

FLORIDA ROCK INDUSTRIES INC

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

RECEIVED
October 21, 2004

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Mr. Robert Bull
Division of Air Resources
Department of Environmental Protection
2600 Blair Stone Road, MS #5505
Tallahassee, FL 32399-2400

BUREAU OF AIR REGULATION

Dear Mr. Bull:

Florida Rock Industries, Inc., requests approval to test the addition of flyash and petroleum coke to the coal it fires at the Thompson S. Baker Cement Plant in Newberry. This project would allow FRI to evaluate the feasibility of adding flyash and petroleum coke to the coal used in the kiln and calciner. A test period of 60 days is requested to establish stable conditions and evaluate the effects upon the process of varied proportions of flyash and petroleum coke.

Flyash and petroleum coke will be added to raw coal for processing in the coal mill and injection into the kiln and calciner. No additional equipment would be required nor would additional emission points be created. The tests planned under this project would not prevent operation within the limits of the Title V air permit. No limits on production, total heat input, or pollutant-emission rates will be exceeded.

Only the kiln system will be affected. Continuous monitoring systems for NO_x, SO₂, opacity, total hydrocarbons, and stack-gas flowrate will be used to ensure that the tests do not result in excessive emissions. Any test phase in which a monitored limit is approached and would be exceeded if the test continued would be halted.

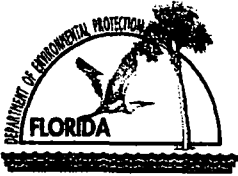
At the completion of the testing, FRI will submit to the Department a final engineering report on the tests and results. This report will include a summary and review of process, production, and emission data. Upon submittal of the final report, FRI may request the Department's review of an application to modify the permit to add flyash and petroleum coke.

Included with this letter of request is a description of the proposed project and a construction-permit application to conduct the tests. If you have any questions, please call me at (352) 472-4722, ext. 130, or Henry Gotsch, at ext. 121.

Sincerely,

FLORIDA ROCK INDUSTRIES, INC.

Chris Horner
Plant Manager



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit for a proposed project:

- subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- at an existing federally enforceable state air operation permit (FESOP) or Title V permitted facility.

Air Operation Permit – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

Air Construction Permit & Revised/Renewal Title V Air Operation Permit (Concurrent Processing Option)
– Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Florida Rock Industries, Inc.	
2. Site Name: Thompson S. Baker Cement Plant - Newberry	
3. Facility Identification Number: 0010087	
4. Facility Location... Street Address or Other Locator: 4000 NW County Road 235 City: Newberry County: Alachua Zip Code: 32699	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: William A. Proses, P.E.	
2. Application Contact Mailing Address... Organization/Firm: Koogler and Associates, Inc. Street Address: 4014 NW 13th Street City: Gainesville State: FL Zip Code: 32609	
3. Application Contact Telephone Numbers... Telephone: (813) 486 - 1285 ext. Fax: (813) 920 - 9539	
4. Application Contact Email Address:	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	<i>10-21-04</i>
2. Project Number(s):	<i>0010087-012-AC</i>
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

APPLICATION INFORMATION

Purpose of Application

This application for air permit is submitted to obtain: (Check one)

Air Construction Permit

Air construction permit.

Air Operation Permit

Initial Title V air operation permit.

Title V air operation permit revision.

Title V air operation permit renewal.

Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

Air construction permit and Title V permit revision, incorporating the proposed project.

Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

The purpose of this Air Construction permit is for the authorization of tests to evaluate the addition of flyash and petroleum coke to the coal fired at the Thompson S. Baker Cement plant in Newberry. This project will allow FRI to evaluate the feasibility of adding flyash and petroleum coke to the coal used in the kiln and calciner. Flyash and petroleum coke will be added to raw coal for processing in the coal mill and injected into the kiln and calciner. No additional equipment is required. Test plan operations will be within the limits of the Title V air permit. No limits on production, total heat input, or pollutant-emission rates will be exceeded. Only the kiln system will be affected.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
003	Kiln System	NA	NA

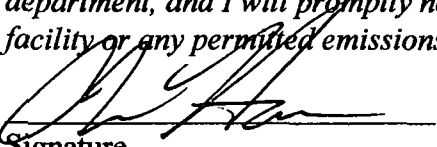
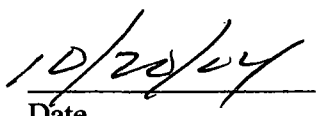
Application Processing Fee

Check one: Attached - Amount: _____ Not Applicable

APPLICATION INFORMATION

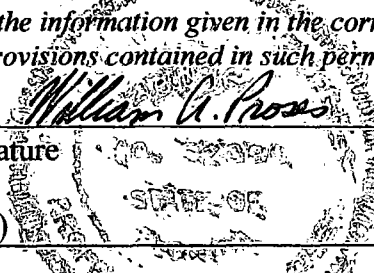
Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name : Chris Horner, Plant Manager
2. Owner/Authorized Representative Mailing Address... Organization/Firm: Florida Rock Industries, Inc. - Thomas S. Baker Cement Plant Street Address: 4000 NW CR 235 City: Newberry State: FL Zip Code: 32669
3. Owner/Authorized Representative Telephone Numbers... Telephone: (352) 427 - 4277 ext. Fax: (352) 427 - 2449
4. Owner/Authorized Representative Email Address: chris@flarock.com
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i>  Signature  Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: William A. Proses, P.E. Registration Number: 52080
2. Professional Engineer Mailing Address... Organization/Firm: Koogler and Associates, Inc. Street Address: 4014 NW 13th Street City: Gainesville State: FL Zip Code: 32609
3. Professional Engineer Telephone Numbers... Telephone: (813) 486 - 1285 ext. Fax: (813) 920 - 9539
4. Professional Engineer Email Address: wproses@kooglerassociates.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> Signature <u>William A. Proses</u> Date <u>10/15/04</u> (seal) 

FACILITY INFORMATION

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 346.9 North (km) 3,285.0		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) 29/41/27 Longitude (DD/MM/SS) 82/34/57	
3. Governmental Facility Code: 0	4. Facility Status Code: A	5. Facility Major Group SIC Code: 32	6. Facility SIC(s): 3241
7. Facility Comment : <u><i>None</i></u>			

Facility Contact

1. Facility Contact Name: Henry Otar Gotsch, P.E.
2. Facility Contact Mailing Address... Organization/Firm: Florida Rock Industries, Inc. Street Address: 4000 NW CR 235 City: Newberry State: FL Zip Code: 32669
3. Facility Contact Telephone Numbers: Telephone: (352) 472 - 4722 ext. Fax: (352) 472 - 2449
4. Facility Contact Email Address: hgotsch@flarock.com

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I. that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: ext. Fax:
4. Facility Primary Responsible Official Email Address:

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. <input type="checkbox"/> Small Business Stationary Source	<input checked="" type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment: Item 6 presumed Major for HAPs	

FLYASH AND PETROLEUM-COKE FUEL-ADDITION PROJECT

PROJECT OVERVIEW

Florida Rock Industries, Inc.—Thompson S. Baker Cement Plant proposes to conduct trials involving the addition of flyash and petroleum coke to the coal currently prepared in the coal mill and fired in the kiln and calciner vessel. A 60-day period is requested in which to conduct the project tests. Additional information is provided below.

AIM OF TRIALS

This project's aim is to (1) demonstrate the technical feasibility of introducing flyash and petroleum coke with the coal into the kiln and calciner, (2) establish stable and predictable operating parameters, (3) assess the impact on clinker and cement quality, and (4) measure the benefits of introducing flyash and petroleum coke with coal into the kiln and calciner at the Thompson S. Baker Cement Plant.

DESCRIPTION OF PROCESSING SYSTEM

The dry, blended, mixture of raw materials fed to the kiln is approximately 10% flyash, 3% sand, 2% iron, and 85% limestone. The kiln-feed system boosts this mixture to the top of the preheater tower, then gravity carries it down to the kiln through the four stages of the preheater tower countercurrent to exiting kiln gases which dry, preheat, and partially calcine the material. Calcining and sintering are completed in the kiln.

Nearly all the heat necessary to produce cement clinker from the raw material is provided by coal. The coal is moved from railcar or storage bunker to a coal mill which grinds and dries the coal to a powder. The powdered coal is injected and burned in the kiln and calciner. The unburnable mineral—or ash—portion of the coal mixes with the incoming feed materials and is incorporated into the cement clinker. Whole tires introduced into the calciner provide a fraction of the heat input.

DESCRIPTION OF MATERIALS INVOLVED

Flyash, a residual ash from electric-power plant coal burning, does not require calcination and may be added just prior to the sintering zone for its mineral composition to be incorporated into cement clinker. Petroleum coke, a high-carbon byproduct of the oil-refining industry, is a fuel of high heat content and very low ash relative to coal.

DESCRIPTION OF PROJECT

Under the proposed trial, flyash and, later, petroleum coke would be added to raw coal for processing in the coal mill and combustion in the kiln burner and calciner. Flyash and petroleum coke would be stored in the existing coal bunker and fed into the coal-feed hopper; coal would be transported on the coal conveyor from railcar. The blended and

crushed materials will be burned in the kiln and calciner. No additional equipment will be required.

The trial will consist of several phases for each proposed material. Flyash Phase One will be based on 5% flyash (95% coal) for a test run of 72 hours. At the end of the first phase, the flyash addition to coal would be discontinued. After an evaluation of the results of process, quality, and emission data, Flyash Phase Two would be started. The flyash proportion would be stepped up incrementally to 11% (89% coal) over several hours. The test run would last 72 hours.

Petroleum Coke Phase One will be based on 5% petroleum coke (95% coal). Petroleum Coke Phases Two and Three will be based on 10% petroleum coke (90% coal) and 30% petroleum coke (70% coal), respectively. Periods for step-up, testing, and evaluation, as described for the flyash phases, will be used.

Depending upon the results of testing with flyash with coal and petroleum coke with coal, several phases with blends of flyash, coke, and coal may be done.

ANTICIPATED EFFECTS UPON LIMITS OF THE TITLE V AIR PERMIT

This project would operate within the requirements of the Title V air permit. Only the kiln system would be affected, and no permitted limits on production, total heat input, or pollutant emissions will be exceeded. Under the proposed trial, the sum of heat-input rate from the coal, tires, flyash, and petroleum coke would not be greater than the allowable, total heat-input rate. Clinker-production rates would remain within limits; preheater-feed rates would be slightly reduced as the flyash fraction fed with the fuel is increased. Emission limits will not be exceeded.

POTENTIAL BENEFITS

It is expected that addition of flyash to coal would cause:

- Reduction in emissions of total hydrocarbons and carbon monoxide, since reducing the fraction of flyash in the raw feed would mean less carbonaceous material subject to oxidation in the preheater tower.
- Improved ability to control NOx emissions since carbonaceous feed materials are delivered directly to the burning zone and reducing conditions at the calciner can be better controlled.
- Increased flexibility to use varying qualities of electric-power plant flyash.
- More efficient heating of incoming feed as the raw-material feed rate is slightly reduced.

Addition of petroleum coke would make use of a high-Btu fuel that is a byproduct of the region's oil-refining industry. Reduction in the use of coal would reduce the environmental costs associated with coal mining and delivery from more distant coal fields.

PERMIT MODIFICATION

Based upon results of this project, some modifications of the Title V permit would be necessary. In particular:

- The allowable fuels would be expanded to include coal blended with up to 11% flyash and/or up to 30% petroleum coke.
- Fueling limit would be based upon total heat input, not a maximum coal feed rate.
- The ratio of dry preheater feedrate to clinker production rate might increase slightly as the flyash fraction of the dry preheater feedrate is reduced.

CONCLUSION

Optimization of the rates of addition of flyash and petroleum coke to the coal fired in the kiln and calciner is expected to expand the selection of fuel while improving emissions of THC and CO associated with carbonaceous materials in the feed and allow better NOx control by improving reducing-condition controls.