



# Department of Environmental Protection

Jeb Bush  
Governor

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

Colleen M. Castille  
Secretary

October 13, 2004

CERTIFIED MAIL – Return Receipt Requested

Mr. Gary Sauer  
President of the Cement and Calcium Group  
Florida Rock Industries  
155 East 21<sup>st</sup> Street  
Jacksonville, Florida 32206

RE: **Draft** Authorization to Conduct Pollutant Testing and Parameter Measurements for the Evaluation of Selective Non Catalytic Reduction (SNCR) for the Control of Oxides of Nitrogen (NOx) 0010087-011-AC

Dear Mr. Sauer:

Attached is one copy of the proposed authorization, 0010087-011-AC, to conduct pollutant testing and parameter measurements for the evaluation of SNCR technology for the control of NOx using the Florida Rock Industries' Thompson S. Baker Cement Manufacturing Facility, which is located near Newberry, Alachua County. This evaluation will require Florida Rock Industries to vary the operational modes of the cement manufacturing facility to establish expected NOx emissions while using SNCR, thus potentially creating operational conditions with emissions near or in excess of the present permitted limits. The data gathered will allow the evaluation of SNCR technology applicability to the cement manufacturing industry. The pollutants and or parameters to be measured or monitored will include sulfur dioxide [CEM (continuous emission monitor)], nitrogen oxides (CEM), particulate matter, visible emissions, carbon monoxide (CEM), ash content of the fuel, ultimate fuel analyses, unit operational parameters including load, fuel flow, excess air, flue gas temperature, and other unit specific parameters that are needed for the evaluation. Particulate size distribution may be evaluated also. The testing is scheduled to run from October 25 through December 31, 2004.

The permitting authority's "INTENT TO ISSUE AN AIR CONSTRUCTION PERMIT" and the "PUBLIC NOTICE OF INTENT TO ISSUE AN AIR CONSTRUCTION PERMIT" are also included. The "PUBLIC NOTICE OF INTENT TO ISSUE AN AIR CONSTRUCTION PERMIT" must be published as soon as possible. Proof of publication, i.e., newspaper affidavit, must be provided to the permitting authority's office within 7 (seven) days of publication pursuant to Rule 62-110.106(5), F.A.C. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

Please submit any written comments you wish to have considered concerning the permitting authority's proposed action to James K. Pennington, P.E., at the above letterhead address. If you have any other questions, please contact him at 850/921-9515.

Sincerely,

Trina L. Vielhauer  
Chief  
Bureau of Air Regulation

TLV/jkp

Enclosures

"More Protection. Less Process"

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In the Matter of an  
Application for Permit by:

Florida Rock Industries  
155 East 21<sup>st</sup> Street  
Jacksonville, Florida 32206

Air Construction Permit No.: 0010087-011-AC  
Thompson S. Baker Plant  
Alachua County

### INTENT TO ISSUE AN AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (permitting authority) gives notice of its intent to issue an air construction permit [copy of the draft permit (letter) enclosed] for the facility detailed in the application specified above, to authorize Florida Rock Industries to conduct pollutant testing and parameter measurements for the evaluation of SNCR technology for the control of NO<sub>x</sub> using the Florida Rock Industries' Thompson S. Baker Cement Manufacturing Facility, which is located near Newberry, Alachua County.

The permittee, Florida Rock Industries, applied on July 23, 2004, for authorization, to conduct pollutant testing and parameter measurements for the evaluation of SNCR technology for the control of NO<sub>x</sub> using the Florida Rock Industries' Thompson S. Baker Cement Manufacturing Facility, which is located near Newberry, Alachua County. This evaluation will require Florida Rock Industries to vary the operational modes of the cement manufacturing facility to establish expected NO<sub>x</sub> emissions while using SNCR, thus potentially creating operational conditions with emissions near or in excess of the present permitted limits. The data gathered will allow the evaluation of SNCR technology applicability to the cement manufacturing industry. The pollutants and or parameters to be measured or monitored will include sulfur dioxide [CEM (continuous emission monitor)], nitrogen oxides (CEM), particulate matter, visible emissions, carbon monoxide (CEM), ash content of the fuel, ultimate fuel analyses, unit operational parameters including load, fuel flow, excess air, flue gas temperature, and other unit specific parameters that are needed for the evaluation. Particulate size distribution may be evaluated also. The testing is scheduled to run from October 25 through December 31, 2004.

The permitting authority has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4 and 62-210, F.A.C. This source is not exempt from permitting procedures. The permitting authority has determined that an Air Construction Permit is required for the proposed activity.

The permitting authority intends to issue this Air Construction Permit based on the belief that reasonable assurances have been provided to indicate that operation of the source will not adversely impact air quality, and the source will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-256, 62-257, 62-281, 62-296, and 62-297, F.A.C.

Pursuant to Sections 403.815 and 403.0872, F.S., and Rules 62-110.106 and 62-210.350(3), F.A.C., you (the applicant) are required to publish at your own expense the enclosed "PUBLIC NOTICE OF INTENT TO ISSUE AN AIR CONSTRUCTION PERMIT." The notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the permitting authority at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax: 850/922-6979), within 7 (seven) days of publication pursuant to Rule 62-110.106(5), F.A.C. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

The permitting authority will issue the Final Air Construction Permit in accordance with the conditions of the enclosed Draft Air Construction Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The permitting authority will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE AN AIR CONSTRUCTION PERMIT." Written comments should be provided to the permitting authority office. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this Draft Air Construction Permit, the permitting authority shall issue a Revised Draft Air Construction Permit and require, if applicable, another Public Notice.

The permitting authority will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S. Mediation under Section 120.573, F.S., will not be available for this proposed action.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000 (Telephone: 850/245-2241; Fax: 850/245-2303). Petitions filed by the permit applicant or any of the parties listed below must be filed within 14 (fourteen) days of receipt of this notice of intent. Petitions filed by any other person must be filed within 14 (fourteen) days of publication of the public notice or within 14 (fourteen) days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207, F.A.C.

A petition must contain the following information:

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Permit File Number, and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the permitting authority's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the permitting authority's action or proposed action;
- (d) A statement of the material facts disputed by the petitioner, if any;
- (e) A statement of the facts that the petitioner contends warrant reversal or modification of the permitting authority's action or proposed action;
- (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the permitting authority's action or proposed action; and,
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the permitting authority to take with respect to the action or proposed action addressed in this notice of intent.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the permitting authority's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the permitting authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

In addition to the above, a person subject to regulation has a right to apply to the Department of Environmental Protection for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542, F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information:

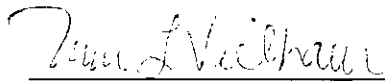
- (a) The name, address, and telephone number of the petitioner;
- (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any;
- (c) Each rule or portion of a rule from which a variance or waiver is requested;
- (d) The citation to the statute underlying (implemented by) the rule identified in (c) above;
- (e) The type of action requested;
- (f) The specific facts that would justify a variance or waiver for the petitioner;
- (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and,
- (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2), F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the United States Environmental Protection Agency and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

**STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION**



Trina L. Vielhauer  
Chief  
Bureau of Air Regulation

### CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AN AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE and the Draft Permit (letter)) and all copies were sent by certified mail before the close of business on 10/14/04 to the person(s) listed:

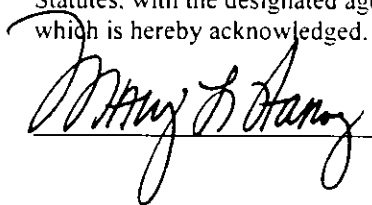
Mr. Gary Sauer, Responsible Official and President of the Cement and Calcium Group, FRI

In addition, the undersigned duly designated deputy agency clerk hereby certifies that copies of this INTENT TO ISSUE AN AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE and the Draft Permit (letter)) were sent by U.S. mail on the same date to the person(s) listed:

Mr. Henry Gotsch, FRI  
Dr. John B. Koogler, P.E., Koogler and Associates  
Mr. Chris Horne, FRI  
Mr. Chris Kirts, DEP - NED  
Mr. Al Linero, DEP - BAR  
Segundo Fernandez, Esquire  
December McSherry  
Dave Bruderly  
Chris Bird, Alachua Co. DER  
Chair, Alachua County BOCC

Clerk Stamp

**FILING AND ACKNOWLEDGMENT FILED**, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency Clerk, receipt of which is hereby acknowledged.

 10/14/04

**PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT**

Florida Department of Environmental Protection

Florida Rock Industries, Inc.  
Thompson S. Baker Cement Plant - Newberry  
Alachua County

Draft Air Construction Permit (Letter)No.: 0010087-011-AC

The Florida Department of Environmental Protection (Department) gives notice of its intent to issue an Air Construction Permit (letter) to Florida Rock Industries, Inc. (FRI) to allow the evaluation of selective non-catalytic reduction (SNCR) at the Thompson S. Baker Cement Plant located 2.5 miles Northeast of Newberry on County Road 235 in Alachua County. A new Best Available Control Technology (BACT) determination was not required. The applicant's name and address are: Florida Rock Industries, Inc., 155 East 21st Street, Jacksonville, Florida 32206.

FRI requests permission to use SNCR in a test program from October 25 through December 31, 2004, that will allow the Department and FRI to determine the range of NO<sub>x</sub> emission reductions possible under multiple operating scenarios using SNCR. The proposed testing evaluation will not result in significant net emissions increases and a new evaluation under the rules for the Prevention of Significant Deterioration (PSD) is not required.

The plant has continuous emissions monitoring (CEM) equipment for NO<sub>x</sub>, SO<sub>2</sub>, opacity and total hydrocarbons as well as annual testing requirements for all of the regulated pollutants. The plant is subject to 40CFR63, Subpart LLL. As part of these tests, additional testing will be performed for particulate matter and visible emissions in conjunction with the CEM data.

The Department will issue the Final Permit (Letter) with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions. The Department will accept written comments concerning the proposed permit issuance action for a period of fourteen (14) days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, FL 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions must be filed within fourteen (14) days of publication of this Public Notice of Intent to Issue Air Construction Permit. Under Section 120.60(3), F.S., however, petitions submitted by person(s) who asked the Department for notice of agency action must be filed within fourteen (14) days of receipt of that notice or the date of publication of the public notice whichever occurs first. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency action or proposed action; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise

statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection  
Bureau of Air Regulation  
111 S. Magnolia Drive, Suite 4  
Tallahassee, Florida, 32301  
Telephone: (850) 488-0114  
Fax: (850) 922-6979

Department of Environmental Protection  
Northeast District Office  
7825 Baymeadows Way, Suite 200B  
Jacksonville, Florida 32256-7590  
Telephone: (904) 807-3233  
Fax: (904) 448-4363

The complete project file includes the technical evaluation, Draft Air Construction Permit, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, North Permitting Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 850/488-0114, for additional information. The technical evaluation and draft permit (authorization letter) can be viewed at [www.dep.state.fl.us/air/permitting/construct.htm](http://www.dep.state.fl.us/air/permitting/construct.htm) in the Florida Rock Newberry link.



Jeb Bush  
Governor

# Department of Environmental Protection

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

Colleen M. Castille  
Secretary

October XX, 2004

CERTIFIED MAIL – Return Receipt Requested

Mr. Gary Sauer  
President of the Cement and Calcium Group  
Florida Rock Industries  
155 East 21<sup>st</sup> Street  
Jacksonville, Florida 32206

RE: **Draft** Authorization to Conduct Pollutant Testing and Parameter Measurements for the Implementation of Selective Non Catalytic Reduction (SNCR) for the Control of Oxides of Nitrogen (NOx) 0010087-011-AC

Dear Mr. Sauer:

The Department has reviewed the request that you provided on July 23, 2004 and that was supplemented by a letter from Dr. John Koogler on October 12, 2004. We have considered the Department's legal authority to allow Florida Rock to conduct the requested testing and measurements on its existing kiln and associated equipment at the Thompson S. Baker Cement Plant in Alachua County. The facility is off of County Road 235 approximately 2.5 northeast of Newberry, Florida. The map coordinates are: UTM Zone 17, 346.8 km East and 3287.0 km North. The purpose of this testing is to help the company and the Department assess the viability of SNCR as a NOx control measure in the cement industry. Paragraph 403.061(16), Florida Statutes (F.S.), authorizes the Department to encourage voluntary cooperation by persons in order to achieve the purposes of the state environmental control act. Paragraph 403.061(18), F.S., authorizes the Department to encourage and conduct studies, investigations, and research relating to the causes and control of pollution. Rule 62-210.700(5), Florida Administrative Code (F.A.C.), authorizes the Department to consider variation in industrial equipment and make allowances for excess emissions that provide reasonable and practical regulatory controls consistent with public interest.

In accordance with the provisions of Paragraphs 403.061(16) and (18), F.S., and Rule 62-210.700(5), F.A.C., you are hereby authorized to conduct pollutant testing and parameter measurements for the evaluation of emission ranges and the effectiveness of SNCR for NOx control under a variety of operating scenarios for the kiln and associated equipment at the Thompson S. Baker Cement Plant. This evaluation will require Florida Rock to vary the collection efficiency of the existing NOx controls to establish performance curves between NOx

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Florida Rock Industries  
Thomas S. Baker Cement Plant  
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emissions and ammonia injection, thus creating an operational condition near or in excess of the Florida NOx emissions and opacity standards. The data gathered will allow the calibration of the SNCR system to evaluate the various NOx control scenarios outlined in Attachment A. The pollutants and or parameters to be measured or monitored will include sulfur dioxide, nitrogen oxides, total hydrocarbons particulate matter, visible emissions, carbon monoxide, unit operational parameters including load, fuel flow, excess air and flue gas temperature, and other unit specific parameters that are needed for the evaluation.

The performance tests and parameter measurements or monitoring shall be subject to the following conditions:

1. Unless waived, the permittee shall notify the Department's Northeast District and Bureau of Air Regulation offices at least 15 days prior to commencement of the performance tests and parameter measurements or monitoring. A written test protocol shall be submitted to these offices at least 15 days prior to beginning the tests. The written protocol shall as a minimum address the testing principles in Attachment A (Attached). A written report shall be submitted to these offices within 45 days upon completion of the last test run and parameter measurements and monitoring.
2. The authorized testing and measurement and monitoring schedule is from October 25 thru December 31, 2004, for a total of 60 operating days. If additional time is needed, the permittee shall provide the Department with documentation of the progress accomplished to date and shall identify what is left to be done to complete the testing and measurements or monitoring.
3. The parameters to be measured or monitored are sulfur dioxide by use of a continuous emission monitoring system (CEM), nitrogen oxides by the use of a CEM, opacity by the use of a continuous opacity monitor and/or EPA Method 9, Total Hydrocarbons (THC) by the use of a CEM, carbon monoxide using EPA Method 10, ammonia slip using EPA Method CTM 027, load, fuel flow, excess air, flue gas temperature, and other unit specific parameters that are needed for the SNCR evaluation.
4. In addition to the parameter monitoring in 3. above, a one time emissions test shall be conducted at the optimum SNCR operating conditions for particulate matter. Additionally, visible emissions testing shall be conducted at each molar ratio of NH<sub>3</sub>/NO<sub>x</sub> investigated during the SNCR tests. The tests shall be conducted using the following test methods:
  - a. Particulate matter                      EPA Test Method 5 (including EPA Test Methods 1 thru 4)
  - b. Visible emissions                      EPA Test Method 9
5. The release of objectionable odors pursuant to Rule 62-296.320(2), F.A.C., is not authorized for this activity.
6. Testing shall immediately cease upon the occurrence of a Department determined valid environmental complaint by a citizen or other party, or a Department determined nuisance or

Mr. Gary Sauer  
Florida Rock Industries  
Thomas S. Baker Cement Plant  
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danger to the public health or welfare. Performance testing shall not resume until appropriate measures to correct the problem have been implemented.

7. The performance tests and parameter measurements and monitoring shall be under the direct supervision and responsible charge of a professional engineer registered in Florida.
8. This Department action is just to authorize the performance testing and parameter measurements and monitoring for the Thomas S. Baker Cement Plant for the purpose of evaluating the effectiveness of the use of SNCR on controlling and reducing NOx emissions in the cement industry.
9. Complete documentation of the activity shall be kept on file for at least 5 (five) years.
10. The Department shall be notified in writing on the date of the last test run and parameter measurement and monitoring completion. If after work hours, notification shall occur on the next work day.
11. Attachment Section.
  - a. Dr. John B. Koogler, P.E. letter received July 23, 2004.
  - [b]. [Final Determination.]

The Department has relied on the information referenced in the Attachment Section and conversations with representatives of Florida Rock Industries in authorizing this activity.

Sincerely,

Michael G. Cooke, Director  
Division of Air Resource Management

MGC/tlv/jp

Enclosures

cc: Trina Vielhauer, DEP - BAR  
Jim Pennington, DEP - BAR  
Bobby Bull, DEP - BAR  
Chris Kirts, DEP - NED  
Richard Banks, DEP - NED  
Rita Felton-Smith, DEP - NED  
Joe Kahn, DEP - BAMMS  
Dr. John B. Koogler, PhD, P.E. Koogler and Associates  
Chair, Alachua County Commission  
Chris Horne, FRI

### Testing Principles and Protocol

The following points are the basis for the protocol that needs to be developed by Florida Rock Industries (FRI) and its consultants. FRI shall try to find the combination of SNCR, tire use, and degree of reducing conditions in the calciner that yields best operation and a target of around 150 ppm (corrected) NO<sub>x</sub> emissions. All NO<sub>x</sub> levels stated herein are for targeting purposes and are not meant to be emission limits. The various objectives stated below can be adjusted as operational problems occur or are aggravated. If the establishment of a baseline prior to initiation of SNCR or renewed operation in MSC modes is desired, the NO<sub>x</sub> emissions shall not be more than 400 ppm (corrected). This is approximately equal to 4 lb/ton of clinker. This data will be excluded from the 30 day rolling average limit of 2.45 lb of NO<sub>x</sub>/ton of clinker for those hours (or days) when the baseline is established. Additionally, data showing CO and opacity excursions as a result of these tests will be excluded. All other emission limits shall be met. The Company shall document all excursions and take appropriate steps to minimize them during testing.

1. During all SNCR testing, the stack gas discharged from the kiln/raw mill system will be continuously monitored with CEMS for sulfur dioxide, nitrogen dioxides, total hydrocarbons, opacity, and flow. Carbon monoxide will be monitored in accordance with EPA Method 10. During each phase of the SNCR tests, the opacity of emissions, as determined by EPA Method 9, will be recorded, in addition to the continuous opacity monitoring to document whether or not a detached plume forms.
2. Ammonia slip will be measured as a function of the NH<sub>3</sub>/NO<sub>x</sub> molar ratio during the tests to determine the optimum molar ratio of NH<sub>3</sub>/NO<sub>x</sub>. The ammonia concentration in the stack gas will be determined continuously by FTIR, with a chemiluminescent analyzer, or equivalent.
3. Once the optimum NH<sub>3</sub>/NO<sub>x</sub> molar ratio and plant operating conditions have been determined, a one-time particulate matter emission test will be conducted using EPA Method 5.
4. During SNCR testing, the following parameters will be monitored and recorded:
  - Preheater feed rate and clinker production rate,
  - Coal and Waste Tire Derived Fuel (WTDF) firing rates,
  - Oxygen, CO and temperatures between the kiln inlet and the top of the preheater tower, as recorded with process monitors,
  - Point of ammonia injection,
  - Type of ammonia injected and ammonia concentration,
  - Molar ratio of NH<sub>3</sub>/NO<sub>x</sub>,
  - Frequency of air cannon use and cardox charge use,
  - Pressure at various locations in the preheater tower as an indication of material buildup,
  - Fan amperage of the kiln I.D. fan,
  - Clinker characteristics,
  - Log of blockages, kiln shutdowns, and kiln startups, and
  - Other parameters as determined necessary.
5. A baseline plant operating condition will be established using MSC and the firing of WTDF; i.e., normal plant operating conditions without SNCR. It is anticipated that NO<sub>x</sub> emissions under these operating conditions will be in the range of 2.4-2.5 pounds per ton of clinker.

6. After steady state operations are established, ammonia will be introduced at various locations to determine the optimum point of ammonia injection. It is anticipated that ammonia water (<19 wt%) will be the ammonia solution of choice.
7. Once the optimum location for ammonia injection has been determined, steady state plant operations will again be established using both MSC and WTDF firing. Ammonia will then be injected starting at a molar ratio of approximately 0.4 (NH<sub>3</sub>/NO<sub>x</sub>) and increasing to a maximum of 0.7-0.8. The goal will be to establish the molar ratio necessary to achieve a NO<sub>x</sub> emission rate in the range of 2.0 pounds per ton of clinker, while using MSC and WTDF. By keeping the molar ratio below 0.8, the formation of CO and ammonia slip will both be minimized. Minimizing the molar ratio also minimizes the reagent (NH<sub>3</sub>) cost and the amount of water (from the ammonia solution) that must be pulled through the system. The latter minimizes the power consumption of the kiln I.D. fan.
8. The concentration of ammonia in water may be reduced (below ~19 wt%) emulating a urea solution concentration. This is a test option that may or may not be exercised.
9. Once the ammonia injection point and the NH<sub>3</sub>/NO<sub>x</sub> molar ratio are optimized, steady state plant operations will again be established. WTDF firing will be discontinued to evaluate the effect on NO<sub>x</sub> emissions. This will simulate times when WTDF may not be available. Without WTDF, the molar ratio of NH<sub>3</sub>/NO<sub>x</sub> may have to be increased or the MSC operating conditions altered to maintain a NO<sub>x</sub> emission rate in the target range of 2.0 pounds per ton of clinker.
10. Steady state plant operations will again be established with optimum ammonia injection, WTDF and MSC. These conditions will be adjusted to produce a NO<sub>x</sub> emission rate in the range of 2.0 pounds per ton of clinker. The plant will be allowed to operate under these optimized conditions for a period of 2-3 days to determine the long-term effect of SNCR on plant operations. Of concern will be material build up between the kiln inlet and into the preheater tower, changes in the power consumption of the kiln I.D. fan, a coating formation on the fan impeller, product quality, and secondary emissions; specifically CO, ammonia slip, and/or the formation of a detached plume.
11. Once the long-term operating effects of SNCR have been determined, the testing will be terminated.



Jeb Bush  
Governor

# Department of Environmental Protection

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

Colleen M. Castille  
Secretary

## P.E. Certification Statement

**Permittee:** Florida Rock Industries  
Thompson S. Baker Cement Plant  
**Project:** Air Construction Permit for SNCR Testing

**DRAFT Permit No.:** 0010087-011-AC

*I HEREBY CERTIFY that the engineering features described in the above referenced application and subject to the proposed permit conditions provide reasonable assurance of compliance with applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4 and 62-204 through 62-297. However, I have not evaluated and I do not certify aspects of the proposal outside of my area of expertise (including but not limited to the electrical, mechanical, structural, hydrological, and geological features).*

*This draft permit was prepared by me with input from Bureau of Air Regulation personnel as needed.*

James K. Pennington, P.E.  
Registration Number: 34536

10/13/04  
Date

Permitting Authority:  
Department of Environmental Protection  
Bureau of Air Regulation  
111 South Magnolia Drive, Suite 4  
Tallahassee, Florida 32301  
Telephone: 850/488-0144  
Fax: 850/922-6979



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 155 East 21st Street  
 Jacksonville, Florida 32206

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