FLORIDA ROCK INDUSTRIES, INC.
CEMENT GROUP

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To: Al Linero, P.E. **From:** Henry Gotsch extension #121

Fax: (850) 922-6979 **Pages:** 4 (including cover)

Phone: **Date:** September 19, 2003

Re: **CC:**

☐ Urgent ☐ Please Comment ☐ Please Reply

☐ For Review ☐ As Requested ☒ For Your Information

- **Comments:**

Letter from Gary Sauer to Al Linero. Original will be sent by mail.

FLORIDA ROCK INDUSTRIES INC
CEMENT GROUP / 4000 N.W. CR 235 / P.O. Box 459 / Newberry, FL 32669 / (352) 472-4722

Via Facsimile: (850) 922-6979

September 18, 2003

Mr. Al Linero, P.E.
Division of Air Resources Management
Department of Environmental Protection
111 S. Magnolia Drive, Suite 23
Tallahassee, Florida 32301

Re: Florida Rock Industries, Inc. – Thompson S. Baker Cement Plant
Facility ID 0010087

Dear Mr. Linero:

As a follow-up to my letter of August 8, 2003, Florida Rock conducted a second stack test for mercury emission on August 11, 2003, and continued its material sampling analyses for total mercury content of raw materials and fuels. We also met with you and other FDEP staff members on August 19 in Tallahassee. I am pleased to report that we now understand the nature of the discrepancy referred to in my earlier letter, and we are assured that we have met, and continue to meet the mercury limits contained in the FDEP permit. I look forward to meeting with Mr. Chris Kirts in Jacksonville to discuss these findings and our efforts to continuously improve compliance.

The Title V permit for the Thompson S. Baker cement plant sets a limit on mercury that reads

> **C.5. Mercury (Hg).** Total input of mercury compounds (as Hg) in all materials and fuel kiln system shall not exceed 200 pounds per year.

Compliance with the limit is demonstrated as follows:

> **C.38. Mercury Compounds (as Hg).** Monthly sampling and analysis shall be conducted of the raw mill feed, coal, and tires to demonstrate compliance with specific condition C.5. SW-846 Method 7471 or an approved EPA, DEP or ASTM test methods shall be used and records shall be maintained for inspection.

Compliance has previously been demonstrated by submitting to a laboratory a sample of "raw meal", which is the product of the raw feed components (limestone/sand/clay mixture, mill scale, flyash, and limestone) after blending and crushing in the raw mill. The lab analyzed each month's sample for total mercury of the raw-mill product.

In compound operation, which is the usual method of operating the kiln and raw mill, gas from the kiln exhausts through the cyclone-type vessels of the preheater, countercurrent to kiln feed; this hot gas preheats the incoming kiln feed. Then, the gas passes through the raw mill where it entrains, dries, and transports upward to cyclone-type separators the crushed and ground raw material. The gas stream passes through the electrostatic precipitator and out the kiln/raw mill stack. Dust collected in the electrostatic precipitator is mixed with the raw meal and sent to the blend silo. Unlike the simple rotary kiln, compound operation of the kiln and raw-mill causes the heat-transfer rate to be significantly increased, the degree of heat utilization is more complete, and the process time is markedly reduced owing to the intimate contact of the solid particles with hot gases.

Use of kiln-exhaust gas to heat, dry, and convey feed results in the condensation of volatile mercury on feed materials in the preheater tower and raw mill; this has been demonstrated by comparisons of analyses of the total mercury content of raw meal with the total mercury contents of the raw feed components. Fine particulate matter captured by the electrostatic precipitator also recirculates mercury to the blend silo; this has been demonstrated by analyses of the total mercury content of electrostatic precipitator dust. In addition, stack tests show low mercury emissions relative to kiln-feed mercury concentrations. Because of the recirculation of mercury, the analysis of "raw meal" for mercury content caused an overestimation of the feed concentrations, and this was the source of the discrepancy I wrote to you about on August 8.

As a result of our findings, more accurate and realistic estimates will henceforth be made by collecting weekly samples of each of the four raw-mill feed components and analyzing at the end of the month the composite of each component. Analyzing samples of the four raw-mill feed components will eliminate the apparent effect of recirculated mercury on the raw meal. This revised sampling protocol is consistent with permit language. Also, it will establish a baseline against which new supplies of mill-scale and flyash could be judged.

As I previously noted, the facility is in compliance with the mercury emission limits. Analyses of raw feed components and tests of emissions demonstrate that mercury feedrates and emissions rates, respectively, are low. Two emission tests are available for 2003. In addition, monthly analyses of the four raw-mill feed components have been made for each month since June 2003. Regarding flyash, which is the most likely contributor of mercury, TCLP tests in each month of 2003 show low mercury. Total mercury tests of flyash, done each month since March 2003, show low or no detectable mercury concentrations.

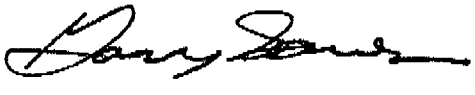
Henceforth, the sum of the four raw-feed components' contributions (each the product of mercury concentration times component tonnage) in each month will be reported as that month's feed-mercury total. Feed-mercury concentrations for the first five months of 2003 should be assumed similar to the subsequent seven months' averages. For the months of January through May, the monthly tonnage of each raw-feed component (limestone/silica/clay mix, millscale, flyash, and limestone) multiplied by the seven-month average mercury concentration for that component would be a reasonable estimate of the mercury contributed by that raw-feed component in that month.

Emission tests and analyses of raw-feed component samples done this summer confirm that mercury emission and feed rates are low. The emission tests of July 1, 2003, and August 11, 2003, found average emission rates of 0.0051 lb/hr and 0.0009 lb/hr, respectively. These are equivalent to annual emission rates of 44.7 lb/yr and 8.0 lb/yr, respectively, based upon full production for 8760 hours per year. Analyses of samples of coal, tires, and the four raw-feed components (limestone/silica/clay mix, millscale, flyash, and limestone) for total mercury during June, July, and August, 2003, were below the limit of detection (<0.020 mg/kg) in nearly all cases. Based upon monthly analyses and usage of raw-feed components (and conservatively assuming 0.020 mg/kg in all cases where mercury concentration was actually below the limit of detection), the total feed mercury rates in June, July, and August, 2003, were 8.0 lb/mo, 4.7 lb/mo, and 4.7 lb/mo, respectively; similarly, the total fuel mercury rates were 0.26 lb/mo, 0.37 lb/mo, and 0.34 lb/mo, respectively.

I trust this letter brings closure to the issue the company raised in an overabundance of caution on August 8. I believe you will agree that no modification of the permit provisions is required.

Please let me know if you have any further questions.

Sincerely,
FLORIDA ROCK INDUSTRIES, INC.



Gary Sauer
President—Cement and Calcium Group

cc: Christopher Kirts, P.E. (FDEP—Jacksonville)