tons per consecutive 12-month period;
- Sulfur dioxide (**ID No. ES-8**) – less than 343.2 tons per consecutive 12-month period;
- Particulate matter (**ID No. ES-8**) – less than 36.8 tons per consecutive 12-month period; and
- PM₁₀ (**ID No. ES-8**) – less than 26.8 tons per consecutive 12-month period.

This permit modification does not affect this status.

112(r) – In the renewal application, the Permittee states that the facility is not subject to the 112(r) “Prevention of Accidental Releases” requirements because he does not store any chemicals in amounts greater than the applicability threshold.

CAM – 40 CFR 64 requires that a continuous compliance assurance monitoring plan be developed for all equipment located at a major facility, that have pre-controlled emissions above the major source threshold, and use a control device to meet an applicable standard. The facility operates two kilns (**ID Nos. ES-7 and ES-8**) currently controlled by bagfilters (**ID Nos. CD-7B and CD-8B**) for particulate control and flue gas desulfurizing processes consisting of either fry lime injection or lime slurry injection for sulfur dioxide control. The Permittee estimates pre-controlled PM₁₀ emissions from each source at 6833 and 9210 tons per year respectively and pre-controlled SO₂ emissions from each source at 974 and 657 tons per year respectively. Therefore; CAM is applicable to these control devices. The following language has been added as Section 2.1 B.6:

6. 15A NCAC 2D .0614: COMPLIANCE ASSURANCE MONITORING

a. *Per 40 CFR 64 and 15A NCAC 2D .0614, the Permittee shall comply with the following.*

b. Background

i. Emission Unit.

- (A) *Description. One 20 ton per hour lightweight aggregate kiln, and
One 40 ton per hour lightweight aggregate kiln with clinker cooler*
- (B) *Identification. ID Nos. ES-7 and ES-8, respectively*

ii. Applicable Regulation, Emission Limit, and Monitoring Requirements.

(A) Regulation and associated emission limits:

1. *15A NCAC 2D .0511 – particulate matter emissions shall be reduced by at least 95% by weight by the bagfilters*
2. *15A NCAC 2D .0516 – sulfur dioxide emissions shall be less than 2.3 pounds per million Btu (combined emissions from combustion of fuel and aggregate)*
3. *15A NCAC 2D .0521 – visible emissions from ES-7 shall be less than 40%*
4. *15A NCAC 2D .0524 – particulate matter emissions from ES-8 shall be less than 0.092 gm/dscf (0.04 gr/dscf)*
5. *15A NCAC 2D .0524 – visible emissions from ES-8 shall be less than 10%*
6. *15A NCAC 2Q .0317 – sulfur dioxide emissions from ES-8 shall be less than 343.2 tons per any consecutive 12-month period*
7. *15A NCAC 2Q .0317 – particulate matter emissions from ES-8 shall be less than 36.8 tons per any consecutive 12-month period*
8. *15A NCAC 2Q .0317 – PM₁₀ emissions from ES-8 shall be less than 26.8 tons per any consecutive 12-month period*
9. *15A NCAC 2D .0501(e) – Particulate matter and sulfur dioxide emissions shall be less than the national ambient air quality standards.*

(B) *Control Technology. Two bagfilters (29,154 and 34,984 square feet of filter area; ID Nos. CD-7B and CD-8B, respectively)*

- c. **Monitoring Approach.** The key elements of the monitoring approach for particulate matter and sulfur dioxide, including parameters to be monitored, parameter ranges and performance criteria are presented in the following table. The selected performance indicators are the pressure drop across the bagfilter, visible emissions, and mass sulfur dioxide emission rate.

	PM₁₀ Indicator 1	PM₁₀ Indicator 2	SO₂ Indicator
I. Indicator	Visible emissions	Pressure drop	SO ₂ mass emission rate
Measurement Approach	Visible emissions from the fabric filter will be monitored daily using EPA Reference Method 22-like procedures	Pressure drop across the fabric filter is continuously measured with a differential pressure gauge	SO ₂ emissions are monitored continuously with CEMs on each source.
II. Indicator Range	An excursion is defined as the presence of visible emissions. Excursions trigger an inspection and corrective action.	An excursion is defined as a pressure drop outside the normal operating range of 1 to 9 inches of water. Excursions trigger an inspection and corrective action.	An excursion is defined as SO ₂ emissions greater than the 2.3 pounds per million Btu emission limit for each source. Excursions trigger an inspection and corrective action.
QIP Threshold	The QIP threshold is five excursions in a 6-month period.	None selected.	None selected.
III. Performance Criteria			
A. Data Representativeness	Measurements are being made at the emission point (fabric filter outlet).	Pressure taps are located at the fabric filter inlet and outlet. The gauge has a minimum accuracy of 0.5 inches of water.	Measurements are being made at the emission point (fabric filter outlet) in compliance with 40 CFR 60, Appendix B.
B. Verification of Operational Status	NA	Audible or visual alarms with set points <1.0 and >9.0 inches of water.	Audible alarm system with set point at 90% of the 2.3 pounds per million Btu emission limit.
C. QA/QC Practices	The observer will be familiar with Reference Method 22 and follow Method 22-like procedures.	The pressure gauge is checked daily for operation according to manufacturer's criteria for operation and maintenance.	CEM meets QA/QC procedures of 40 CFR 60, Appendix F (daily CEM calibration, quarterly audits, and annual RATA testing).
D. Monitoring Frequency	Observations are done daily.	Pressure drop is monitored continuously.	Readings are taken once every 15-minutes (four data points per hour).
Data Collection Procedures	VE observations are documented by the observer.	Pressure gauge readings are recorded continuously, once per minute.	Readings are recoded continuously in the DAHS.
Averaging Periods	NA	15-minute average	1-hour average

d. **Justification**

- i. **Background.** The pollutants specific emission units are one 20 ton per hour lightweight aggregate rotary expansion kiln (ID No. ES-7) and one 40 tons per hour lightweight aggregate rotary expansion kiln with clinker cooler (ID No. ES-8). These kilns are currently controlled by two bagfilters (29,514 and 34,984 square feet of filter area, ID Nos. CD-7B and CD-8B, respectively).

- ii. Rationale for Selection of Performance Indicators. Visible emissions was selected as the performance indicator because it is a good indicator of proper operation and maintenance of the filter units. When the filter unit is operating properly, there will not be any visible emissions in the exhaust outlet. Any increase in visible emissions indicates reduced performance of the filter units, therefore, the presence of visible emissions is used as a performance indicator.

In general, filters are designed to operate at a relatively constant pressure drop. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop can indicate that the cleaning cycle is not frequent enough, cleaning equipment is damaged/broken, the bags are becoming blinded, or the airflow has increased. A decrease in pressure drop may indicate broken or loose bags, but this is also indicated by the presence of visible emissions, indicator No. 1. A pressure drop across the filter units also serves to indicate that there is airflow through the control device.

The current Title V permit mandates CEMS SO₂ monitoring for compliance with the 15A NCAC 2D .0516 SO₂ emission limit. The Title V permit establishes the current monitoring requirements as a presumptively acceptable monitoring approach for the kilns. The concept of presumptively acceptable is established in the CAM rule. Therefore, the current SO₂ CEMS based monitoring approach mandated in the current Title V permit is established for CAM compliance.

- iii. Rationale for Section of Indicator Ranges. The selected indicator range for indicator No. 1 is no visible emissions. When an excursion occurs, corrective action will be initiated, beginning with an evaluation of the occurrence to determine the action required to correct the situation. All excursions will be documented and reported. An indicator range of no visible emissions was selected because: (1) an increase in visible emissions is indicative of an increase in particulate emissions; and (2) a monitoring technique which does not require a Method 9 certified observer is desired. Although Reference Method 22 applies to fugitive sources, the visible/no visible emissions observation technique of RM-22 can be applied to ducted emissions; i.e., Method 22-like observations. The Selected QIP threshold for fabric filter emissions is five excursions in a 6-month reporting period. This level is 3 percent of the total visible emissions observations. If the QIP threshold is exceeded in a semiannual reporting period, a QIP will be developed and implemented.

The selected indicator range for indicator No. 2 is a pressure drop outside the normal operating range of 1 to 9 inches of water. An excursion triggers an inspection and corrective actions. All excursions will be documented and reported. The pressure drop is monitored continuously and recorded once per minute. The Permittee is warned both audibly and visually as the pressure drop leaves the normal operating range.

The selected indicator range for indicator No. 3 is a direct measurement of SO₂ mass emissions in pound per million Btu. Since the CEMS provides this direct measurement in the units of the applicable emission limit, no additional control system inspection and maintenance work practice standards are warranted for compliance demonstration purposes. An excursion triggers an inspection and corrective actions. All excursions will be documented and reported. The SO₂ mass emissions are measured continuously and recorded once per 15-minutes (four data points per hour). The Permittee is audibly warned when SO₂ emissions are 90% of the emission limit.

Reporting [15A NCAC 2Q .0508(f)]

- e. The Permittee shall submit a summary report of all monitoring activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations for the requirements of this permit must be clearly identified.

VII. Facility Wide Air Toxics

The facility is currently subject to the modeled emissions rates per 15A NCAC 2D .1100 on a source-by-source basis. It should be noted that the permit was recently modified (**03225T28**) to revise all modeled emission rates on a source-by-source basis. No modifications are necessary as part of this renewal.

VIII. Facility Emissions Review

There is no change in emissions for this renewal.

The following table represents the latest years emission inventory from the facility:

Pollutant(s)	2005 Actual Emissions (tpy)
CO	8.61
NO _x	145.68
PM ₁₀	11.91
SO ₂	460.46
VOC	1.31
Total HAP/TAP	7.61

IX. Stipulation Review

MRO had the following preliminary comments on the renewal application:

1. The facility has made application for renewal. The application does contain a CAM plan for PM₁₀ and SO₂ emissions. This should be incorporated into the new permit. *Agree, CAM has been added to the subject equipment.*
2. The facility has begun operation of the lime slurry injection systems of the two kilns. *No change, ESM and the permit currently listed the injection systems as available controls for the kilns.*
3. The new application should reflect changes being made with the current application 8400013.05C. *Agree, the most recently issued permit (03225T28) was used as the starting place for this renewal.*

MRO responded to my January 17, 2007 email requesting their input on current testing language still in the permit. They had the following comments:

1. A.4.f. - The VE test on the crusher (**ID No. RCS-3B**) has not been conducted yet. Mr. Jason Conner contacted me this morning about sending in the protocol to perform the test. They hope to get this test finished up by mid-March depending on when the protocol is approved, etc. This one should stay in unless the test is completed before the issue date. *Agree, testing requirement will remain.*
2. B.1.c. - This condition should stay in but I would like to see each bagfilter (**ID No. CD-7B and CD-8B**) tested during the first two years of the permit cycle (one per year) instead of just one in the first year following issuance of the permit. You can leave in the "if it is greater than 99%" language but change the language before that to have them test both bagfilters during the first two years, one per year, of the permit cycle. I agree with your strikeouts at the bottom of this paragraph. *Agree, change has been made.*
3. B.5.f. - I agree with your changes for this condition. Can we also remove the first two sentences of this paragraph since they appear elsewhere in the condition? *Agree, change has been made.*
4. B.6. - I think we may be able to delete this condition. The changes to kiln 7 I think have been completed. Also, I don't think they will need to update their MAP with the renewal since no changes are being made to the equipment. *Agree, change has been made.*

The Permittee submitted the following comments during the drafting of the most recent permit modification (**03225T28**). I replied that they made more sense completing during the renewal process:

1. Permitted source (**ID No. RCS-3B**) has been installed, the only sources with an asterisk in the source listing noted as not constructed are RCS-22 and FCS-38 through FCS-43. *Agree, Part II of the permit has been removed as part of the renewal and all asterisked language has been removed except the notation that the referenced equipment has not been installed to date.*

2. Section 2.1 D lists regulation 2D .0510 and includes the regulation for certain sources, it appears this citation should only apply to RCS (raw material) sources which are part of stone operations that do not produce or handle kiln rock. The FCS (kiln product) sources are to be regulated by 2D .0511. *Agree, the FCS sources have been moved to Section 2.1 A where 2D .0511 is referenced.*

X. Public Notice/EPA and Affected State(s) Review

Pursuant to 15A NCAC 2Q .0521, a notice of the DRAFT Title V Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above. South Carolina is an affected State and Mecklenburg County is an affected Local Program within 50 miles of this facility.

XI. Conclusions, Comments, and Recommendations

A professional engineer's seal was not required for this renewal.

A consistency determination was not required for this renewal.

MRO recommends issuance of the permit and was presented with a DRAFT permit prior to notice and issuance.

RCO concurs with MRO's recommendation to issue the renewed air permit.