



Jeb Bush
Governor

Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
September 1, 1999

David B. Struhs
Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. J. Chris Bird, Director
Alachua County Environmental Protection Department
226 South Main Street
Gainesville, Florida 32601

Re: Multi-Stage Calciner
Florida Rock Cement Plant

We reviewed your letter dated August 28 regarding a multi-stage combustion system proposed by an outside consultant for installation on the cement kiln presently under construction in Newberry. On the basis of the information provided and the construction permit applicable to the facility, the Department does not object to installation of the equipment or require a permit modification to install it.

According to Specific Condition 5 of the referenced permit, "Florida Rock will install any additional control equipment during the two year period to insure compliance with the NO_x limit of 2.8 lb/ton clinker by the end of the period." According to the Department's Best Available Control Technology (BACT) determination for the project "this rate was obtained from the 2.5 lb/ton clinker given in the BACT Clearinghouse report (corrected for conditions in Florida) and achieved by a dry preheater/precalciner process plant."

The Department expected the unit to meet the emission limit by employing "Process Control and Secondary Combustion of Fuel" as discussed in the BACT determination. The key to this method is to stage the introduction of fuels and air at various points during pyroprocessing to maintain the lowest possible flame temperatures while still attaining the necessary temperatures in the materials to make clinker. This staging minimizes formation of NO_x.

We were already aware that Florida Rock planned to incorporate *indirect firing*, whereby some of the combustion air at the hot side of the kiln is introduced with the pulverized coal, while a greater portion is introduced separately. The project also includes a precalciner, which provides additional heat at a point prior to entry of the raw materials into the kiln. This reduces the thermal load at the hot side of the kiln. Finally, the introduction of additional fuel into the colder side of the kiln (in the form of tires) further reduces thermal load at the hot side and the precalciner thus minimizing NO_x formation. We believed that these measures alone would be sufficient to meet the Department's BACT emission limits for NO_x, but we specified additional control requirements if for any reason the measures were not sufficient.

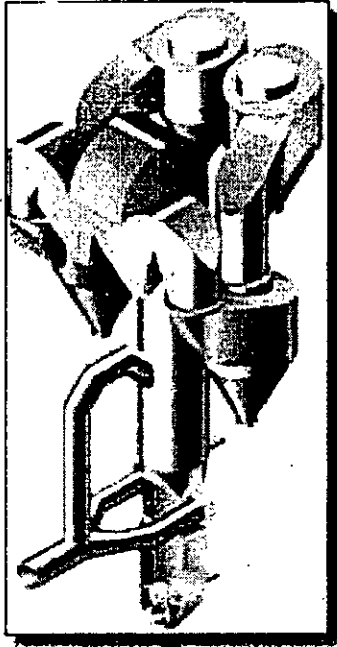
The device described in your letter is a further improvement in Process Control and Secondary Combustion of Fuel. It is not an add-on control device in the traditional sense as it does not remove or destroy a pollutant after it is emitted from the process. Rather it further minimizes the formation of that pollutant by staging the combustion within the calciner region while imparting the necessary heat to the raw materials to calcine them prior to introduction into the kiln.

The Krupp-Polysius (kiln manufacturer) version of the device is called a Multi-Stage Calciner (MSC). Following is a picture of the unit downloaded from the Polysius website. According to Polysius, the MSC process reduces emissions by staggered introduction of fuel, tertiary air, and raw meal. This causes the combustion to take place in several stages. In the first stage, the nitrogen oxides generated in the sintering zone of the rotary kiln are reduced by the presence of a burner in the kiln inlet. The fuel is injected against the direction of flow of the kiln gases and is pyrolyzed in its gas phase. In the reducing atmosphere that is formed, the nitrogen oxides are converted into nitrogen.

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According to Polysius, in order to prevent new NO_x from being generated in the calciner, the calcining fuel also has to be burned under reducing conditions. This is achieved by staggered introduction of combustion air such that the fuel is first burned under reducing conditions, then under oxidizing conditions. This minimizes the generation of new NO_x in the calciner and further reduces the nitrogen oxides coming from the rotary kiln. Also, corresponding staggering of the raw meal infeed favorably influences the temperature in the reducing zone of the calciner. Fuller (another kiln manufacturer) offers a roughly equivalent product.



PREPOL-MSC

We became aware of this technology approximately one year ago. Since that time, we discussed these products with Polysius, the applicant's consultant, and one or more County consultants, as the latest combustion-based option to reduce NO_x emissions. By implementing the technology during construction, we believe that the time to achieve the Department's BACT emission limit for NO_x will be reduced from the 24 months provided in the permit. Installation of the device will increase the chance that we will ultimately be able to lower the permitted NO_x limit.

The device falls within the description of the control technology and no permit is required if Florida Rock chooses to install it. We believe the kiln will still meet the permitted carbon monoxide limits with this device. However, if at any time Florida Rock determines that emissions of carbon monoxide emissions will increase beyond the permitted limits as a result of the device, they will need to submit a request for a permit modification.

If you have any questions regarding this matter, please call me at 850/921-9523.

Sincerely,

A. A. Linero, P.E. Administrator
New Source Review Section

AAL/al

Cc: Chris Kirts, DEP NED
Arthur Saarinen
Fred Cohrs, FRI

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 Alachua Co. Env. Prot.
 226 S. Main St.
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 32601

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**ALACHUA COUNTY
 DEPARTMENT OF ENVIRONMENTAL PROTECTION**

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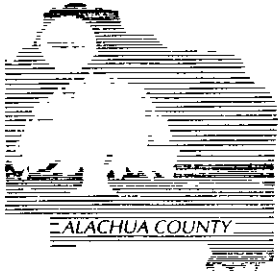
Board of County Commissioners

Chris Bird
 Environmental Protection
 Director

Barbara J. Pierce
 Administrative Assistant

Richard J. Burges

August 28, 1999
 Mr. Al Linero
 Florida Department of Environmental Protection
 Air Resources Management
 Magnolia Center
 MS 5505
 Tallahassee, Florida



Board of County Commissioners

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Chris Bird
Environmental Protection
Director

Barbara J. Pierce
Administrative Assistant

Richard J. Burges
Natural Resources
Supervisor

John J. Mousa
Pollution Prevention
Manager

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SEP 01 1999

August 28, 1999

Mr. Al Linero
Florida Department of Environmental Protection BUREAU OF AIR REGULATION
Air Resources Management
Magnolia Center
MS 5505
Tallahassee, Florida

Dear Mr. Linero:

Alachua County is in the process of negotiating a potential settlement agreement between Alachua County and Florida Rock Industries, Inc. (FRI) to resolve ongoing legal disputes concerning the operation of the Florida Rock Industries Cement plant in Newberry, Florida. As part of this proposed settlement agreement, FRI has offered to pursue the installation of a Multi-Stage Combustion Burner as an additional air pollution control measure on the Newberry Cement plant as part of a strategy to further reduce the generation of nitrogen oxides from the plant. Alachua County and FRI understand that installation of such a system would be subject to approval by FDEP and would involve changes to the emissions of other gases such as carbon monoxide.

Since the offer to install the Multi-Stage Combustion System by FRI is a key element of the proposed settlement agreement, Alachua County is requesting an opinion from FDEP as to whether FDEP would support this general technological approach to nitrogen oxide reduction if a request is made by FRI to install this system on the Newberry Cement plant. Based on the opinion of cement kiln technology and air pollution experts hired by Alachua County, the County understands that this technology has the potential to reduce nitrogen oxide emissions by 30% to 40% and therefore believes that installation of such a system would be beneficial to the overall air quality in Alachua County and would have a positive impact on the levels of air pollution in the region. Alachua County understands that FDEP cannot give prior approval for a specific installation until all the required administrative procedures and technical evaluations are performed that are associated with a specific application. However we are trying to determine if such a technological change would be considered positively by FDEP.

I would appreciate a response from FDEP as soon as possible about this

An Equal Opportunity Employer M.F.V.D.



August 28, 1999

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issue as we are anticipating public hearings on the negotiated settlement on September 2, 1999. Thank you very much in advance for your prompt attention to this matter. If you have any questions please contact me or Mr. Chris Bird, Director, Alachua County Pollution Prevention Department at (352) 955-2442.

Sincerely,

A handwritten signature in cursive script that reads "John J. Mousa".

John J. Mousa, Ph.D.
Pollution Prevention Manager

cc: Chris Bird