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BUREAU OF AIR REGULATION

June 24, 2004

Al Linero
Division of Air Resources
Department of Environmental Protection
2600 Blair Stone Road, MS # 5505
Tallahassee, Florida 32399-2400

SUBJECT: Response to Warning Request for Additional Information (RAI)
Suwannee American Cement – Branford Plant
Facility ID No. 1210465
PSD-FL-259D

Dear Mr. Linero:

The purpose of this correspondence is to respond to the Department's Request for Additional information dated May 25, 2004.

The questions from the Department's Letter are italicized, and Suwannee American Cement's responses follow.

If you have any questions please call me at (386) 935-5039.

Sincerely,

A handwritten signature in black ink, appearing to read "J Horton".

Joe Horton
Suwannee American Cement

CC: Chris Kirts – Northeast District, DEP
Celso Martini – SAC
Dr. John Koogler – Koogler & Associates

1. *Identify each activity including estimated start and finish dates that will be conducted including additional construction, startup and shakedown, performance and emission compliance testing, submittal of Title V Operation Permit application, etc. Basis is Rule 62-212.400(5)(h)2., F.A.C. – Permit Application Information Required – “A detailed schedule for construction of the facility.”*

Schedule for construction is included in Attachment 1

Additionally Suwannee American Cement (SAC) will conduct initial testing for the Fly Ash Project and Tire Project to optimize the systems. In the estimated schedule provided by SAC Compliance Testing was scheduled for each project in consecutive months to try and combine the testing into one time period. The Title V Application would be submitted after completion of Compliance Testing for each project.

During Startup and Commissioning of the two projects SAC would request the Department re-establish the initial startup emission limits from the original construction permit.

2. *Describe how the proposed tire derived fuel system will be operated to insure compliance with the NO_x, SO₂, CO, and VOC permit limitations. Rules 62-4.070 and 62-212.400, F.A.C. and Permit 1210465-001-AC.*

SAC is investigating several systems by which to transport tires into the Kiln System; a gasification system, a whole tire injection system and a system which is a variation of the previous two systems (Cadence System). The gasification and whole tire systems have been previously permitted and the third combination is similar in concept. Neither the previously permitted nor the new system under investigation is expected to increase emissions of NO_x, SO₂, CO or VOC.

NO_x

Use of tires as a fuel source in kiln systems typical results in a net decrease in NO_x emissions. Depending on the introduction method, the location and the oxygen levels at the kiln inlet, there may be a reducing atmosphere created near the kiln inlet from the use of tires that will further reduce NO_x from the main kiln burner. However it is not certain at this time that a reducing atmosphere will be created at this point due to the reducing conditions already being created.

SO₂

Any SO₂ from the tires will be incorporated into the clinker due to the location of the introduction of the tires. Calcium oxide CaO will be abundantly present to absorb the sulfur in the same manner as the SO₂ from the Coal is incorporated into the clinker.

CO, VOC

The introduction of all three tire systems takes place below the upper tertiary air ducting which will allow control of oxygen to help reduce the CO and VOC. The system is designed with retention time and mixing above this point to effectively eliminate CO and VOC generated from fuel sources in the same manner as CO and THC from coal is currently being destroyed.

3. *Please advise whether introduction of tires near the kiln inlet will cause or exacerbate coating and plugging problems near the kiln inlet. Rule 62-4.070, F.A.C.*

SAC is currently permitted for introduction of whole tires in the kiln inlet. Tires behave differently in combustion characteristics than finely ground coal. The coal with higher volatility introduced in the kiln inlet will create very strong reducing conditions in the kiln inlet as the coal ignites quickly. Tires burn over a longer period, entering the kiln before final combustion which eliminates localized reducing conditions in the kiln inlet. SAC believes this will not

effect the coating/buildup in the kiln inlet but is one reason SAC is currently investigation several other methods including the gasification system and the Cadence system.

4. *Please provide an assessment from the tire derived fuel (TDF) system supplier (Cadence) or from the kiln manufacturer (Polysius) whether the existing calcination system can actually accommodate a project to use 40 percent TDF. Please provide examples where this has been accomplished for a preheater/calciner kiln. Rule 62-4.070, F.A.C.*

SAC is currently authorized for 10% heat substitution from use of whole tires and 40% heat substitution for tire gasification system. The third system under investigation (Cadence System) is a hybrid system involving principals of combustion of both systems. This system is claiming up to a 40% substitution rate. If a 40 percent TDF feed rate cannot be achieved with the third system (Cadence System), should it be selected, SAC will agree to reduce the permitted TDF use rate to the rate determined by field trial, plus 20 percent of the amount determined by the field trial to allow for optimization after the time of the field trial.

5. *Describe how accounting or weighing of raw materials and fuel will be conducted for the TDF system and the flyash injection system to insure that they remain within the permitted limits. For example, how will you determine the amount of steel as raw material from tires? How will you determine the amount of fuel available from any high carbon flyash. Rule 62-4.070, F.A.C. and Permit 1210465-001-AC.*

SAC considers the Fly Ash used in the injection process to be a raw material and thus will be tracked and recorded with the kiln feed. The Fly Ash injection system will have a means to measure throughput in a similar manner as currently monitored and in accordance with Section III, Subsection B, Paragraph 4 of the Construction Permit. The combination of the fly ash injection and kiln feed will not exceed 178 tons per hour on a dry basis.

Tires being feed to the kiln system will be tracked and recorded in a similar manner as all fuels to the kiln system and in accordance with Section III, Subsection B, Paragraph 2. Samples will be sent to determine heat values of the tires in accordance with Section III, Subsection B, Paragraph 2.

Any byproducts of tires such as steel will be incorporated into the clinker in a similar manner as the ash of coal. This will be considered a negligible amount and not tracked in accordance with kiln feed numbers or limits.

6. *Describe possible changes in the power plant flyash received as a result of the ability to process higher carbon flyash by injection into the calciner. Please assess the likelihood of increased mercury emissions. Rule 62-4.070, F.A.C.*

SAC currently anticipates using similar sources of fly ash for injection into the calciner but will receive the fly ash on a dry basis allowing for a more efficient use of the fly ash.

7. *Permit Section III, Condition 13 requires that "the total mass of mercury compounds introduced into the pyroprocessing system, expressed as Hg, in raw mill feed and fuels shall not exceed 97 pounds per consecutive 12-month period." Describe changes to mercury sampling protocols and to the mentioned language to insure that all materials and fuels entering the pyroprocessing system continue to be counted towards compliance with the 97 pound per year limitation. Rule 62-4.070, F.A.C. and Permit 1210465-001-AC.*

All fuel sources and raw materials will be monitored in accordance with Section III, Subsection B, Paragraph 13. This includes Fly Ash regardless of introduction into the pyroprocessing system and fuels including tires.

8. *Please advise exactly the manner by which emissions are accurately calculated in terms of pounds per ton (lb/ton) of clinker and by which the clinker production limit is met in terms of tons per hour. The concentrations are measured directly together with flow rates. In order to most accurately calculate lb/ton clinker values, Permit Section III, Condition 24, requires that "the clinker production rate shall be directly measured independent of preheater feed. The owner or operator shall make and maintain records of the production of portland cement in units of tons per consecutive 12-month period." Clarification of the actual procedure used is required. Rule 62-4.070, F.A.C. and Permit 1210465-001-AC.*

SAC uses a very accurate system for processing and measuring the preheater feed. This system is supplied by Polysius and is called the Poldos. The Poldos accurately measures and transfers preheater feed into the kiln system. SAC uses this preheater feed measurement and a set Loss of Ignition (LOI) Factor to determine the clinker produced. SAC determined the LOI factor using the ASTM test method 2863 on its preheater feed with consideration for dust return from the main baghouse. This method accurately determines the clinker produced and corresponds with physical inventory numbers and cement production. This method is an industry standard for determining clinker production, and it is the method for which SAC determines its own production for accounting and inventory purposes. The LOI factor was included in SAC's Construction Permit Application and determined to be 0.5899 from the test. The LOI factor correlates exactly with preheater feed limit and the clinker production limit [$178 \times 0.5899 = 105$]. SAC uses this accurate clinker production number from the preheater feed to demonstrate compliance with production limits and as the basis for emission limits with pound per ton units.

SAC also uses a load cell for measurement of clinker as it exits the clinker cooler. SAC continues to monitor the clinker in this method solely because it is required by permit condition Section III, Subsection B, Paragraph 24. SAC requests to the Department to revise the permit accordingly: (1) to expressly provide that SAC will use only clinker measurements based off of preheater feed for production limits and for calculation of lb/ton emission values, and (2) to delete the unnecessary requirement for clinker production to be measured independently of preheater feed.

Attachment 1

