



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

November 12, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Joseph T. Piermatteo  
Sr. Vice President  
Florida Crushed Stone Company  
10311 Cement Plant Road  
Brooksville, Florida 34601

Re: DRAFT Permit No. AC27-274892(A), PSD-FL-227(A), PA 82-17  
Florida Crushed Stone, Portland Cement Plant No. 2 and Associated Equipment

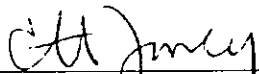
Dear Mr. Piermatteo:

Enclosed is one copy of the Draft Air Construction Permit for the Florida Crushed Stone Cement Plant No. 2 located at US Highway 98, Northwest of Brooksville, Hernando County. The Technical Evaluation and Preliminary Determination, Best Available Control Technology Determination, the Department's Intent to Issue Air Construction Permit, and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" are also included. The FINAL Permit, if issued, may replace the permit already issued by the Department on November 17, 1995 for a second cement plant at your Brooksville facility.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT" must be published within 30 (thirty) days of receipt of this letter. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Ms. Teresa Heron or Mr. Linero at 904/488-1344.

Sincerely,

  
C. H. Fancy, P.E., Chief  
Bureau of Air Regulation

CHF/th/t

Enclosures

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

In the Matter of an  
Application for Permit by:

Florida Crushed Stone Company  
10311 Cement Plant Road  
Brooksville, Florida 34601

DRAFT Permit No.: AC27-274892(A)  
PSD-FL-227(A)  
Brooksville Portland Cement Facility  
Hernando County

### INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit (copy of DRAFT Permit attached) for the proposed project, detailed in the application specified above and the attached Technical Evaluation and Preliminary Determination, for the reasons stated below.

The applicant, Florida Crushed Stone Company, applied on September 11, 1996, to the Department for an air construction permit to replace the one issued on November 17, 1995 for a second cement plant at its Brooksville facility located at 10311 Cement Plant Road, Brooksville, Hernando County. The request is to allow a possible change in the project to incorporate more modern kiln technology together with a production increase.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that a new air construction permit is required to revise the emission limits as proposed. The new permit, if issued, may replace the the one already issued.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT". The notice shall be published one time only within 30 (thirty) days 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. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 904/488-1344; Fax 904/ 922-6979) within 7 (seven) days of publication. 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 62-103.150 (6), F.A.C.

The Department will issue the FINAL Permit, in accordance with the conditions of the enclosed DRAFT Permit 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 and requests for public meetings concerning the proposed DRAFT Permit issuance action for a period of 30 (thirty) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT." Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit, the Department shall issue a Revised DRAFT 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., or a party requests mediation as an alternative remedy under Section 120.573 F.S. before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation.

A person whose substantial interests are affected by the Department's 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, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9730, fax: 904/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within 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 (or a request for mediation, as discussed below) 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 of the Florida Administrative Code.

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 Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the Department'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 Department 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 Department'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 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 person whose substantial interests are affected by the Department's proposed permitting decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

A request for mediation must contain the following information: (a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any; (b) A statement of the preliminary agency action; (c) A statement of the relief sought; and (d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed, and incorporating it by reference.

The agreement to mediate must include the following: (a) The names, addresses, and telephone numbers of any persons who may attend the mediation; (b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time; (c) The agreed allocation of the costs and fees associated with the mediation; (d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation; (e) The date, time, and place of the first mediation session, or a deadline

for holding the first session, if no mediator has yet been chosen; (f) The name of each party's representative who shall have authority to settle or recommend settlement; and (g) The signatures of all parties or their authorized representatives.

As provided in Section 120.573 F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57 F.S. for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57 F.S. remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes.

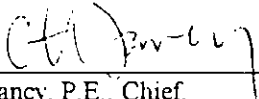
In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal 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, 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 EPA 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.

  
\_\_\_\_\_  
C.H. Fancy, P.E., Chief,  
Bureau of Air Regulation

**CERTIFICATE OF SERVICE**

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT (including the PUBLIC NOTICE, Technical Evaluation and Preliminary Determination, Draft BACT Determination, and the DRAFT permit) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 11-12-96 to the person(s) listed:

Mr. Joseph T. Piermatteo, Florida Crushed Stone Company \*  
Brian Beals, EPA  
John Bunyak, NPS  
Buck Oven, DEP  
Bill Thomas, SWD  
Doug Beason, OGC  
Lawrence Jennings, Hernando Co.  
Don Elias, RTP  
Lawrence Curtin, H&K  
Tom Mountain, FCS

Clerk Stamp

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

Kuni Jones  
(Clerk)

11-12-96  
(Date)

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

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit No.: AC27-274892(A), PSD-FL-227(A)  
Florida Crushed Stone  
Brooksville Cement Manufacturing Facility  
Hernando County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Crushed Stone Company (FCS). The permit will provide for a change in kiln technology and a production increase for the previously proposed and permitted Portland Cement Plant No. 2 to be located at 10311 Cement Plant Road in Brooksville, Hernando County, Florida. A Best Available Control Technology (BACT) determination was required for particulate matter (PM/PM<sub>10</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and carbon monoxide (CO) pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Florida Crushed Stone Company, 10311 Cement Plant Road, Brooksville, Florida 34601.

The project changes consist of adding a precalcining vessel and a different preheater prior to the kiln in lieu of the previously approved Gepol preheater. The capacity of the plant will increase from 83 to 104 tons per hour of clinker. The revised project, therefore, will consist of a dry process kiln with a preheater/precalciner, clinker cooler, crushers, raw mill, finish mill, material and fuel handling equipment, silos, and shipping facilities. Pollution control equipment includes a common fabric filter system (baghouse) for particulate emissions from the kiln and cooler; absorption of sulfur compounds and metals into the product; combustion controls for volatile organic compounds (VOC) and CO; indirect firing, multiple burn points and other combustion controls for NO<sub>x</sub>; and baghouses for particulate emissions from other process emission units.

Total emissions of PSD-Significant pollutants for the revised Portland Cement Plant No. 2 project will be greater than those predicted for the original project due to the production increase:

<u>Pollutant</u>	<u>Revised Project Tons Per Year</u>	<u>Original Project Tons Per Year</u>
PM/PM <sub>10</sub>	300	250
SO <sub>2</sub>	105	98
NO <sub>x</sub>	1278	909
CO	913	727

An air quality impact analysis was conducted. SO<sub>2</sub> and NO<sub>2</sub> emissions will not have a significant impact in the PSD Class II area; therefore, no PSD Class II increment consumption for SO<sub>2</sub> and NO<sub>2</sub> was calculated. The maximum predicted PSD Class II PM<sub>10</sub> increments consumed by this project will be as follows:

<u>PSD Class II Increment Consumed (ug/m<sup>3</sup>)</u>	<u>Allowable Increment (ug/m<sup>3</sup>)</u>	<u>Percent Increment Consumed</u>
PM <sub>10</sub>		
24-hour 28	30	93
Annual 3	17	18

The project will not have a significant impact on the Chassahowitzka PSD Class I area with respect to SO<sub>2</sub>, PM<sub>10</sub> and visibility; therefore, no increment consumption for SO<sub>2</sub> and PM<sub>10</sub> was calculated. The maximum predicted PSD Class I NO<sub>2</sub> increment consumed by this project is as follows:

<u>PSD Class I Increment Consumed (ug/m<sup>3</sup>)</u>	<u>Allowable Increment (ug/m<sup>3</sup>)</u>	<u>Percent Increment Consumed</u>
NO <sub>2</sub> Annual 0.99	2.5	40

Coal and tires will be the primary fuels consumed. A blend of fuel oil and on-spec used oil will be burned during startup with occasional use of natural gas. No RCRA hazardous waste will be burned. Cement Kiln Dust (CKD) collected in the kiln/cooler baghouse will be returned to the process. Any CKD not returned to the process will be stored in silos for sale and ultimately handled in accordance with Subtitle C rules under development by EPA.

The Department will issue the FINAL Permit, in accordance with the conditions of the DRAFT Permit 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 and requests for public meetings concerning the proposed DRAFT Permit issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments and requests for public meetings should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit, the Department shall issue a Revised DRAFT Permit and require, if applicable, another Public Notice.

The Department will issue FINAL Permit with the conditions of the DRAFT Permit unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. or a party requests mediation as an alternative remedy under Section 120.573 before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation.

A person whose substantial interests are affected by the Department's 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, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9370, fax: 904/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within 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 (or a request for mediation, as discussed below) 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 of the Florida Administrative Code.

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 Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the Department'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 Department to take with respect to the Department's 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 Department'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 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 person whose substantial interests are affected by the Department's proposed permitting decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

A request for mediation must contain the following information: (a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any; (b) A statement of the preliminary agency action; (c) A statement of the relief sought; and (d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed, and incorporating it by reference.

The agreement to mediate must include the following: (a) The names, addresses, and telephone numbers of any persons who may attend the mediation; (b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time; (c) The agreed allocation of the costs and fees associated with the mediation; (d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation; (e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen; (f) The name of each party's representative who shall have authority to settle or recommend settlement; and (g) The signatures of all parties or their authorized representatives.

As provided in Section 120.573 F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57 F.S. for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57 F.S. remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes.

The 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: 904/488-1344  
Fax: 904/922-6979

Department of Environmental Protection  
Southwest District Office  
3804 Coconut Palm Drive  
Tampa, Florida 33619  
Telephone: 813/744-6100  
Fax: 813/744-6458

Hernando County Planning Department  
20 North Main Street, Room 262  
Brooksville, Florida 34601-2807  
Telephone: 352/754-4057  
Fax: 352/754-4420

The complete project file includes the application, technical evaluations, Draft 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, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 904/488-1344, for additional information.



**SENDER:**

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed (C)

Joseph J. Perrinatto Sr. VP.  
Gla Crushed Stone Co.  
10311 Cement Plant Rd  
Brooksville, FL  
34601

4a. Article Number  
P 339 251 177

4b. Service Type

Registered  Insured  
 Certified  COD  
 Express Mail  Return Receipt for Merchandise

7. Date of Delivery  
11/14/96

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, December 1991 U.S. GPO: 1993-352-714

**DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

P 339 251 177

US Postal Service  
**Receipt for Certified Mail**  
 No Insurance Coverage Provided.  
 Do not use for International Mail (See reverse)

Send to	
Joe Perrinatto	
Street	
Gla. Crushed St	
Post Office, State, & ZIP Code	
Brooksville, FL	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	11-12-96
AC 27-274892(A)	
PSD-FI-227(A)	
PA 82-17	

PS Form 3807, April 1995

**DIVISION OF AIR RESOURCES MANAGEMENT  
BUREAU OF AIR REGULATION  
NEW SOURCE REVIEW SECTION  
PHONE 904/488-1344 FAX 904/ 922-6979  
Mail Station # 5505**

**TECHNICAL EVALUATION  
AND  
PRELIMINARY DETERMINATION**

**Portland Cement Plant No. 2**

**FLORIDA CRUSHED STONE COMPANY**

Facility ID No. :0530021  
Brooksville, Florida  
Hernando County

Permit No. AC 27-274892 (A)  
PSD-FL-227 (A)  
PA 82-17

November 6, 1996

**FLORIDA CRUSHED STONE COMPANY.  
PORTLAND CEMENT PLANT NO. 2  
Brooksville, Florida  
PSD-FL-227(A) and AC 27-274892(A)  
Facility ID No.: 0530021**

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# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Florida Crushed Stone, Co.  
Portland Cement Facility Plant No. 2

Permit No. AC 27-274892(A)  
PSD-FL-227(A)

---

## I. APPLICANT NAME AND ADDRESS

Florida Crushed Stone Company  
10311 Cement Plant Road  
Brooksville, Florida 34601

## II. FACILITY INFORMATION

### A. FACILITY LOCATION

Florida Crushed Stone Company (FCS) plans to construct a 104 ton of clinker per hour (TPH clinker) cement plant at its existing facility located approximately 3.5 miles northwest of Brooksville, Hernando County. In addition to the existing 83 TPH clinker cement plant, there are large limestone reserves, quarrying operations, a lime plant, and a 150 megawatt power plant on 6400 contiguous acres. A second 83 TPH clinker cement plant was already permitted on November 17, 1995 but has not yet been built. The proposed 104 TPH plant would be constructed in lieu of the second 83 TPH plant.

This site is approximately 20 to 30 kilometers east to southeast of the Chassahowitzka National Wildlife Refuge, a Class I PSD Area, and over 50 kilometers north of ozone (O<sub>3</sub>) maintenance and lead (Pb) non-attainment areas in Pinellas and Hillsborough Counties. The UTM coordinates of this facility are Zone 17, 360.0 km East and 3162.5 km North.

### B. FACILITY CLASSIFICATION CODE (SIC)

Major Group No. 32, Clay, Glass, and Concrete Products

Industry Group No. 324 Cement, Hydraulic

Industry No. 3241 Cement, Hydraulic

### C. FACILITY CATEGORY

Florida Crushed Stone/Central Power and Lime facility is classified as a major air pollutant emitting facility. As proposed, the revised project is subject to New Source Review because it constitutes a Major Source with emissions of approximately 300 tons per year (TPY) of particulate matter (PM and PM<sub>10</sub>), 105 TPY of sulfur dioxide (SO<sub>2</sub>), 1278 TPY of nitrogen oxides (NO<sub>x</sub>) and 913 TPY of carbon monoxide (CO).

Less than significant emissions of other criteria pollutants, as proposed, are 39 TPY of volatile organic compounds (VOC), 6.4 TPY of sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub> as SO<sub>3</sub>), 2.37E-01 TPY of lead (Pb), and 1.10E-02 TPY of mercury (Hg), and 3.8E-04 TPY of beryllium (Be).

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## III. PROJECT DESCRIPTION

FCS is applying for a permit which incorporates modifications in the kiln technology currently permitted for the second cement kiln (AC27-274892 and PSD-FL-227, issued in November 1995) from a Gepol preheater (PH) tower kiln to a preheater/precalciner (PH/PC) kiln. Thermal efficiencies will be improved with the PH/PC kiln and the amount of fuel combusted per ton of clinker produced is expected to be reduced. The change to a PH/PC kiln will lower the temperature of the exhaust gases used to dry the raw materials prior to the raw mill so a shaft dryer incorporating an additional air heater is added to the design. Production will be 104 TPH of clinker from the PH/PC kiln instead of the permitted 83 TPH of clinker from the PH kiln.

The proposed cement plant will be designed to produce up to 104.2 TPH of clinker (highest maintained rate over a day). Although the plant will operate continuously and at a lower average production rate, the annual potential production rate will not exceed 912,500 TPY of clinker. The major equipment will include a PH/PC kiln, a clinker cooler, raw mill, finish mill, silos, conveyers, and particulate control/dust collection and recycling equipment. Another stack servicing the kiln and cooler will be erected and attached to the existing 320 foot stack. The cement product will be stored in silos and shipped in bags or in bulk by rail or truck.

Equipment changes resulting from the change in kiln technology consist of the following:

- Replacement of the planned Gepol tower with a preheater/precalciner, which consists of a set of cascading cyclones with a separate indirect-fired burner.
- Replacement of the planned direct-fired main kiln burner with an indirect fired main kiln burner.
- Addition of a shaft dryer to the raw mill system, including a separate combustion source (i.e., air heater), which increases the number of cyclones and slightly changes the course of air flow and raw material feed through the raw mill system.
- Addition of a bypass system, which vents air from the base of the precalciner through a dedicated baghouse directly to the main kiln stack. This system is common in precalciner systems and removes undesirable volatile constituents in the exhaust gases that might otherwise condense and cause scaling which can restrict process and gas flows.
- Since the kiln and precalciner burners are indirect fired, the coal handling system will require changes to reduce the air used to supply pulverized coal to the combustion system. This will require an additional coal storage silo (2S-20) and create two new minor particulate matter (PM) sources (2S-17 and 2S-21).

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The revisions to the raw material and clinker handling systems are:

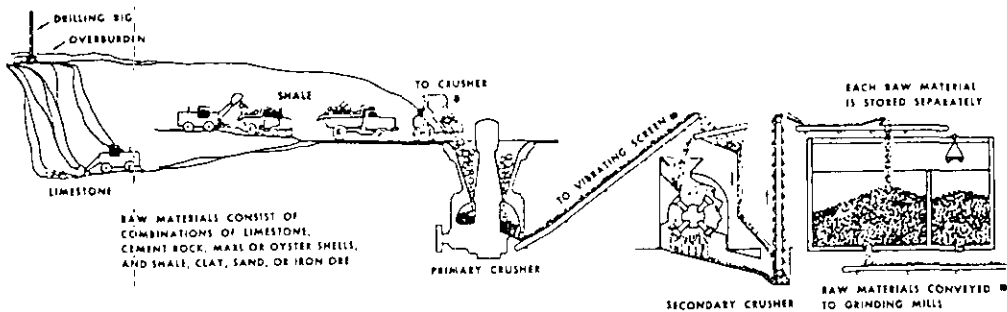
- Removal from the design of three dust collectors (2D-63, 2S-07, and 2S-04), one each for the iron ore storage bin (2D-61), coal storage bin (2S-10), and coal feed conveyor (2S-03). Based on the operation of the existing cement kiln, dust collectors are not necessary for these sources.
- Use of existing storage bins for the existing cement kiln I system for fly-ash, lime, and filter dust feed materials. This will eliminate three sources (i.e., silos) from the design (2D-64, 2F-21, and 2D-72) and two associated fly-ash silo dust collectors (2D-67 and 2F-30). The currently permitted filter dust silo dust collector (2D-72) will be retained for use in controlling PM emissions from the feed system used to convey filter dust from the existing silo to the new kiln.
- Addition of a clinker storage silo (2L-05) with an associated dust collector (2L-06) and clinker storage bin (2M-15) with an associated dust collector (2M-18).
- Change to the general arrangement of cement storage silos to utilize existing lime silos and dust collectors from the existing cement kiln for cement storage and load-out.
- Addition of the additional cement discharge hopper (2Q-38) with a related dust collector (2Q-17).
- Minor changes to the exit temperatures, flowrates, stack diameters, discharge height equipment numbers, and cloth areas for numerous sources as shown by underlines in Table 1-3 of the application.

The main raw materials will be limestone, clay, ash, iron ore from various sources and gypsum (e.g. from Tampa Electric's scrubbing system).

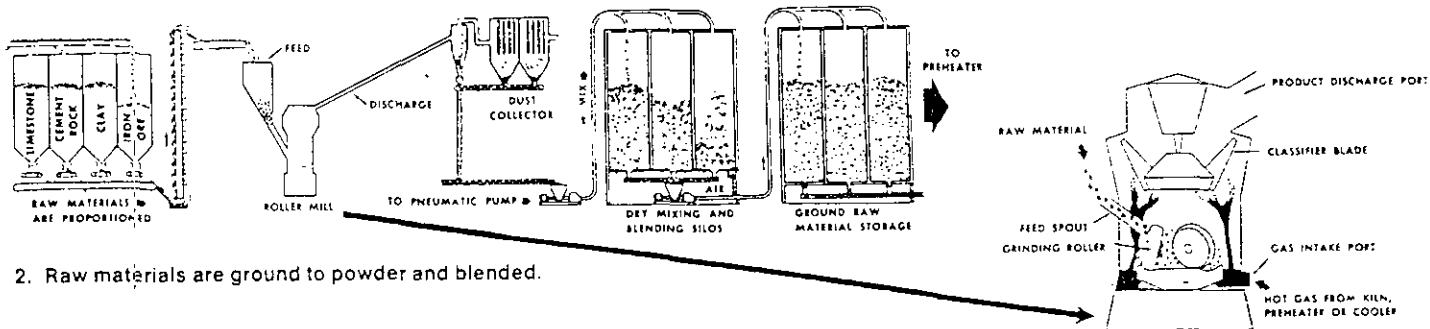
## IV. PROCESS DESCRIPTION

Portland cement is a fine powder, usually gray in color, that consists of a mixture of dicalcium silicate, tricalcium silicate, tricalcium aluminate, and tricalcium aluminoferrite, and miscellaneous minerals to which one or more forms of calcium sulfate have been added. About 95% of the cement production in the United States is portland cement. Masonry cement, also produced at the portland cement plant, represents the balance of the domestic cement production.

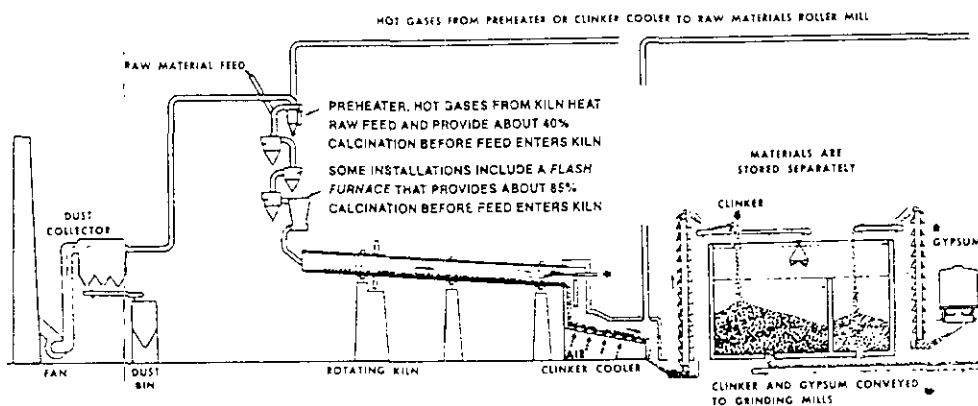
There are several variations in cement manufacturing including the wet, dry, dry preheater (PH), and dry preheater/precalciner (PH/PC) processes. These processes are essentially identical relative to the manufacture of cement from raw materials. However, the type of process does affect the equipment design, method of operation, and fuel consumption. Because of its lower fuel requirements, most new portland cement plants use the dry PH/PC. FCS proposes to use the dry PH/PC process depicted in simplified form in Figure 1 (from a Portland Cement Association publication).



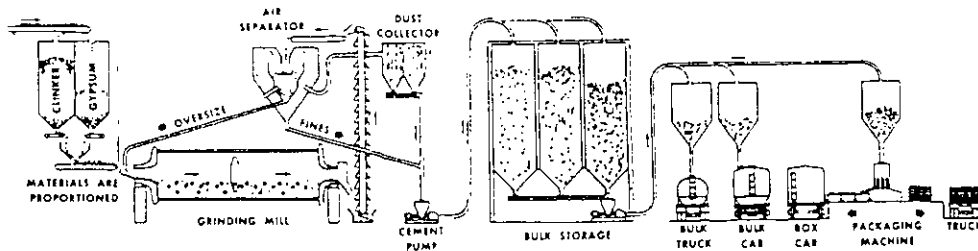
1. Stone is first reduced to 125 mm size, then to 20 mm, and stored.



2. Raw materials are ground to powder and blended.



3. Burning changes raw mix chemically into cement clinker. Note four-stage preheater, flash furnaces, and shorter kiln.



4. Clinker with gypsum is ground into Portland cement and shipped.

Figure 1 New technology in dry-process cement manufacturing

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The choice of fuel is based on economics. The most commonly used kiln fuels are coal, natural gas, and oil. Supplementary fuels such as petroleum coke, tires, used oil and various kinds of wastes are burned at many plants. FCS will burn coal in the kiln burner and introduce tires with the raw materials entering the kiln. FCS will use a blend of virgin oils with on-spec used oil for kiln startup and proposes use of natural gas at any time.

Fuel combustion differs between the various processes. In all of the variations, the combustion occurs in the kiln. In the dry PH/PC process, substantial fuel combustion also occurs in PC vessel between the PH and kiln material entry point. This reduces the thermal load on the kiln and allows for a shorter kiln.

The production of portland cement is a four-step process: (1) raw materials acquisition and handling (2) kiln feed preparation for pyroprocessing, (3) pyroprocessing, and (4) finished cement grinding. The chemical reactions and physical processes that constitute the transformation are quite complex. The main portion of the advanced, dry processes is the pyroprocessing system which includes the rotary kiln, suspension preheater, and calcining loop. Several complex chemical reactions necessary to produce portland cement minerals take place in the rotary kiln. Pyroprocessing (dry process with preheater) may be conveniently divided into five stages, depending on location and temperature of the materials in the system.

1. Uncombined water evaporates from raw materials as the material temperature increases to 100°C (212°F) in the upper PH or raw materials roller mill.
2. As the material temperature increases from 100°C to approximately 430°C (800°F) in the PH, combined water is liberated from argillaceous compounds.
3. Between 430°C and 900°C (1650°F), calcination begins in the lower PH and is completed in the PC. Carbon dioxide is liberated from the carbonates. A portion of the fuel is burned in the PC vessel to effect the greatest degree of calcination.
4. Following calcination, sintering of the oxides occurs in the burning zone of the rotary kiln at temperatures up to 1510°C (2750°F). Lime, silica, and iron and aluminum compounds react to form calcium silicates, aluminates, ferrites and aluminoferrites. Alkali sulfates and chlorides evaporate.
5. Following sintering, clinker nodules are produced as the temperature of the material decreases from 1510°C to 1370°C (2500°F).

The raw materials enter the pyroprocessing system in the uppermost PH. They exit the PC and (together with tires) enter the kiln at the elevated end. The rotation of the kiln causes the solid materials to be slowly transported downward from the front end. Coal (or fuel oil blend or natural gas) is supplied at the lower or discharge end of the kiln. The hot, gaseous combustion products



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move counter-current to the materials flow, thereby transferring heat to solids in the kiln and preheater.

The product of the rotary kiln is known as clinker which enters a vessel where it is cooled by air. Hot air from the clinker cooler is recovered and returned to the pyroprocessing system as combustion air or to dry or convey materials. The cooled clinker is mixed with a form of calcium sulfate, such as waste gypsum from electric utility scrubbers, and ground in the finish mill to produce portland cement.

Portland cement is shipped from the packhouse or shipping department in bulk or in paper bags by truck or rail.

### V. FUEL CONSUMPTION

The main fuels to be burned in the kiln are coal and tires (up to 15% of total heat input). Blends of virgin and on-spec used oil (up to 1.5% S and a flash point of 140°F minimum) will be used for startup. The applicant proposes to use natural gas at any time. There are no plans to burn petroleum coke or hazardous wastes.

Startup of the proposed cement kiln will be accomplished with oil or natural gas. Oil and gas will be combusted first at low utilization rates. Cold start up requires approximately 24 hours until the kiln is ready to receive feed. Since oil or natural gas utilization rates during the entire startup period are less than fuel consumption rates at normal operating conditions and no product or coal is introduced to the kiln, emissions during start up period should be less than emissions under normal operation. No coal or product will be introduced into the kiln until optimum operating conditions are attained. Like the start up period, coal and product feed begins at reduced rates, ramping up gradually to the final operating conditions.

Tires will not be fed until the kiln is hot enough to support proper combustion and the temperature maintained high enough to destroy dioxins and furans.

The revision in technology will add two primary emissions sources, the shaft dryer and the precalciner. Both of these new sources are combustion sources that are integral in the preparation of the raw material feed and the cement clinker production. The shaft dryer contains a 30 MMBtu/hr combustion source, to be fired on No. 2 light fuel oil. The combined gross heat input to the PC and the kiln is 325 MMBtu/hr, to be fired on coal, natural gas, and/or tires or tire-derived fuel (start-up with natural gas, fuel oil, and/or on-spec used oil).

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## VI. RULE APPLICABILITY

The proposed project is subject to the preconstruction review requirements under the provisions of Chapter 403, Florida Statutes, and Chapters 62-4, and 62-204, 62-210, 62-212, 62-296, and 62-297, Florida Administrative Code (F.A.C.).

The present facility is a Major Source of air pollution per Rule 62-210.200., F.A.C., "Definitions." The new cement plant will be a major source for PM, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, and CO. The proposed plant will be located in an area (Hernando County) designated attainment for all criteria pollutants (Rule 62-204.360, F.A.C.). The proposed project is subject to the Prevention of Significant Deterioration (PSD) regulations (Rule 62-212.400., F.A.C.) because the potential emissions increases of each of these pollutants exceed the significant emission rates given in Table 62-212.400-2, F.A.C., "Regulated Air Pollutants Significant Emission Rates."

PSD Review consists of a determination of best available control technology (BACT) and an air quality impact analysis for each of these regulated pollutants. The allowable emissions of these pollutants will be established by a Best Available Control Technology (BACT) determination (Rule 62-212.300, F.A.C.). The BACT review is included as a separate document.

The additional plant is also subject to the applicable requirements of the federal New Source Performance Standards (NSPS) including:

- o 40 CFR 60 Subpart F, "Standards of Performance for Portland Cement Plants."
- o 40 CFR 51 Subpart P, "Protection of Visibility."

The proposed cement plant is also subject to the applicable requirements related to used fuels and wastes given in 40 CFR 266.40, which is adopted by reference in Rule 62-730.181 F.A.C. and Rule 62-730.030 F.A.C. or 40 CFR Part 261 (July 1994 version).

In processing the application, the Department must conduct its review consistent with the roles and requirements of States, the EPA Administrator (role delegated to Florida), the Federal Land Manager, and Federal official charged with direct responsibility for a Class I area. The requirements are given in Section 164 and 165 of the Clean Air Act and 40 CFR 51.300 Subpart P, Protection of Visibility. In this case, the Class I area is the nearby Chassahowitzka National Wildlife Area.

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## VII. SOURCE IMPACT ANALYSIS

### A. CONTROL TECHNOLOGY REVIEW

#### PARTICULATE MATTER

As proposed by the applicant, all emissions sources addressed in Table I will be controlled by baghouses. The major emission unit in the cement plant is the kiln. The exhaust gases from the kiln and cooler will be controlled by a common baghouse and emitted to the atmosphere through a dedicated stack adjacent to the existing power plant/cement plant No. 1 stack.

All the baghouses used in the proposed cement plant are designed to operate such that particulate matter concentrations in the exhaust gas stream will not exceed 0.01 grains per dry cubic foot (gr/dscf).

All dry raw materials, intermediate products and final products within the cement plant will be transferred by enclosed conveyer, air slides, screw conveyors, or enclosed elevators. All of the enclosed transfer systems will be operated under negative pressure with the gases vented through baghouses before being discharged to the atmosphere. Storage silos and the coal receiving and storage system will also be vented through baghouses. Water sprays will be used as necessary to control fugitive particulate matter emission. Quarrying and raw material storage piles will be under moist conditions with relatively low unconfined emissions. Roads will be washed on a daily basis in order to control excessive dust.

According to FCS, this cement plant will not generate cement kiln dust (CKD) as a waste product. This is consistent with the greater opportunity for recycle afforded by the dry processes and with the present practice which is to reuse the material or sell it from a storage silo. CKD collected in kiln/cooler baghouse will be returned to the process.

No dust disposal piles are planned. FCS will eventually be required to comply with Subtitle C regulations to be promulgated by EPA to address CKD.

A covered coal conveyer and baghouse will be used to limit fugitive emissions from the coal handling system.

Manual and automatic control of the combustion process will insure that the combustion process can be optimized for both normal operation and for startup and shutdown conditions. At no time will the baghouse be bypassed during either startup or shutdown periods.

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## SULFUR DIOXIDE

The Department's SO<sub>2</sub> emission limit of 0.23 pounds per ton of clinker will be accomplished by removal of sulfur oxides as alkali salts including sodium and potassium sulfates as well as removal by reactions with lime and limestone in the kiln, PH/PC, raw mill, and kiln baghouse. Removal is enhanced by maintaining proper ratios of sulfur and alkali in the pyroprocessing environment and intimate contact between raw materials and exhaust gases. Ultimately the sulfur oxides are incorporated into the clinker lattice structure, thus minimizing the amount emitted to the atmosphere. Limiting the sulfur content in the coal to 1.25 percent sulfur will further insure that SO<sub>2</sub> emissions will be minimized.

## NITROGEN OXIDES

A NO<sub>x</sub> emission limit of 2.8 pounds per ton of clinker will be met through proper combustion practices and distribution of the thermal load by indirect firing of fuel in the kiln, burning a portion of the fuel in the PC burner, and tire burning near the entry point of the kiln. If these methods are insufficient, then FCS must examine additional options such as limited Selective Non-Catalytic Reduction to achieve the target limit.

## CARBON MONOXIDE AND VOLATILE ORGANIC COMPOUNDS

CO and VOC emission limits of 2.0 and 0.085 pounds per ton of clinker, respectively, will be accomplished through combustion controls.

## B. EMISSION LIMITATIONS

The proposed emissions for Cement Plant 2 are summarized in Table A. Table 1-1 and Table 1-2 list permitted emissions for each emission unit. The proposed source will emit PM/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, and CO in significant amounts and VOC, H<sub>2</sub>SO<sub>4</sub>, Be, Hg, and Pb at less than significant levels with respect to Table 62-212.400-2.

## C. AIR TOXICS ASSESSMENT

Concerns about air toxic emissions are mitigated by the fact that there will be no combustion or treatment of hazardous waste, only moderate combustion of used oil, and recycling or sale of all CKD.

The reader is referred to the EPA's Regulatory Determination on CKD dated Tuesday, February 7, 1995 for a full discussion. EPA concludes that "when reintroduced, CKD does not contribute any constituents to clinker production that are not already present in the production process. Furthermore, at this time, EPA has no indication that such clinker poses unacceptable threats to human health or the environment." FCS will have to comply with any rules promulgated by EPA under Subtitle C of RCRA designed to control releases to groundwater.

Table A  
Summary of Proposed Emissions

POLLUTANT	POTENTIAL INCREASE IN FACILITY EMISSIONS (tons per year)	PSD SIGNIFICANT EMISSION RATES (tons per year)	SUBJECT TO PSD REVIEW
PM/PM <sub>10</sub> (kiln)	139.613	25/15	Yes/Yes
PM/PM <sub>10</sub> (cooler)	69.806		
PM/PM <sub>10</sub> (minor)	80.123		
SO <sub>2</sub>	104.938	40	Yes
NO <sub>x</sub>	1277.500	40	Yes
CO	912.500	100	Yes
VOC	38.781	40	No
H <sub>2</sub> SO <sub>4</sub>	6.388	7	No
Be	3.88E-4	0.0004	No
Hg	1.10E-2	0.1	No
Pb	2.37E-1	0.6	No

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There are numerous impurities contained in the fuel and raw materials. These include at least arsenic, lead, beryllium, cadmium, chromium, fluoride, nickel, mercury, vanadium and zinc. These constituents are absorbed to a very high extent in the pyroprocessing system and consolidated into the clinker lattice structure. The exception is mercury. However, insufficient quantities are evolved to require a determination for Best Available Control Technology (BACT).

The very high temperatures in the kiln should insure destruction of furans and dioxins. A more detailed plan will need to be developed to insure that introduction of tires at the kiln material inlet will not result in conditions conducive to dioxin/furans formation. The possibility of subsequent dioxin (re)formation in the baghouse will be minimized by the clinker's propensity for chlorine adsorption and by maintaining the inlet temperature of the baghouse below 450 degrees F. According to the BIF regulations, this is below the temperature where EPA believes a possibility of the post-combustion formation of dioxins/furans may exist.

The applicant plans to burn whole tires. According to document EPA-450/3-91-024, Burning Tires for Fuel and Tire Pyrolysis: Air Implications, Chapter 4 - Tire and TDF use in Portland Cement Plants, "the long residence time and high operating temperatures of cement kilns provide an ideal environment to burn tires as supplemental fuel. Results of several tests conducted on cement kilns while burning tires or TDF indicate the emissions are not adversely affected, but in many cases improve when burning tires." In contrast to wet processes, the process to be employed by FCS exhibits very high temperature at both ends of the kiln. This affords more options for introduction of tires while insuring complete combustion.

The Department has no information that the proposed facility poses an unacceptable health risk.

### D. AIR QUALITY ANALYSIS

#### 1. INTRODUCTION

The proposed project will emit four pollutants at levels in excess of PSD significant amounts: PM/PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> and CO. The air quality impact analyses required by the PSD regulations for these pollutants include:

- \* An analysis of existing air quality for PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub> and CO;
- \* A significant impact analysis for PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> and CO;
- \* A PSD increment analysis for PM<sub>10</sub>, SO<sub>2</sub>, and NO<sub>2</sub>;
- \* An Ambient Air Quality Standards (AAQS) analysis for PM<sub>10</sub>; and
- \* An analysis of impacts on soils, vegetation, and visibility and of growth-related air quality modeling impacts.

The analysis of existing air quality generally relies on preconstruction monitoring data collected with EPA-approved methods. The significant impact, PSD increment and AAQS analyses depend on air quality dispersion modeling carried out in accordance with EPA guidelines.

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Based on the required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or significantly contribute to a violation of any AAQS or PSD increment. However, the following EPA-directed stack height language is included: "In approving this permit, the Department has determined that the application complies with the applicable provisions of the stack height regulations as revised by EPA on July 8, 1985 (50 FR 27892). Portions of the regulations have been remanded by a panel of the U.S. Court of Appeals for the D.C. Circuit in NRDC v. Thomas, 838 F. 2d 1224 (D.C. Cir. 1988). Consequently, this permit may be subject to modification if and when EPA revises the regulation in response to the court decision. This may result in revised emission limitations or may affect other actions taken by the source owners or operators." A discussion of the required analyses follows.

## 2. ANALYSIS OF EXISTING AIR QUALITY AND DETERMINATION OF BACKGROUND CONCENTRATIONS

Preconstruction ambient air quality monitoring is required for all pollutants subject to PSD review unless otherwise exempted or satisfied. This monitoring requirement may be satisfied by using previously existing representative monitoring data, if available. An exemption to the monitoring requirement may be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined by air quality modeling, is less than a pollutant-specific de minimus concentration. In addition, if an acceptable monitoring method for the specific pollutant has not been established by EPA, monitoring may not be required.

If preconstruction ambient monitoring is exempted, determination of background concentrations for PSD significant pollutants with established AAQS may still be necessary for use in any required AAQS analysis. These concentrations may be established from the required preconstruction ambient air quality monitoring analysis or from previously existing representative monitoring data. These background ambient air quality concentrations are added to pollutant impacts predicted by modeling and represent the air quality impacts of sources not included in the modeling.

The table below shows that SO<sub>2</sub>, NO<sub>2</sub> and CO impacts from the project are predicted to be less than the applicable de minimus levels. Therefore, preconstruction ambient air quality monitoring is not required for these pollutants. The table also shows that PM<sub>10</sub> impacts from the project are predicted to be greater than the corresponding de minimus level. Therefore, preconstruction ambient air quality monitoring is required for PM<sub>10</sub>. Previously existing representative monitoring data from PM<sub>10</sub> monitors located just east of the FCS fence line were used to fulfill the monitoring requirement for PM<sub>10</sub> and to establish background concentrations for use in the AAQS analysis. Background concentrations established for PM<sub>10</sub> are 66 and 33 ug/m<sup>3</sup> for the 24-hour and annual averaging times, respectively.

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## Maximum Project Air Quality Impacts for Comparison to the De Minimus Ambient Levels

Pollutant	Avg. Time	Max Predicted Impact (ug/m <sup>3</sup> )	Impact Greater Than De Minimus?	De Minimus Level (ug/m <sup>3</sup> )
PM <sub>10</sub>	24-hour	13.7	YES	10
SO <sub>2</sub>	24-hour	2.3	NO	13
NO <sub>2</sub>	Annual	0.2	NO	14
CO	8-hour	35	NO	575

### 3. MODELS AND METEOROLOGICAL DATA USED IN SIGNIFICANT IMPACT, PSD INCREMENT AND AAQS ANALYSES

The EPA-approved SCREEN3 and Industrial Source Complex Short-Term (ISCST3) dispersion models were used to evaluate the pollutant emissions from the proposed project and other existing major facilities. SCREEN3 is a single-source screening model which uses default meteorology inputs to predict pollutant impacts. The ISCST3 model determines ground-level concentrations of inert gases or small particles emitted into the atmosphere by point, area and volume sources. The model incorporates elements for plume rise, transport by the mean wind, Gaussian dispersion, and pollutant removal mechanisms such as deposition. The ISCST3 model allows for the separation of sources, building wake downwash, and various other input and output features. A series of specific model features, recommended by the EPA, are referred to as the regulatory options. The applicant used the EPA recommended regulatory options in each modeling scenario. Direction-specific downwash parameters were used for all sources for which downwash was considered. The stacks associated with this project all satisfy the good engineering practice (GEP) stack height criteria.

Meteorological data used in the ISCST3 model consisted of a concurrent 5-year period of hourly surface weather observations and twice-daily upper air soundings from the National Weather Service (NWS) stations at Tampa International Airport, Florida (surface data) and Ruskin, Florida (upper air data). The 5-year period of meteorological data was from 1982 through 1986. These NWS stations were selected for use in the study because they are the closest primary weather stations to the study area and are most representative of the project site. The surface observations included wind direction, wind speed, temperature, cloud cover and cloud ceiling.

Since five years of data were used in ISCST3, the highest-second-high (HSH) short-term predicted concentrations were compared with the appropriate AAQS or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards. For determining the project's significant impact area in the vicinity of the facility and if there are significant impacts



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from the project on any PSD Class I area, both the highest short-term predicted concentrations and the highest predicted yearly averages were compared to their respective significant impact levels.

## 4. SIGNIFICANT IMPACT ANALYSIS

Initially, the applicant conducted modeling using only the proposed project's emissions. Both the SCREEN3 and ISCST3 models were used. Receptors were placed within 10 km of the facility, which is located in a PSD Class II area. Receptors were also placed in the Chassahowitzka National Wilderness Area (CNWA) which is a PSD Class I area located approximately 20 km to the west of the project at its closest point. For each pollutant subject to PSD and also subject to PSD increment and/or AAQS analyses, this modeling compared maximum predicted impacts due to the project with PSD significant impact levels to determine whether significant impacts due to the project were predicted in the vicinity of the facility or in the CNWA. The tables below show the results of this modeling.

**Maximum Project Air Quality Impacts for Comparison  
to the PSD Class II Significant Impact Levels in the Vicinity of the Facility.**

Pollutant	Avg. Time	Max Predicted Impact (ug/m <sup>3</sup> )	Significant Impact Level (ug/m <sup>3</sup> )	Significant Impact?
PM <sub>10</sub>	Annual	1.1	1	YES
	24-hour	13.7	5	YES
CO	8-hour	35	500	NO
	1-hour	50	2000	NO
SO <sub>2</sub>	Annual	0.46	1	NO
	24-hour	2.3	5	NO
	3-hour	5.2	25	NO
NO <sub>2</sub>	Annual	0.2	1	NO

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Permit No. AC 27-274892(A)  
PSD-FL-227(A)

## Maximum Project Air Quality Impacts for Comparison to the PSD Class I Significant Impact Levels (CNWA)

Pollutant	Averaging Time	Max. Predicted Impact at Class I Area (ug/m <sup>3</sup> )	Significant Impact?	National Park Service (NPS) Significant Impact Level (ug/m <sup>3</sup> )
PM <sub>10</sub>	Annual	0.01	NO	0.08
	24-hour	0.19	NO	0.27
SO <sub>2</sub>	Annual	0.003	NO	0.025
	24-hour	0.069	NO	0.07
	3-hour	0.410	NO	0.48
NO <sub>2</sub>	Annual	0.06	YES	0.03

As shown in the first table the maximum air quality impacts due to PM<sub>10</sub> emissions from the proposed project are greater than the significant impact levels in the vicinity of the facility. Therefore, the applicant was required to further determine PM<sub>10</sub> impacts in the vicinity of the facility for comparison with the AAQS and PSD Class II increments. As shown in the second table the maximum air quality impact in the PSD Class I area due to NO<sub>2</sub> emissions from the proposed project are greater than NPS significant impact level, thus requiring further NO<sub>2</sub> impact determination in the PSD Class I area.

### 5. PSD INCREMENT ANALYSIS

The PSD increment represents the amount that new sources in an area may increase ambient ground level concentrations of a pollutant.

#### a. Class II Area

The results of the PSD Class II increment analysis presented in the table below show that the maximum predicted PM<sub>10</sub> impacts are less than the allowable increments.

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Florida Crushed Stone, Co.  
Portland Cement Facility Plant No. 2

Permit No. AC 27-274892(A)  
PSD-FL-227(A)

### PSD Class II Increment Analysis

Pollutant	Averaging Time	Max. Predicted Impact (ug/m <sup>3</sup> )	Impact Greater Than Allowable Increment?	Allowable Increment (ug/m <sup>3</sup> )
PM <sub>10</sub>	Annual	3	NO	17
	24-hour	28	NO	30

b. Class I Area

The results of the PSD Class I increment analysis presented in the table below shows that the maximum predicted NO<sub>2</sub> impact for all sources within 150 km of the Class I area is less than the allowable increment

### PSD Class I Increment Analysis

Pollutant	Averaging Time	Max. Predicted Impact (ug/m <sup>3</sup> )	Impact Greater Than Allowable Increment?	Allowable Increment (ug/m <sup>3</sup> )
NO <sub>2</sub>	Annual	0.99	NO	2.5

## 6. AAQS ANALYSIS

For pollutants subject to an AAQS review, the total impact on ambient air quality is obtained by adding a "background" concentration to the maximum modeled concentration. This "background" concentration takes into account all sources of a particular pollutant that are not explicitly modeled. Since the area of significant impact is small and is very close to one of two PSD PM monitoring sites, only FCS sources were explicitly modeled.

The background concentration represents the remainder of the sources in the area. The highest second-highest 24-hour concentration measured during 1993 to 1995 at this monitor was used as the background concentration value for the 24-hour averaging time, and the highest annual geometric mean concentration at this monitor during these years was used as the background concentration value for the annual averaging time.

The results of the AAQS analysis are summarized in the table below. As shown in this table, emissions from the proposed project are not expected to cause or significantly contribute to a violation of an AAQS.

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Florida Crushed Stone, Co.  
Portland Cement Facility Plant No. 2

Permit No. AC 27-274892(A)  
PSD-FL-227(A)

## Ambient Air Quality Impacts

Pollutant	Averaging Time	Major Sources Impact (ug/m <sup>3</sup> )	Background Conc. (ug/m <sup>3</sup> )	Total Impact (ug/m <sup>3</sup> )	Total Impact Greater Than AAQS	Florida AAQS (ug/m <sup>3</sup> )
PM <sub>10</sub>	Annual	1	33	34	NO	50
	24-hour	11	66	76	NO	150

## 7. AIR TOXICS AIR QUALITY ANALYSIS

The maximum predicted impacts of regulated and non-regulated toxic air pollutants that are proposed to be emitted by the project are presented in the table below. Each pollutant's maximum 8-hour, 24-hour, and annual impact is compared to the Department's draft Ambient Reference Concentrations (ARC). As shown in the table, all predicted impacts are less than their respective ARC.

### Air Toxics Analysis

Pollutant	8- hour		24- hour		Annual	
	Impact (ug/m <sup>3</sup> )	ARC (ug/m <sup>3</sup> )	Impact (ug/m <sup>3</sup> )	ARC (ug/m <sup>3</sup> )	Impact (ug/m <sup>3</sup> )	ARC (ug/m <sup>3</sup> )
Arsenic	9.57e-04	0.1	5.47e-04	0.02	1.1e-04	2.3e-04
Benzene	0.38	30	0.22	7	4.4e-02	1.2e-01
Beryllium	1.7e-05	0.02	9.7e-06	4.8e-03	1.9e-06	4.2e-04
Biphenyl	1.6e-04	13	8.9e-05	3.12	-	-
Cadmium	1.2e-03	0.02	6.8e-04	0.005	1.4e-04	5.6e-04
Carbon disulfide	5.0e-02	310	2.85e-02	74	5.7e-03	200
Chlorobenzene	7.8e-03	460	4.4e-03	110	-	-
Chromium III	4.5e-03	5	2.6e-03	1.2	5.2e-04	1000
Chromium IV	5.0e-04	0.5	2.9e-04	0.1	5.7e-05	8.3e-05
Chrysene	4.0e-06	2	2.3e-06	0.5	-	-
Cobalt	1.2e-03	0.5	6.8e-04	0.12	-	-
Dioxin	-	-	-	-	1.5e-09	2.2e-08
Diethyl phthalate	4.2e-03	50	2.4e-03	12	4.8e-04	4.2
Ethylbenzene	3.6e-03	4340	2.1e-04	1033	4.1e-04	1000
Formaldehyde	1.1e-02	3.7	6.2e-03	0.9	1.2e-03	7.7e-02
Hexane	1.1e-03	1760	6.5e-04	419	1.3e-04	200
Hydrogen Chloride	0.2	70	0.1	17	0.02	7
Lead	1.0e-02	0.5	5.9e-03	0.1	1.2e-03	9.0e-02
Manganese	2.2e-02	50	1.3e-02	12	2.5e-03	5.0e-02
Mercury	4.8e-04	0.1	2.7e-04	2.0e-02	5.5e-05	0.3
Methyl Chloride	7.2e-03	1030	4.1e-03	245	8.2e-04	0.28

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Florida Crushed Stone, Co.  
Portland Cement Facility Plant No. 2

Permit No. AC 27-274892(A)  
PSD-FL-227(A)

Methyl Ethyl Ketone	6.0e-04	5900	3.4e-04	1405	6.9e-05	1000
Methylene Chloride	1.6e-02	1740	8.9e-03	414	1.8e-03	2.0
Napthalene	7.8e-02	500	4.4e-02	119	-	-
Nickel	4.8e-03	1	2.7e-03	0.2	5.5e-04	4.2e-03
Phenol	2.2e-03	190	1.3e-03	45	2.5e-04	30
Selenium	5.2e-03	2	3.0e-03	0.5	-	-
Styrene	1.0e-02	2130	5.9e-03	507	-	-
Toluene	4.8e-02	1880	2.7e-02	448	5.5e-03	400
Trichloroethylene	8.6e-05	2690	4.9e-05	640	9.8e-06	0.77
Xylene	1.4e-02	4340	7.9e-03	1033	1.6e-03	80

Note: ARC = Ambient Reference Concentration

## E. ADDITIONAL IMPACTS ANALYSIS

### 1. IMPACTS ON SOILS, VEGETATION, AND WILDLIFE

The maximum ground-level concentrations predicted to occur for SO<sub>2</sub>, PM<sub>10</sub>, CO and NO<sub>x</sub> as a result of the proposed project, including background concentrations and all other nearby sources, will be below the associated AAQS. The AAQS are designed to protect both the public health and welfare. As such, this project is not expected to have a harmful impact on soils and vegetation in the PSD Class II area. An air quality related values (AQRV) analysis was done by the applicant for the Class I area. No significant impacts on this area are expected.

### 2. IMPACT ON VISIBILITY

The Visual Impact Screening and Analysis (VISCREEN) computer model was used for the more conservative level-1 and level-2 visibility analyses and the PLUVUE-II computer model was used for a level-3 visibility analysis. These EPA-approved computer models were used to estimate the impact of the proposed project's stack emissions on visibility in the CNWA. Based on the level-3 visibility analysis, no significant impact on visibility due to this project is expected in the CWNA.

### 3. GROWTH-RELATED AIR QUALITY IMPACTS

There will be a small number of temporary construction workers during construction and no significant increase in the number of new permanent workers after project is completed. There will be no significant impacts on air quality caused by associated population growth.

# TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

Florida Crushed Stone, Co.  
Portland Cement Facility Plant No. 2

Permit No. AC 27-274892(A)  
PSD-FL-227(A)

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## VIII. CONCLUSION

Based on the foregoing technical evaluation of the application and additional information submitted by Florida Crushed Stone Company, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations provided the Department's Best Available Control Technology Determination is implemented and certain conditions are met. The general and specific conditions are listed in the attached draft conditions of approval.

**DRAFT**

DIVISION OF AIR RESOURCES MANAGEMENT  
BUREAU OF AIR REGULATION  
NEW SOURCE REVIEW SECTION  
PHONE 904/488-1344 FAX 904/922-6979  
Mail Station # 5505

**AIR CONSTRUCTION PERMIT**

**Portland Cement Plant No. 2**

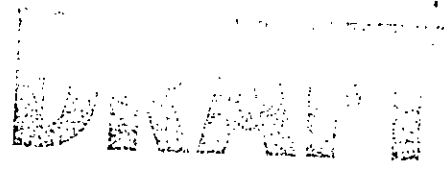
(This permit replaces permit AC27-274892 and PSD-FL-227 )

**FLORIDA CRUSHED STONE COMPANY**

Facility ID No.:0530021  
Brooksville, Florida  
Hernando County

Permit No. AC 27-274892(A)  
PSD-FL-227(A)  
PA 82-17

December XX, 1996



**FLORIDA CRUSHED STONE COMPANY.**  
**PORTLAND CEMENT PLANT NO. 2**  
Brooksville, Florida  
PSD-FL-227(A) and AC 27-274892(A)  
Facility ID No.: 0530021

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# Department of Environmental Protection

# DRAFT

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

## PERMITTEE:

**Florida Crushed Stone Company**  
**Brooksville Plant**  
10311 Cement Plant  
Brooksville, Florida 34601

<b>FID No.</b>	0530021
<b>PSD No.</b>	PSD-FL-227(A)
<b>Permit No.</b>	AC 27-274892 (A)
<b>PPS No.</b>	82-17
<b>Expires:</b>	November 30, 1998

*Authorized Representative:*  
Joseph Piermatteo  
Senior Vice President

## LOCATED AT:

**Florida Crushed Stone, Company, Brooksville Facility**  
Project: Portland Cement Manufacturing Plant No. 2 and Associated Equipment  
Standard Industrial Classification Code (SIC): 3241  
Hernando County, Florida

UTM: Zone 17: 360.0 km E : 3162.5 km N  
Directions: *Approximately 3.5 miles Northwest of Brooksville, Hernando County*

## STATEMENT OF BASIS:

This draft construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and the Florida Administrative Code (F.A.C.) Chapters 62-4, 62-204, 62-210, 62-212, 62-296, 62-297. The above named permittee is authorized to modify the facility in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department of Environmental Protection (Department).

## Attached appendices and Tables made a part of this permit:

Table 1-1	Allowable Opacity Limits
Table 1-2	Air Pollutants Standards and Terms
Table 2-1	Compliance Requirements
Appendix BD	BACT Determination
Appendix GC	Construction Permit General Conditions

## EFFECTIVE DATE:

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Howard L. Rhodes, Director  
Division of Air Resources Management

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

DRAFT

AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

SECTION I. FACILITY INFORMATION

FACILITY DESCRIPTION:

This existing facility consists of one (1) portland cement plant (preheater design) and associated equipment (Cement Plant No.1), a lime manufacturing plant and a 150 MW Power Plant. This permit is for the construction of a second portland cement plant (preheater/precalciner design) and associated equipment. The new plant will be identified as Cement Plant No. 2.

EMISSION UNITS

This permit addresses the following emission units:

EMISSIONS UNIT No.	SYSTEM	EMISSIONS UNITS DESCRIPTION
031	Raw Materials Processed	Material Handling (Fugitive) Handling and Storage (Fugitive)
025	Raw Mill System	Filter Dust Bin Transport, Raw Meal Transport, Raw Meal Storage, Homogenizing Silos
026	Kiln System	Kiln Feed System Kiln & Cooler Main Stack
027	Clinker Cooler	Kiln & Cooler Main Stack
028	Finish Mill	Gypsum Storage Bin, Clinker Transport, Belt Conveyor, Finish Mill Discharge Vent, Finish Mill Sepal Separator, Clinker Storage Silo and Clinker Bin
029	Cement Handling	Cement Storage Silo A, Cement Storage Silo B, Cement Silo Discharge Hopper A, Cement Silo Discharge Hopper B
030	Coal Handling	Coal Handling and Storage (fugitives) Coal Dust Bin, Coal Mill

REGULATORY CLASSIFICATION

This industry is listed in Table 62-212.400-1 of Chapter 62-212, F.A.C., "Major Facility Categories." Therefore, stack and fugitive emissions of over 100 tons per year of carbon monoxide, volatile organic compounds, sulfur dioxide, nitrogen oxides, or particulate matter characterize the installation as a major facility subject to the requirements of Rule 62-204.800, F.A.C., which incorporates 40 CFR Subpart F, the New Source Performance Standards (NSPS) for Portland Cement Plants. This facility is a Title V source.

AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

**SECTION I. FACILITY INFORMATION**

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**PERMIT SCHEDULE:**

- (DATE) Petition for an administrative hearing
- (DATE) Received proof of publication in (DATE) issue of Newspaper
- (DATE) Issued Notice of Intent to issue Permit
- 10/17/96 Application deemed complete

**RELEVANT DOCUMENTS:**

**Year 1995**

1. Application received March 13, 1995.
2. Department's letters dated April 21, memo dated June 16, letter dated August 3, August 10, and October 11, 1995.
3. RTP Environmental Associates letters dated March 21, May 10, May 19, July 11, July 17, August 11, August 22, September 5, September 7, September 12, September 14, and October 24, 1995.
4. EPA's letters dated June 15, and November 2, 1995.
5. Hernando County Planning Department's letter dated April 28, June 5, and August 11, 1995.
6. Technical Evaluation and Preliminary Determination, BACT determination and proposed permit dated October 3, 1995.
7. Construction Permit AC27-274892 and PSD-FI-227 issued on November 17, 1995.

**Year 1996**

1. Application received September 11, 1996.
2. Department's letter dated October 3, 1996.
3. RTP Environmental Associates letter dated October 10, 1996.
4. RTP Environmental Associates letter dated October 17, 1990.
5. United States Department of the Interior letter dated October 11, 1996.

01/27/98

AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

**SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS**

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**1.0 ADMINISTRATIVE**

- 1.1 Regulating Agencies: All documents related to applications for permits to operate, reports, tests, minor modifications and notifications shall be submitted to the Department of Environmental Protection (DEP) Southwest District Air Resources Program Permitting Section located at 3804 Coconut Palm Drive, Tampa, Florida 33619-8218, and phone number (813)744-6100. All applications for permits to construct or modify an emission unit(s) subject to the Prevention of Significant Deterioration requirements should be submitted to the Bureau of Air Regulation (BAR), Florida Department of Environmental Protection (FDEP) located at 2600 Blairstone Road, Tallahassee, Florida 32399-2400 and phone number (904)488-1344.
- 1.2 General Conditions: The owner and operator is subject to and shall be aware of and operate under, the attached General Permit Conditions G.1 through G.15 listed in *Appendix GC* of this permit. General Permit Conditions are binding and enforceable pursuant to Chapter 403 of the Florida Statutes. **[Rule 62-4.160, F.A.C.]**
- 1.3 Terminology: The terms used in this permit have specific meanings as defined in the corresponding chapters of the Florida Administrative Code.
- 1.4 Forms and Application Procedures: The permittee shall use the applicable forms listed in Rule 62-210.900, F.A.C. and follow the application procedures in Chapter 62-4, F.A.C. **[Rule 62-210.900, F.A.C.]**
- 1.5 Expiration: This air construction permit shall expire on November 30, 1998. **[Rule 62-210.300(1), F.A.C.]** The permittee may, for good cause, request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit. However, the permittee shall promptly notify the Southwest District office of any delays in completion of the project which would affect the startup day by more than 90 days. **[Rule 62-4.090, F.A.C.]**
- 1.6 Application for Title V Permit: An application for a Title V operating permit, pursuant to Chapter 62-213 F.A.C., must be submitted to the DEP's Southwest District office. **[Chapter 62-213, F.A.C.]**
- 1.7 Applicable Regulations: Unless otherwise indicated, the construction and operation of Cement Plant No. 2 and associated equipment shall be in accordance with the capacities and specifications stated in the application. This facility is subject to all applicable provisions of Chapter 403, F.S and Florida Administrative Code Chapters 62-4; 62-103; 62-204, 62-210, 62-212, 62-213, 62-296, 62-297; and the Code of Federal Regulations Section 40, Part 60, Subpart A, Appendix A and Appendix B (1995 version). Specifically, this facility is subject to the New Source Performance Standards (NSPS) for Portland Cement Plants identified by the Code of Federal Regulations Section 40, Part 60, Subpart F, and incorporated by reference in the Florida Administrative Code regulation 62-204.800. Issuance of this permit does not

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Florida Crushed Stone Co.  
Brooksville, FL

Portland Cement Plant No. 2  
and Associated Equipment  
Facility ID No. 0530021

**SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS**

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relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements or regulations. [Rule 62-210.300, F.A.C.]

**2.0 EMISSION LIMITING STANDARDS**

2.1 General Visible Emissions Standard: [Rule 62-296-320(4)(b)] Unless otherwise specified by rule or permit, no person shall cause, let, permit, suffer or allow to be discharged into the atmosphere any air pollutants from new, or existing emissions units, the opacity of which is equal to:

- Visible emissions of all minor sources controlled by baghouses shall not exceed 5% opacity (BACT determination).
- Visible emissions from PM fugitive sources shall not exceed 10% opacity (BACT determination).

2.2 Unconfined Emissions of Particulate Matter [Rule 62-296.320(4)(c), F.A.C.]

(a) The owner or operators shall not cause, let, permit, suffer or allow the emissions of unconfined particulate matter from any source whatsoever, including, but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrially related activities such as loading, unloading, storing or handling, without taking reasonable precautions to prevent such emission.

(b) Reasonable precautions shall include but not be limited to the following:

- All permanent haul roads shall be paved.
- Temporary haul road shall be watered or treated with chemical dust suppressants at regular intervals.
- Dry materials (moisture content < 14%) shall be stored below grade, in silos, or in enclosed structures.
- Coal stored at or above natural grade shall be compacted, turned and /or watered as necessary to maintain a minimum 8% moisture content in the surface layer, and shall be aligned with the predominant wind direction to minimize wind erosion.
- Abandoned haul road and other disturbed areas shall be revegetated within 60 days of the date that active service of the roads ends.
- All cement products shall be transferred to transport trucks with a sealed pneumatic conveying system which is either a closed system or exhausted through a bag filter.

**SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS**

*NOTE: Facilities that cause frequent, valid complaints may be required by the Southwest District office in Tampa to take these or other reasonable precautions. In determining what constitutes reasonable precautions for a particular source, the Department shall consider the cost of the control technique or work practice, the environmental impacts of the technique or practice, and the degree of reduction of emissions expected from a particular technique or practice.*

**2.3 General Pollutant Emission Limiting Standards: [Rule 62-296.320, F.A.C.]**

- (a) The owner or operator shall not store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems.
- (b) No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor.

*NOTE: An objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [F.A.C. 62-210.200(198)]*

**3.0 OPERATION AND MAINTENANCE**

**3.1 Changes/Modifications:** The owner or operator shall submit to the Department of Environmental Protection, Bureau of Air Regulation and/or the Southwest District office in Tampa, for review any changes in, or modifications to: the method of operation; process or pollution control equipment; increase in hours of operation; equipment capacities; or any change which would result in an increase in potential/actual emissions. Depending on the size and scope of the modification, it may be necessary to submit an application for, and obtain, an air construction permit prior to making the desired change. FDEP will provide a clear point of entry for Hernando County and any other substantially-affected parties to challenge any of FDEP's proposed determinations in this regard. *Routine maintenance of equipment would not constitute a modification of this permit. [Rule 62-4.030, 62-210.300 and 62-4.070(3), F.A.C.]*

**3.2 Plant Operation - Problems:** If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by hazard of fire, wind or by other cause, the owner or operator shall notify the Southwest District office in Tampa as soon as possible, but at least within (1) working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; the steps being taken to correct the problem and prevent future recurrence; and where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit and the regulations. **[Rule 62-4.130, F.A.C.]**

**SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS**

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- 3.3 Circumvention: The owner or operator shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
- 3.4 Excess Emissions Requirements [Rule 62-210.700, F.A.C.]
- (a) Excess emissions resulting from start-up, shutdown or malfunction of these emissions units shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized, but in no case exceed two hours in any 24 hour period unless specifically authorized by the Southwest District office for longer duration. [Rule 62-210.700(1), F.A.C.]
  - (b) Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during start-up, shutdown, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
  - (c) In case of excess emissions resulting from malfunctions, the owner or operator shall notify the Air Pollution Control Section of the Southwest District office within one (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the problem; and the corrective actions being taken to prevent recurrence. [Rule 62-210.700(6), F.A.C.]

**4.0 MONITORING OF OPERATIONS**

**4.1 Determination of Process Variables**

- (a) The permittee shall, operate, and maintain equipment and/or instruments necessary to determine process variables, such as process weight input or heat input, when such data is needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
- (b) Equipment and/or instruments used to directly or indirectly determine such process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value. [Rule 62-297.310(5), F.A.C.]

**5.0 TEST REQUIREMENTS**

- 5.1 Test Performance Within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after initial startup and annually thereafter, the owner or operator of this facility shall conduct performance test(s) pursuant to 40 CFR 60.8, Subpart A, General Provisions and 40 CFR 60, Appendix A. No other test method shall be used unless approval from the Department

DRAFT

AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

**SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS**

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has been received in writing. Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emission unit(s) operating at permitted capacity pursuant to Rule 62-297.310(2), F.A.C. [Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C.]

- 5.2 Test Procedures and Test Reports shall meet all applicable requirements of the Florida Administrative Code Chapter 62-297. [Rule 62-297.310, F.A.C.]
- 5.3 Test Notification: The owner or operator shall notify the Southwest District office in Tampa in writing at least (30) days (initial) and 15 days (annual) prior to conducting compliance tests. The notification shall include the date of test, time and place of each test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310, F.A.C.; 40 CFR 60.7 and 40 CFR 60.8]
- 5.4 Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in Rule 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. or in a permit issued pursuant to those rules is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions units and to provide a report on the results of said tests to the Southwest District office in Tampa. [Rule 62-297.310(7)(b), F.A.C.]
- 5.5 Stack Testing Facilities: The owner or operator shall install stack testing facilities in accordance with Rule 62-297.310(6), F.A.C..
- 5.6 Exceptions and Approval of Alternate Procedures and Requirements: An Alternate Sampling Procedure (ASP) may be requested from the Bureau of Air Monitoring and Mobile Sources in Tallahassee in accordance with the procedures specified in Rule 62-297.620, F.A.C.

**6.0 REPORTS AND RECORDS**

- 6.1 Duration: All reports and records required by this permit shall be kept for at least (5) years from the date the information was recorded. [62-4.160(14)(b), F.A.C.]
- 6.2 Emission Compliance Stack Test Reports:
- (a) A test report indicating the results of the required compliance tests shall be filed with the Southwest District office in Tampa as soon as practical, but no later than 45 days after the last sampling run is completed. [Rule 62-297.310(8), F.A.C.]
  - (b) The report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly



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AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

**SECTION II. EMISSION UNIT(S) COMMON SPECIFIC CONDITIONS**

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computed. At a minimum, the test report shall provide the applicable information listed in **Rule 62-297.310(8), F.A.C.**

- 6.3 Excess Emissions Report: If excess emissions occur, the owner or operator shall notify the Air Compliance Section of the Southwest District office within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident. Pursuant to the New Source Performance Standards, excess emissions shall also be reported in accordance with 40 CFR 60.7, Subpart A. [Rules 62-4.130 and 62-210.700(6), F.A.C.]
- 6.4 Annual Operating Report for Air Pollutant Emitting Facility: Before March 1st of each year, the owner or operator shall submit to the Department this required report [DEP Form No. 62-210.900(5)], which summarizes operations for the previous calendar year. [Rule 62-210.370(3), F.A.C.]

**7.0 OTHER REQUIREMENTS**

- 7.1 Waste Disposal: The owner or operator shall treat, store, and dispose of all liquid, solid, and hazardous wastes in accordance with all applicable Federal, State, and Local regulations. This air pollution permit does not preclude the permittee from securing any other types of required permits, licenses, or certifications.

[Stamp]

AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

**SUBSECTION A. COMMON CONDITIONS: 40 CFR 60 SUBPART A, GENERAL PROVISIONS**

**EMISSION UNITS**

This permit addresses the following emission units.

EMISSIONS UNIT NO.	SYSTEM	EMISSIONS UNITS DESCRIPTION
031	Raw Materials Processed	Material Handling (Fugitive) Handling and Storage (Fugitive)
025	Raw Mill System	Filter Dust Bin Transport, Raw Meal Transport, Raw Meal Storage, Homogenizing Silos
026	Kiln System	Kiln Feed System Kiln & Cooler Main Stack
027	Clinker Cooler	Kiln & Cooler Main Stack
028	Finish Mill	Gypsum Storage Bin, Clinker Transport, Belt Conveyor, Finish Mill Discharge Vent, Finish Mill Sepal Separator, Clinker Storage Silo and Clinker Bin
029	Cement Handling	Cement Storage Silo A, Cement Storage Silo B, Cement Silo Discharge Hopper A, Cement Silo Discharge Hopper B
030	Coal Handling	Coal Handling and Storage (Fugitives) Coal Dust Bin, Coal Mill.

These emission units shall comply with all applicable requirements of 40 CFR 60, General Provisions, Subpart A.

- A1. [49 CFR 60.7, Notification and record keeping]
- A2. [40 CFR 60.8, Performance tests]
- A3. [40 CFR 60.11, Compliance with standards and maintenance requirements]
- A4. [40 CFR 60.12, Circumvention]
- A5. [40 CFR 60.13, Monitoring requirements]
- A6. [40 CFR 60.19, General notification and reporting requirements]

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AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

SUBSECTION B. SPECIFIC CONDITIONS:

The following Specific Conditions apply to the following emission units:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
026	Kiln System	Kiln No. 2, preheater, precalciner, clinker cooler, dryer, raw mill. Kiln & Cooler Main Stack : Baghouse 2E-40
027	Clinker Cooler	Kiln & Cooler Main Stack : Baghouse 2E-40

These emission units shall comply with all applicable provisions of the 40 CFR 60 New Source Performance Standards for Portland Cement Plants, Subpart F [Rule 62-204.800, F.A.C].

EMISSION LIMITATIONS

- B1. The maximum allowable emission rates for the No. 2 kiln, clinker cooler, raw mill, shaft dryer heater and preheater/precalciner shall not exceed the limits listed in Table 1-2. Air Pollutant Standards and Terms (attached). [Rule 62-210.200(198) and 62-212.400, F.A.C.]
- B2. In order to minimize excess emissions during startup/shutdown/malfunction this emission units shall adhere to best operational practices. [Rule 62-210.700, F.A.C. and 40 CFR 60.7]

OPERATIONAL LIMITATIONS

- B3. These emission units are allowed to operate continuously (8760 hours/year) [Rule 62-210.200(223), F.A.C.] Definitions-Potential to emit (PTE).

B4. PROCESS OPERATING RATES

The No. 2 kiln clinker production rate shall not exceed 104.2 tons per hour (TPH), 2500 tons per day (TPD) and 912,500 tons per year (TPY) based upon 8,760 hours of operation per year. The permitted maximum preheater feed is 173.2 TPH, which is equivalent to a maximum kiln feed rate of 159.4 TPH. [Rule 62-210.200(223), F.A.C.]

B5. FUEL COMBUSTION

- (1) Fuels fired in No. 2 kiln and precalciner shall not exceed a total heat input rate of 325 MMBtu/hr and shall consist only of:

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

- a. Coal and whole tires, tire derived fuel (shredded tires), and natural gas for normal operation.
- b. Natural gas, all grades (meeting 1.5% sulfur limit) of virgin fuel oil, and/or blends (meeting 1.5% sulfur limit) of virgin fuel oil and on-spec used oils for startup.
- c. Fuels fired in the shaft dryer heater shall not exceed a total input of 30 MMBtu/hr and shall consist only of all grades of virgin fuel oil (meeting 1.5% sulfur limit) for startup and normal operation.

*COAL*

- (2) The coal usage rate shall not exceed 13.8 TPH or 120,888 TPY based on continuous operation.

*TIRES*

- (3) Whole tires and tire derived fuel may be fed continuously at the kiln inlet at the base of the precalciner at a rate not to exceed 48.75 MMBtu/hr (15% of total kiln and precalciner fuel input) or 1.44 TPH and 11,952 tons per year based on 8300 hours per year.
- (4) Before initiating tire firing, the gases exiting the kiln shall reach a minimum temperature of 1400 degrees F for one hour and the oxygen level in the kiln, as measured at the cement plant induced draft fan, shall reach at least 3 percent (1-hour average). Upon reaching steady state conditions, and within 6 hours, gases exiting the kiln shall be maintained at an outlet temperature of at least 1750 degrees F.

*FUEL OIL*

- (5) The sulfur content of the fuel oil blend shall not exceed 1.5% by weight. The constituents and properties of the on-spec used oil shall comply with the following allowable concentration levels, as stipulated and defined in 40 CFR 266.40 (July 1, 1992 version), which is adopted by reference in **Rule 62-730.181, Florida Administrative Code (F.A.C.)**:

Constituent/Property	Allowable Concentration
Cadmium	2 ppm maximum
Arsenic	5 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	1000 ppm maximum
Flash Point	140 ° F minimum
Polychlorinated	Less than 2 ppm
Byphenyls (PCBs)	

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

- (6) On-spec used oil to be blended and burned at this facility shall not be a hazardous waste as defined by Rule 62-730.030, F.A.C., or 40 CFR Part 261 (July 1, 1992 version). It shall not include fuels or blended fuels consisting in whole or in part of hazardous waste or which include mixture of any solid waste generated from the treatment, storage, or disposal of hazardous waste. The on-spec used oil shall be burned in compliance with Section 403.769(3), Florida Statutes.
- (7) The on-spec used oil to be blended with the unused fuel oil in the cement kiln fuel storage tank shall be obtained only from the used oil storage tanks located at the FCS Gregg Mine and CPL Plant. The used oil sample from Specific Condition No. B5(5) and B22 shall be analyzed for the following constituent/property, associated unit, and using the test methods indicated:

Constituent/Property	Unit	Test Method
Cadmium	ppm	EPA SW-846(6010)
Arsenic	ppm	EPA SW-846(6010)
Chromium	ppm	EPA SW-846(6010)
Lead	ppm	EPA SW-846(6010)
Total Halogens	ppm	EPA SW-846(9252)
Sulfur	percent	ASTM D129 or ASTM D1552
Flash Point	degree F	EPA SW-846(1010)
Heat of Combustion	Btu/gal	ASTM D240
Density	lbs/gal	
Polychlorinated Byphenyls (PCB's)	ppm	

NOTE: Other test methods may be used only after receiving written prior approval from the Department.

- (8) The maximum on-specification used oil concentration in the final storage tank blend of on-specification used oil and purchased unused oil shall not exceed 15 percent by volume.
- B6. Any other operating parameters (including control equipment operating parameters) established during compliance testing and/or inspection that will confirm the proper operation of each emission unit shall be included in the operating permit [Rule 62-297.310, F.A.C. and 62-4.070(3), F.A.C.]

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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**MONITORING OF OPERATIONS**

- B7. The owner or operator shall record the daily production and the preheater-kiln system feed rate. [Rule 62-204.800, F.A.C., 40 CFR 60.63(a)]
- B8. The owner or operator shall install, calibrate, maintain, and operate in accordance with 40 CFR 60.13 a *continuous opacity monitoring system* to measure the opacity of emissions from the cement kiln and clinker cooler control device stack. [Rule 62-204.800, F.A.C., 40 CFR 60.63(b)]
- B9. Continuous process monitors shall be installed for CO or O<sub>2</sub> to insure proper combustion practices and for use in determining plant operating parameters to optimize emissions of CO, NO<sub>x</sub>, and SO<sub>2</sub>. [Rule 62-212.400(5), and 62-4.070(3) F.A.C.]
- B10. Continuous monitoring equipment shall also be installed, calibrated, maintained, operated, and used to determine compliance for NO<sub>x</sub> and SO<sub>2</sub>. Continuous emission monitors must be installed and certified, before the initial performance test, and operated in compliance with 40 CFR 60, Appendix F, Quality Assurance Procedures (1994 version) or other Department approved QA plan; 40 CFR 60, Appendix B, Performance Specification 1, 2, and 3 (1994 version). [Rule 62-204.800, F.A.C.]

**Compliance By Continuous Emission Monitoring System (CEMS)**

- B11. Compliance with the emission limits for NO<sub>x</sub> and SO<sub>2</sub> in Table 1-2 shall be demonstrated by the continuous emission monitoring system (CEMS). The CEMS shall calculate and record emission rates in units of pounds of NO<sub>x</sub> (and SO<sub>2</sub>) per hour as well as pounds NO<sub>x</sub> (and SO<sub>2</sub>) per ton of clinker. Clinker production rates shall be recorded each hour. The permittee may establish a relationship between material feed rates and production rates of clinker if material feed rates are measured more accurately than clinker production rates and the relationship is accurate within 10%.

Each monitored operating hour a 24 hour block average shall be calculated for the previous 24 successive monitored operating hours. A monitored operating hour is each hour in which fuel is fired in the unit and at least two emission measurements are recorded at least 15 minutes apart. Data taken during periods of startup, or when fuel is not fired to the unit, or when the CEMS is not calibrated shall be excluded from the 24 hour block average

For compliance with the emission limit in Table 1-2 the 24 hour rolling average shall not include data from periods of startup. Startup shall not exceed 2 hours without notifying the Department pursuant to 62-210.700 F.A.C. Data recorded during periods of shutdown, malfunction, load change, and continuous operating periods shall be included in the 24 hour rolling average.

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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To the extent the monitoring system is available to record emissions data, the CEMS shall be operated and shall record data at all operating hours when fuel is fired in the unit, including periods of startup, shutdown, load change, continuous operation and malfunction.

Monitor downtimes, and excess emissions based on 24 hour rolling hour averages, which includes startup emissions, shall be reported on a quarterly basis using the SUMMARY REPORT in 40 CFR 60.7. A detailed report of the cause, duration, magnitude, and corrective action taken or preventative measures adopted for each excess emission occurrence, and a listing of monitor downtime occurrences shall accompany the SUMMARY REPORT when the total duration of excess emissions is 1% or greater or if the monitoring system downtime is 5% or greater of the total monitored operating hours.

Mass emission rates (lb/hr, and lb/ton clinker) shall be calculated based on source specific and fuel specific F factors calculated using 40 CFR 60 Appendix A, Method 19. These F factors shall be recalculated when fuel properties vary significantly from those used in the previously calculated F factors but not less than once per year.

- B12. The monitoring devices shall meet the applicable requirements of Chapter 62-204, F.A.C., 40 CFR 60, Appendix F, and 40 CFR 60.13, including certification of each device in accordance with 40 CFR 60, Appendix B, Performance Specifications and 40 CFR 60.7(a)(5) Notification Requirements. Data on monitoring equipment specifications, manufacturer, type calibration and maintenance requirements, and the proposed location of each monitor shall be provided to the Department's Southwest District office for review at least 90 days prior to installation of a new CEMS. [Rule 62-204.800, F.A.C.]

**TEST METHODS AND PROCEDURES**

- B13. Compliance with the allowable emission limiting standards listed in Table 1-2 shall be determined by using the following reference methods as described in 40 CFR 60, Appendix A (1994, version) and 40 CFR 61 Appendix B 1994, version) adopted by reference in Chapter 62-204, F.A.C.

**Method 5** Determination of Particulate Matter Emissions from Stationary Sources (I) and (A).

**Method 8** Determination of Sulfuric Acid Mist from Stationary Sources (I).

**Method 9** Visual Determination of the Opacity of Emissions from Stationary Sources (I) and (A).

**Method 10** Determination of Carbon Monoxide Emissions from Stationary Sources (I) and (A).

**Method 25** Determination of Volatile Organic Compound Emissions from Stationary Sources (I).

**Method 29** Determination of Lead, Cadmium, and Mercury from Stationary Sources (proposed) (I).

**Method 104** Determination of Beryllium Emissions from Stationary Sources (I).

Emission testing shall be performed at the No. 2 kiln/cooler main stack (baghouse 2E-40) during a period when the No. 2 kiln precalciner, cooler, shaft dryer/heater, raw mill and preheater are operating simultaneously and under normal operating conditions. The measured emission rates will be the combined rates from the kiln and clinker cooler determined at the stack. EPA-reference methods for sampling pollutants shall consist of the average of 3 consecutive test runs, each of one hour duration.

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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These emission units (026 and 027) shall comply with all applicable requirements of Rule 62-297.310, F.A.C. General Test Requirements and 40 CFR 60.8. Performance Tests. Table 2-1, Compliance Requirements (attached) also lists the EPA methods.

Testing of emissions shall be conducted with the emission unit operating at capacity (85% coal and 15% tires). Permitted capacity is defined as 90-100% of the maximum operating rate allowed by the permit. If it is impracticable to test at permitted capacity, then the unit may be tested at less than 90% of the maximum operating rate allowed by the permit; in this case, subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen consecutive days for the purpose of additional compliance testing to regain the permitted capacity in the permit. **[Rules 62-204.800, 62-297.310, 62-297.400, 62-297.401, F.A.C., and 40 CFR 60 Appendix A and 40 CFR 60.8, Subpart A].**

B14. The visible emissions test shall be conducted by a certified observer and be a minimum of 180 minutes in duration. The test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur **[40 CFR 60.11 and Rule 62-297.310 (7), F.A.C.]**.

B15. Compliance with the particulate matter standard contained in Table 1-2 (attached) shall be determined using EPA Method 5. The emission rate (E) of particulate matter shall be computed for each run using the following equation:

$$E = (c_s \times Q_{sd}) / (P \times K)$$

where:

- E = emission rate of particulate matter, kg/metric ton (lb/ton) of kiln feed
- c<sub>s</sub> = concentration of particulate matter, g/dscm (g/dscf)
- Q<sub>sd</sub> = volumetric flow rate of effluent gas, dscm/hr (dscf/hr)
- P = total kiln feed (dry basis) rate, metric ton/hr (ton/hr)
- K = conversion factor, 1000 g/kg (453.6 g/lb)

B16. The sampling time and sample volume for each run shall be at least 60 minutes and 0.85 dscm (30.0 dscf) for the kiln and at least 60 minutes and 1.15 dscm (40.6 dscf) for the clinker cooler. **[Rules 62-204.800 and 62-297.401, F.A.C. 40 CFR 60.64(b)(1) - (3)].**

B17. Suitable methods shall be used to determine the kiln feed rate (P), except fuels, for each run. Material balance over the production system shall be used to confirm the feed rate **[40 CFR 60.64(3)]**.

B18. Operating procedures shall include good combustion practices and proper training of all operators and supervisors. The good combustion practices shall meet the guidelines and procedures as established by the



**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.].

**RECORDKEEPING AND REPORTING REQUIREMENTS**

B19. The owner or operator shall submit reports of excess emissions based upon data from the continuous opacity monitoring system. Periods of excess emissions that shall be reported are defined as all 6 minute periods during which the average opacity exceeds that allowed in the BACT determination. The content of these reports must comply with the requirements in 40 CFR 60.7(d). Such reports shall be submitted quarterly pursuant to 40 CFR 60.7 (c). [Rule 62-204.800, F.A.C.; 40 CFR 60.63(d), 60.65(a) and 40 CFR 60.7].

B20. In order to document compliance with Specific Condition No. B5(3) TIRES:

- a. A log shall be established and maintained for the hours of operation using tires as supplemental fuels. The log shall include the daily tire usage (hours) as supplemental fuel at the facility, a monthly running total of the tire usage (hours), and a cumulative 12 month running total (hours), to ensure that the annual limit is not exceeded. The log shall be maintained on file for at least five (5) years and shall be made available to the Department upon request.
- b. A log that includes the date of all tire deliveries to the facility, and the total quantity (nearest 0.1 tons) of tires received.
- c. A tire usage-control system shall be installed to assure that the tire usage as supplemental fuel at the facility does not exceed the maximum of 15% of the total Btu heat input to the No. 2 kiln and precalciner or 1.44 tons per hour. The control system shall include a verification method and a log that insures and documents that the tires usage and heat input limits are not exceeded.
- d. A log for the utilization rate (tons per hour) of tires. The utilization rate of tires as supplemental fuel shall be determined by a continuous weighing method and shall be recorded.
- e. The logs shall be maintained on file for at least five (5) years and shall be made available to the Department upon request.

FCS shall record, as a minimum, the daily dry feed rate into the No. 2 kiln (TPH), and the clinker production rate. The above records shall be retained for a period of five (5) years and made available to the Department upon request.

B21. In order to document compliance with Specific Condition No. B5(2) COAL:

**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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A coal usage control system shall be established to assure that the coal usage does not exceed a maximum of 13.8 TPH.

- B22. In order to document compliance with Specific Conditions No. B5(5) through B5(8) FUEL OILS, the following used oil control system shall be used, as a minimum:
- a. Record the transfer of used oil and unused oil to the blend tanks (dates and gallons).
  - b. Record the final blend quantities of on-spec used oil and unused oil (gallons)
  - c. Calculate and record the final percentage of on-spec used oil in the tank blend of on-spec used oil and unused oil, and verify that the percentage does not exceed 15.0 percent, by volume.

These records shall be maintained on file for at least five (5) years and shall be made available to the Department upon request. [Rule 62-4.070(3), F.A.C. and FCS letter on Used Oil Sampling].

- B23. Recordkeeping requirement when burning on-spec used oil shall be in accordance with 40 CFR 266.43 (b) and (6) (July 1, 1992 version). The results of each sample analysis shall be submitted to the Department Southwest District office and the Hernando County Planning offices within 30-days after a sample is taken. The dates and quantities of both on-spec purchased fuel oil transferred to the facility storage tank shall be reported quarterly (i.e., Jan-Mar, April-June, July-Sept, and Oct-Dec). The report is due in the month following the ending quarter. All records shall be kept for a minimum of five (5) years period for public and regulatory agency inspection.
- B24. All measurements, records, and other data required to be maintained by the permittee shall be reported to the Southwest District office on a quarterly basis with the start of commercial operation in accordance with 40 CFR 60.7. All measurements, records and other data required to be maintained by the permittee shall be retained for at least 5 years following the date on which such measurements, records, or data are recorded. The data shall be available to Department staff as requested. [40 CFR 60.7]
- B25. The owner or operator shall submit reports of the malfunction information required to be recorded by 40 CFR 60.7(b). These reports shall include the frequency, duration, and cause of any incident resulting in deenergization of any device controlling kiln emissions or in the venting of emissions directly to the atmosphere. [Rule 62-204.800, F.A.C., 40 CFR 60.65 (c)]

**Daily Operation and Maintenance (O&M) Log:**

- B26. This facility shall maintain a central file containing all measurements, records, and other data that are required to be collected pursuant to the various specific conditions of this permit. Operators shall keep a daily O&M log to include, at a minimum, the following information:

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**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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The data collected from in-stack monitoring instruments.

The records on daily feed rates and clinker production rate.

The amount and type of fuel burned.

Total quantity (by weight) of tire used as supplemental fuel.

The results of all source tests.

Calibration logs for all instruments.

Maintenance/repair logs for any work performed on equipment or instrument which is subject to this permit;

Total coal, natural gas, and oil usage.

All measurements, records, and other data required to be maintained by FCS shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. The Department's Southwest District office shall be notified in writing at least 15 days prior to the testing (auditing) of any instrument required to be operated by these specific conditions of certification in order to allow witnessing by authorized personnel.  
[Rule 62-4.070(3), F.A.C.]

**Table 1-2. Air Pollutant Standards and Terms.**

DRAFT

FACILITY ID NUMBER: 0530021

Permittee:  
Florida Crushed Stone, Company

DRAFT Permit No.: AC27-274892(A) and PSD-FL-227(A)  
Portland Cement Plant No. 2 and Associated Equipment

Emission Unit 026 - Kiln No. 2  
Emission Unit 027 - Cooler No. 2

E.U. ID#	Description	Pollutant ID	Fuel(s) [2]	Allowable Emissions			Basis
				BACT limits	lb/hr	TPY	
026	Kiln No. 2	PM/PM <sub>10</sub>	coal/gas/WTDF/oil	0.20 lb/ton kiln feed *	31.9	140	BACT
026	Kiln No. 2	SO <sub>2</sub>	coal/gas/WTDF/oil	0.23 lb/ton clinker	23.9	105	BACT
026	Kiln No. 2	NO <sub>x</sub>	coal/gas/WTDF/oil	2.8 lb/ton clinker	291.7	1278	BACT
026	Kiln No. 2	CO	coal/gas/WTDF/oil	2.0 lb/ton clinker	208.3	913	BACT
026	Kiln No. 2	VOC	coal/gas/WTDF/oil	0.09 lb/ton clinker	8.85	38.8	FCS/DEP
026	Kiln No. 2	H <sub>2</sub> SO <sub>4</sub>	coal/gas/WTDF/oil	0.014 lb/ton clinker	1.45	6.39	FCS DATA
026	Kiln No. 2	Beryllium	coal/gas/WTDF/oil	8.2 E-07 lb/ton clinker	8.85 E-05	3.88 E-04	FCS/DEP
026	Kiln No. 2	Mercury	coal/gas/WTDF/oil	2.4 E-05 lb/ton clinker	2.50 E-03	1.10 E-02	FCS DATA
026	Kiln No. 2	Lead	coal/gas/WTDF/oil	5.2 E-04 lb/ton clinker	5.42 E-02	2.37 E-01	FCS DATA
026	Kiln No. 2	VE	coal/gas/WTDF/oil	10% opacity			BACT
027	Cooler No. 2	PM/PM <sub>10</sub>	coal/gas/WTDF/oil	0.1 lb/ton kiln feed *	15.93	69.80	BACT-NSPS
027	Cooler No. 2	VE	coal/gas/WTDF/oil	10% opacity			BACT

**ALLOWABLE OPERATING RATES**

		KILN No. 2	Cooler No.2
Hours of operation		8760	8760
Kiln preheater feed rate	TPH	173.2	
Kiln feed rate *	TPH	159.4	
Suitable methods shall be used to determine the kiln feed rate, except fuels, for each run. Material balance over the production system shall be used to confirm the feed rate.			
Kiln Heat Input	MMBtu/hr	325	
Clinker Production (1)	TPH	104.2	
Cooler throughput rate	TPH	104.2	

**NOTES**

- (1) At a maximum design clinker production rate of 104.2 TPH and preheater feed rate of 173.2 TPH, utilizing a conversion factor of 0.602: (173.2 x 0.602 = 104.2).
- (2) Fuel oil burning as specified in Specific Condition No. 8 is allowable for startup only. WDTF and whole tires (15% heat input) are allowed to be burned at this kiln.

**Table 2-1. Compliance Requirements.**

FACILITY ID NUMBER: 0530021

DRAFT

DRAFT Permit No.: AC27-274892(A)  
and PSD-FL-227(A)

Permittee:  
Florida Crushed Stone, Company  
Portland Cement Plant No. 2 and Associated Equipment

E.U. ID#	Description	Pollutant Name or parameter	Fuel(s) [1]	EPA/Reference Method/CMS *	Testing Time Frequency	Min. Compliance Test Duration	CMS * Compliance
026	Kiln No. 2	PM/PM <sub>10</sub>	Oil/Coal /Gas/WTDF	5	initial/annual	3 one-hr run	
026	Kiln No. 2	VE	Oil/Coal/Gas/WTDF	9/COMS	initial/annual/COMS	3 one-hr run	No [4]
026	Kiln No. 2	SO <sub>2</sub>	Oil/Coal/Gas/WTDF	CEMS	24-hr rolling average	continuous	Yes [6]
026	Kiln No. 2	NO <sub>x</sub>	Oil/Coal/Gas/WTDF	CEMS	24-hr rolling average	continuous	Yes [3]
026	Kiln No. 2	CO	Oil/Coal/Gas/WTDF	10 [5]	initial/annual	3 one-hr run	
026	Kiln No. 2	VOC	Oil/Coal/Gas/WTDF	25 or 25A [2]	initial	3 one-hr run	
026	Kiln No. 2	H <sub>2</sub> SO <sub>4</sub> mist	Oil/Coal/Gas/WTDF	8	initial	3 one-hr run	
026	Kiln No. 2	Hg, Pb	Oil/Coal/Gas/WTDF	29	initial	3 one-hr run	
026	Kiln No. 2	Be	Oil/Coal/Gas/WTDF	104	initial	3 one-hr run	
031	Fugitive sources	VE	Oil/Coal/Gas/WTDF	22	Protocol [7]		
025/028/029/030	Minor Sources	VE	Oil/Coal/Gas/WTDF	9	initial/annual	3 one-hr run	
027	Cooler No. 2	PM/PM <sub>10</sub>	Oil/Coal/Gas/WTDF	5	initial/annual	3 one-hr run	
027	Cooler No. 2	VE	Oil/Coal/Gas/WTDF	9/COMS	initial/annual/COMS	3 one-hr run	No [4]

**Notes:**

- [1] Testing of emissions shall be conducted while burning coal, 85% coal and 15% tires (permitted capacity). The kiln is allowed to burn virgin fuel oil and a blend of virgin fuel oil and on-spec used oil for-startup. See specific conditions No. 3.
  - [2] VOC emission shall be tested initially to comply with the condition of this permit. Thereafter, compliance will be assumed provided the CO allowable emission rate is reached.
  - [3] NO<sub>x</sub> - The continuous emission monitor (CEM) data shall be used for Kiln No. 2 compliance requirement. The CEM calibration and maintenance shall meet the applicable requirements of 40 CFR 60, Appendix B and Appendix F.
  - [4] Pursuant to 40 CFR 60, Subpart F, the kiln/cooler exhaust system shall be equipped with continuous opacity monitor system (COMS) to record the opacity at the stack to indicate proper maintenance and operation. Monitoring of the opacity of emissions shall be demonstrated by COMS pursuant to 40 CFR 60.63. Notification and recordkeeping shall be in accordance with 40 CFR 60.7 and 40 CFR 60.65.
  - [5] Continuous process monitors for CO and/or O<sub>2</sub> to optimize combustion conditions for pollution control shall be part of the process.
  - [6] SO<sub>2</sub> - The continuous emission monitor (CEM) data shall be used for Kiln No. 2 compliance requirement. The CEM calibration and maintenance shall meet the applicable requirements of 40 CFR 60, Appendix B and Appendix F.
  - [7] Protocol as approved by the Southwest District Office.
- \* CMS [ = ] compliance demonstrated by a continuous monitoring system: CEMS or COMS.

AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS

**SUBSECTION C. SPECIFIC CONDITIONS**

The following Specific Conditions apply to the following emission units:

EMISSIONS UNIT No.	SYSTEM	EMISSIONS UNITS DESCRIPTION
031	Raw Materials Processed	Material Handling (Fugitive) Handling and Storage (Fugitive)
025	Raw Mill System	Filter Dust Bin Transport, Raw Meal Transport, Raw Meal Storage, Homogenizing Silos
028	Finish Mill	Gypsum Storage Bin, Clinker Transport, Belt Conveyor, Finish Mill Discharge Vent, Finish Mill Sepal Separator, Clinker Storage Silo
029	Cement Handling	Cement Storage Silo A, Cement Storage Silo B, Cement Silo Discharge Hopper A, Cement Silo Di
030	Coal Handling	Coal Handling and Storage (Fugitives) Coal Dust Bin, Coal Mill.

**EMISSION LIMITATIONS**

- C1. The permittee shall not cause or allow to be discharged into the atmosphere visible emissions which exceed the limits given in Table 1-1 Allowable Opacity Limits. [Rule 62-210.200(198) and 62.212.400, F.A.C.]
- C2. In order to minimize excess emissions during startup/shutdown/malfunction these emission units shall adhere to best operational practices. [Rule 62-210.700, F.A.C. and 40 CFR 60.7]

**OPERATIONAL LIMITATIONS**

- C3. Cement Plant No.2 and associated equipment is allowed to operate continuously (8760 hours/year) [Rule 62-210.200(223), F.A.C. Definitions-Potential to emit (PTE)].
- C4. *Process operating rates:*

The maximum material handling rates are as specified in Table 1-1. Allowable Opacity Limits.

**TEST METHODS AND COMPLIANCE PROCEDURES**

- C5. The maximum permitted allowable particulate emission rate (lbs/hr and gr/dscf) from these emissions units are as stated in Table 1-1 Allowable Opacity Limits. Because of the expense and complexity of

Florida Crushed Stone Co.  
Brooksville, FL

Portland Cement Plant No. 2  
and Associated Equipment  
Facility ID No. 0530021

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**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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conducting a stack test on minor sources of particulate matter, and because these sources are equipped with a baghouse control device, the Department pursuant to the authority granted under Rule 62-297.620(4), F.A.C., hereby establishes a visible emission limitation not to exceed an opacity of 5% in lieu of a particulate stack test. [Rule 62-297.620(4), F.A.C.]

- C6. Compliance with the allowable emission limiting standards listed in Table 1-1 shall be determined by using the following reference methods as described in 40 CFR 60, Appendix A (1995, version) adopted by reference in Chapter 62-204, F.A.C.

**Method 9** Visual Determination of the Opacity of Emissions from Stationary Sources (I) and (A).

**Method 22** Visual Determination of Fugitive Emissions from Material Sources.

A protocol to determine compliance with EPA Method 22 shall be submitted to the District office before applying for the Title V operating permit for this Cement Plant No. 2.

Testing of emissions must be accomplished within 90 to 100% of the permitted capacity [Rule 62-297.310(2), F.A.C]. Failure to submit the input rates and actual operating conditions may invalidate the test [Rule 62-297.310 (2), F.A.C.].

These emission units shall comply with all applicable requirements of Rule 62-297.310 General Test Requirements and 40 CFR 60.8, Subpart A, Performance Tests.

- C7. The visible emissions test, EPA Method 9, shall be conducted by a certified observer and be a minimum of 180 minutes in duration. The test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. [Rule 62-297.310, F.A.C.]
- C8. Should the Department have reason to believe the particulate matter standards set forth in Table 1-1 are not being met, the Department may require that compliance with the particulate emission standards be demonstrated by testing (applicable emission unit) in accordance with Rule 62-297.620 (4) F.A.C. [Rule 62-297.620(4) and 62-297.310, F.A.C.]
- C9. Operating procedures shall include good operating practices and proper training of all operators and supervisors. The good operating practices shall meet the guidelines and procedures as established by the equipment manufacturers. All operators (including supervisors) of air pollution control devices shall be properly trained in plant specific equipment. [Rule 62-4.070(3), F.A.C.].
- C10. Particulate emissions from coal handling facilities related to the No. 2 kiln shall be minimized by following the procedures listed below: [Rule 62-296.320(4)(c), F.A.C.]

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**SECTION III. EMISSION UNIT(S) SPECIFIC CONDITIONS**

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- a. All conveyers and transfer points shall be enclosed to preclude particulate emissions (except those directly associated with coal stacking/reclaiming).
  - b. Coal storage piles shall be shaped, compacted and oriented to minimize wind erosion.
  - c. Water sprays or chemical wetting agents and stabilizers shall be applied to storage piles, handling equipment, etc., during dry periods and as necessary to all facilities to maintain an opacity of less than 5 percent, except when adding, moving or removing coal from the coal pile, during which the opacity shall be no more than 20%.
- C11. The part of the fly ash handling system related to the No. 2 kiln (including transfer equipment, flyash bin, and pneumatic system exhaust) will be totally enclosed and vented through fabric filters.

**RECORDKEEPING AND REPORTING REQUIREMENTS**

**Daily Operation and Maintenance (O&M) Log:**

- C12. This facility shall maintain a central file containing all measurements, records, and other data that are required to be collected pursuant to the various specific conditions of this permit. Operators shall keep a daily O&M log to include, at a minimum, the following information:

The results of all source tests.

Calibration logs for all instruments.

Maintenance/repair logs for any work performed on equipment or instrument which is subject to this permit.

All measurements, records, and other data required to be maintained by FCS shall be retained for at least five (5) years following the data on which such measurements, records, or data are recorded. These data shall be made available to the Department upon request. The Department's Southwest District office shall be notified in writing at least 15 days prior to the testing (auditing) of any instrument required to be operated by these specific conditions of certification in order to allow witnessing by authorized personnel. [Rule 62-4.070(3), F.A.C.]



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Table 1-1  
 Allowable Opacity Limits (Minor Particulate Sources)  
 Florida Crushed Stone

Description	Control	Emission Unit Equipment	Grain Loading (gr/dscf)	OPACITY	lb/hr
Emission Unit: Raw Material Processed Process Rate = 245 TPH					
Material Processing (Fugitive)				10	
Handling and Storage (Fugitive)				10	
Emission Unit: Raw Mill System Process Rate = 173.2 TPH Preheater Feed					
Filter Dust Bin Transport	Baghouse	2E-67	0.01	5	0.302
Raw Meal Transport	Baghouse	2F-02	0.01	5	0.208
Raw Mill Storage and Homogenizing Silos	Baghouse	2G-01	0.01	5	1.178
Emission Unit: Kiln Operations Process Rate = 159.4 TPH Kiln Dry Feed					
Kiln Feed System	Baghouse	2H-05, 2E-66	0.01	5	0.499
Emission Unit: Finish Mill Process Rate = 104.2 TPH Clinker					
Gypsum Storage Bin	Baghouse	2L-14	0.01	5	0.320
Clinker Transport	Baghouse	2L-03	0.01	5	0.253
Belt Conveyor	Baghouse	2M-04	0.01	5	0.485
Finish Mill Discharge Vent	Baghouse	2N-02	0.01	5	2.640
Finish Mill Sepol Separator	Baghouse	2N-08	0.01	5	8.270
Clinker Storage Silo	Baghouse	2L-05	0.01	5	0.253
Clinker Bin	Baghouse	2M-15	0.01	5	0.624
Emission Unit: Cement Handling Process Rate: ~ 115 TPH Portland Cement					
Cement Storage Silo A	Baghouse	2Q-18	0.01	5	0.499
Cement Storage Silo B	Baghouse	2Q-18	0.01	5	0.499
Cement Silo Discharge Hopper A	Baghouse	2Q-28	0.01	5	0.208
Cement Silo Discharge Hopper B	Baghouse	2Q-38	0.01	5	0.208
Emission Unit: Coal Handling Process Rate = 13.8 TPH					
Coal Mill	Baghouse	2S-15	0.01	5	1.745
Coal Dust Bin	Baghouse	2S-20	0.01	5	0.145
Coal Handling and Storage (Fugitive)				5/20/10	
<b>TOTAL</b>					<b>18.336</b>

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AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

SECTION IV. PERMITTING HISTORY

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CEMENT PLANT

06-13-83	PA 82-17	Original PPS Certification
07-25-83	PA 82-17	Modification, limestone injection
11-10-83	AC27-61016	Original air construction permit
03-27-84	PSD-FL-091	EPA PSD permit
06-29-86	PA 82-17	Modification, limestone calciner
08-26-86	AC27-118674 PSD-FL-091	Modification, reduced emission limits
04-30-90	AC27-118674 PSD-FL-091A	Intent to Issue, testing shredded tires
06-06-90	AC27-118674 PSD-FL-091A	Amendment, testing shredded tires
09-24-90	AC27-118674 PSD-FL-091	Amendment, testing JEA sediment
05-24-91	AO27-183508	Original air operation permit
08-30-91	AC27-118674 PSD-FL-091B	Intent to Issue, use of shredded tires
10-09-91	AC27-118674 PSD-FL-091	Amendment, testing shredded tires for NO <sub>x</sub> measurements
10-25-91	AC27-118674 PSD-FL-091	Amendment, testing whole tires
07-20-92	AC27-118674 PSD-FL-091C	Amendment, additional testing with whole tires
11-18-92	AC27-118674 PSD-FL-091A	Modification, use of shredded tires

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AIR CONSTRUCTION PERMIT AC27-274892(A) AND PSD-FL-227(A)

**SECTION IV. PERMITTING HISTORY**

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11-24-92	AC27-118674 PSD-FL-091	Intent to Issue, use of whole tires
12-21-92	AC27-118674	Modification, use of whole tires
12-17-93	AC27-222095 PSD-FL-091D	Modification, use of used oil
03-11-94	AO27-231888	Modification, use of used oil, and tires (whole and shredded)
08-10-94	AC27-222095 PSD-FL-091E	Modification, use of used oil w/ PCB limit condition
08-30-94	AO27-231888A	Modification, used oil test method
<b><u>POWER PLANT</u></b>		
06-13-83	PA 82-17	Original PPS Certification
07-25-83	PA 82-17	Modification, limestone injection
08-03-83	PA 82-17	Modification
03-27-84	PSD-FL-090	EPA PSD permit
02-20-85	PA 82-17	Modification
06-29-86	PA 82-17	Modification, limestone calciner
06-02-94	PA 82-17	Revision to transfer authorization from SWFWMD to DEP for dike construction
10-06-94	PSD-FL-090A	Amendment, testing at 133 MW
05-23-95	PSD-FL-090D	Intent to Issue, for operation of power at 1850 MMBtu/hr input

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**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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**FLORIDA CRUSHED STONE COMPANY**  
**PORTLAND CEMENT PLANT NO. 2 AND ASSOCIATED EQUIPMENT**  
Brooksville, Florida  
Hernando County

The applicant, Florida Crushed Stone Company (FCS), plans to construct a 104.2 ton per hour (maximum TPH as clinker) dry process portland cement kiln with a *preheater/precalciner design* at its existing cement plant approximately 3.5 miles northwest of Brooksville, Hernando County, Florida. The project includes a single kiln and clinker cooler along with raw mill, finish mill, cement and clinker handling equipment, coal handling equipment, silos, and air pollution control equipment. The facility will produce 912,500 tons per year (maximum TPY as clinker) and approximately 1,004,000 TPY of portland cement.

The Department issued a construction permit and a BACT determination for Cement Plant No. 2 utilizing the preheater (PH) design (1995). This revised BACT analysis will consider the proposed preheater/precalciner (PH/PC) design which may be utilized by FCS in lieu of the permitted PH kiln. An extensive analysis supporting the BACT determination requested by FCS was submitted with the original application and is included by reference along with the original BACT Determination made by the Department and the additional information submitted with the present application.

A detailed process description is included in the Technical Evaluation and Preliminary Determination.

Following is the BACT determination proposed by the applicant:

BACT DETERMINATION REQUESTED BY THE APPLICANT:

<u>POLLUTANT</u>	<u>EMISSION LIMIT</u>
Particulate Matter (kiln)	0.2 lb/ton of dry kiln feed
Particulate Matter (cooler)	0.1 lb/ton of dry kiln feed
Particulate Matter (material handling, conveying, storage)	0.01 gr/dscf, baghouses
Sulfur Dioxide (kiln)	0.23 lb/ton clinker
Nitrogen Oxides (kiln)	2.8 lb/ton clinker
Carbon Monoxide (kiln)	1.31 lb/ton clinker

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**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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A single, large, fabric filter system (baghouse) will be used to capture particulate matter from the kiln and the cooler. Baghouses will also be used to limit particulate emissions from other process emission points. Table 1-1 is a list of the emission units to be controlled by baghouses.

Portland cement installations are among the major facilities listed in Table 212.400-1, F.A.C., "Major Facilities Categories." A BACT determination is required for each pollutant exceeding the significant emission rates in Table 212.400-2, "Regulated Air Pollutants Significant Emissions Rates," which in this case are particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and nitrogen oxides (NO<sub>x</sub>).

This facility is also subject to the following requirements given in Rule 62-208.800, F.A.C., "Federal Regulations adopted by Reference:"

- 40 CFR 60, Subpart F - Standards of Performance for Portland Cement Plants.
- 40 CFR 51, Subpart P - Protection of Visibility.

Date of Receipt of a BACT Application:

September 11, 1996

Review Group Members:

Teresa Heron and A. A. Linero of the New Source Review Section.

BACT DETERMINATION PROCEDURE

In accordance with Chapter 62-212, F.A.C., this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department of Environmental Protection (Department), on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that, in making the BACT determination, the Department shall give consideration to:

- (a) Any Environmental Protection Agency determination of BACT pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 - Standards of Performance for New Stationary Sources or 40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants.
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards or BACT determination of any other state.
- (d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine, for the emission unit in question, the most stringent control available for a similar or identical emission unit or emission unit category. If it is shown that this level of control is

APPENDIX BD  
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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technically or economically unfeasible for the emission unit in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from this facility can be grouped into categories based upon the control equipment and techniques that are available to control emissions from these emission units. Using this approach, the emissions can be classified as follows:

- Particulate matter from kilns and coolers (PM/PM<sub>10</sub> and VE). Controlled generally by add-on particulate collection equipment such as baghouses or electrostatic precipitators.
- Products of combustion and incomplete combustion (e.g., SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC). Control is largely achieved by good combustion practices, reactions with clinker and raw materials and removal in add-on control equipment.
- Emissions from materials handling, conveyance, and storage (primarily PM). Controlled generally by fabric filters and reasonable precautions.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "non-regulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., PM, SO<sub>2</sub>, H<sub>2</sub>SO<sub>4</sub>, fluorides, etc.), if a reduction in "non-regulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

BACT DETERMINATION ANALYSIS:

PARTICULATE MATTER (PM/PM<sub>10</sub>)

Particulate Matter is generated by the various physical and chemical processes at a cement manufacturing plant. Sources of particulate matter at cement plants include (1) quarrying and crushing, (2) raw material storage, (3) grinding and blending, 4) clinker production, 5) finish grinding, and 6) packaging and loading. Additional sources of PM are raw material storage piles, conveyers, storage silos, and unloading facilities. The largest emission source of PM within cement plants is the pyroprocessing system that includes the kiln and clinker cooler exhaust stacks (in this case, common kiln/cooler stack). Emissions from kilns are affected by several factors, including differences in convective patterns, material movement patterns, burner locations and insertion lengths, heat transfer mechanisms, and the type of clinker cooler that supplies secondary air to the kiln for combustion. Typically, dust from the pollution control equipment servicing the kiln and cooler is collected and recycled into the kiln and thus incorporated into the clinker. According to FCS, virtually all of the cement kiln dust (CKD) generated from Cement Plant 1 is captured in the baghouse and returned to the pyroprocessing system as raw material. A small amount is removed every few weeks and sold to avoid build-up of thallium in the product. It is expected that most of the CKD from Cement Plant 2 will be recycled, while any excess will be stored in a silo for sale.

## APPENDIX BD

# BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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Common control devices for stack gases include settling chambers, inertial separators, impingement separators, wet scrubbers, fabric filters, and electrostatic precipitators. Fabric filters (baghouses) and electrostatic precipitator (ESPs) are generally considered equivalent for particulate control. Both types of devices can achieve removal efficiencies of over 99%. ESPs and baghouses are used extensively as control devices at cement plants. ESPs are generally specified for kiln and clinker cooler exhaust gases because of their ability to operate effectively at varying temperatures. Baghouses are also used at facilities for particulate control from kilns and coolers. Both types of control equipment provide for the recovery/recycling of collected dust back into the process stream. Baghouses are also used to control particulate emissions from most other material processing operations at cement plants.

Common controls to limit particulate emissions from fugitive sources (such as roadways, stockpiles, and material processing and conveying equipment) include wet suppression, sweeping, application of surfactants, paving of roads and covering of stockpiles to reduce wind erosion. Wet suppression of fugitive particulate emissions is considered as BACT for most material handling operations and unpaved roads. Dust from stockpiles can be minimized by relatively high material moisture content with additional water spraying as necessary.

Small quantities of beryllium (Be), mercury (Hg) and lead (Pb) are generated by the combustion of coal and fuel oil blends. Be and Pb will be generated as particulate emissions from the combustion of fuels, and will be removed by incorporation into the product clinker or controlled by the kiln/cooler baghouse. Hg can exist in both particulate and gaseous form and can only be partially removed by the process and control equipment. The applicant projects such low emissions of these metals that they will not be subject to BACT.

A review of the BACT Clearinghouse indicates that baghouses and ESPs are widely used to control particulate matter from process emission units at cement plants. They are commonly accepted as BACT.

The applicant has proposed kiln particulate emissions of 0.2 pounds per ton of dry kiln feed (lb/ton kiln feed) and cooler particulate emissions equal to the New Source Performance Standards (NSPS) limit of 0.1 lb/ton kiln feed as BACT for this source. This compares with the proposed values in the original application for the PH kiln of 0.3 and 0.1 lb/ton kiln feed for the two units, respectively.

### PRODUCTS OF COMBUSTION AND INCOMPLETE COMBUSTION

#### **Nitrogen Oxides**

Emissions of  $\text{NO}_x$  from dry process cement plants with a PH/PC include the kiln, the calcining loop, and any fuel-fired support operation.  $\text{NO}_x$  is generated during fuel combustion by oxidation of chemically bound nitrogen in the fuel (fuel  $\text{NO}_x$ ) and by thermal fixation of nitrogen in the combustion air (thermal  $\text{NO}_x$ ). As flame temperature increases, the amount of thermally generated  $\text{NO}_x$  increases. Fuel type affects the quantity and type of  $\text{NO}_x$  generated. Generally, natural gas is low in nitrogen. However it causes higher flame temperatures and generates more thermal  $\text{NO}_x$  than oil or coal, which have higher fuel nitrogen content, but exhibit lower flame temperatures.

$\text{NO}_x$  emissions represent a significant portion of the total emissions generated by this project, and must be minimized using BACT.

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**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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The emissions of NO<sub>x</sub> can potentially be reduced at Portland cement plants by two methods:

1. Minimizing the quantity of NO<sub>x</sub> generated during combustion (combustion modifications).
2. Reducing the quantity of NO<sub>x</sub> in the flue gas stream (flue gas controls).

A review of EPA BACT/LAER Clearinghouse (BACT Clearinghouse) information indicates that NO<sub>x</sub> emissions at most facilities are minimized by process control and good combustion practices.

The applicant stated that NO<sub>x</sub> emissions at this facility will be controlled through "proper combustion practices" such as burner design with primary combustion air control. Burning a portion of the fuel in the PC, introduction of tires in the material feed end of the kiln, and indirect firing will spread out the thermal load will help minimize NO<sub>x</sub> emissions.

In its original submittal, the applicant ruled out Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR) as technically unfeasible or cost prohibitive. The applicant gave subsequent consideration to other possible control methods following a request by the Department for additional details justifying the selected method. The applicant rejected Low NO<sub>x</sub> Burners, low Nitrogen Fuel, Flue Gas Recirculation, Fuel Reburning, and Contemporaneous Reductions from the on-site power plant and cement kiln as options which are ineffective, undemonstrated, or beyond the control of the applicant.

The applicant has proposed for this kiln with a PH/PC design a NO<sub>x</sub> emission rate of 292 lb/hr and 2.8 lb/ton clinker. This value is substantially less than the one FCS proposed in its original application (4.3 lb/ton clinker) and, on a unit basis, is equal to the BACT Determination made by the Department in 1995. It is compared below with previous determinations documented by the BACT Clearinghouse.

Previous BACT Determinations

<u>BASIS</u>	<u>Least Stringent</u>	<u>Most Stringent</u>	<u>Proposed</u>
	Year 1978	Year 1981	Year 1996
lb/ton clinker	11.13	0.85	2.8

It is important to note that the facility which was given the 0.85 lb/ton clinker NO<sub>x</sub> limit has not been able to meet it since construction. A dry process plant with PH/PC received a NO<sub>x</sub> limit of 1.11 lb/ton clinker but was never built. Another dry process plant with PH/PC received a BACT determination of 2.09 lb NO<sub>x</sub>/ton clinker. However, it appears that since that time a less stringent standard was applied. One dry process PH/PC kiln in California received a NO<sub>x</sub> BACT determination of 2.5 lb/ton clinker. The Department made a BACT Determination of 2.8 lb/ton clinker in 1995 for the proposed Florida Rock Industries Cement Plant in Newberry, Florida. The main reason it was higher than the one for the California plant was that Florida limestone is wetter and requires more heat input to dry. A claim by the kiln manufacturer that differences in volatility between Eastern and Western coal should be reflected in an even higher emission limit for the Florida kiln was rejected by the Department.

A review of the NO<sub>x</sub> emission rate summary indicates that the applicant's proposal is representative of the most stringent BACT determinations made to date for plants utilizing dry processes. The dry process with



## APPENDIX BD

### BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

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PH/PC is considered to be the most energy-efficient process. Therefore it is expected that the lower fuel use will result in relatively low  $\text{NO}_x$ . Additionally, the lower flame temperature realized when burning coal, spreading the thermal load over various burn points, indirect firing, as well as documented reductions from tire burning, are further reasons to expect low emission rate from the proposed PH/PC kiln.

The Department also reviewed a paper presented at the Air and Waste Management Association (AWMA) International Specialty Conference on Waste Combustion in Boilers and Industrial Furnaces. The paper, "Reduction of  $\text{NO}_x$  Emissions from Cement Kiln/Calciner through the Use of the  $\text{NO}_x\text{OUT}$  Process," which was written by representatives of Nalco and Ash Grove Cement, suggests that SNCR is a viable control method. A level as low as 1.0 lb/ton of clinker was reached based on demonstration tests conducted at the Ash Grove cement plant in Seattle, Washington. However the process has not been demonstrated on a long term basis and FCS' kiln designer, Polysius, has not been willing to guarantee its performance or the quality of cement produced when using this control process.

Recently a proposed cement plant (Great Star Cement, Clark County, Nevada) was permitted with the urea-based SNCR/ $\text{NO}_x\text{OUT}$  process as BACT. The process relies on the reaction between ammonia and  $\text{NO}_x$  to yield molecular nitrogen. The delivery system consists of urea injectors in one of the preheater sections. The objective was to achieve 50% reduction of  $\text{NO}_x$  emissions. At that level there should be no ammonia slip while meeting a BACT limit of 3.1 lb/ton clinker.

A survey of stack test data from various kilns around the country, operating for more than three years, suggests that the proposed emission limit for  $\text{NO}_x$  is low but achievable.

The USEPA Technology Transfer Network (TTN) BACT/LAER/RACT Clearinghouse database was reviewed for more recent data. Review of this data does not change the Department's original review.

#### Sulfur Dioxide

Sulfur dioxide ( $\text{SO}_2$ ) may be generated both from sulfur compounds such as sulfates in the raw materials and from sulfur in the fuel. The sulfur content of both raw materials and fuels varies from plant to plant and with geographic location. Sulfur dioxide at this facility will be generated by the combustion of coal and tires in the kiln and generation of sulfur gases from the raw materials.

The exhaust gas from a cement kiln can contain varying amounts of  $\text{SO}_2$ . Under low oxygen conditions, sulfates in the raw materials can be converted to  $\text{SO}_2$ . At high temperature and excess air conditions, some of the sulfur introduced into the cement kiln with the raw materials, and most of the sulfur contained in the fuel, are converted to  $\text{SO}_2$ . Most of the  $\text{SO}_2$  subsequently reacts with oxygen and alkali compounds (such as  $\text{Na}_2\text{O}$  and  $\text{K}_2\text{O}$  vaporized at sintering temperatures) to form alkali sulfates, which are found in cement clinker and in kiln dust. The amount of  $\text{SO}_2$  released in the kiln flue gases will vary with the amount of excess alkali available for absorption. Additional  $\text{SO}_2$  may be removed through contact with the incoming raw materials and, to some extent, in the particulate control equipment.

$\text{SO}_2$  control processes can be classified into five categories: fuel/material sulfur content limitations, absorption by a solution, adsorption on a solid bed, direct conversion to sulfur, or direct conversion to sulfuric acid.

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**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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FCS proposes to limit SO<sub>2</sub> emissions by taking advantage of the alkaline environment in the kiln, preheater, and raw mill to effect substantial removal of SO<sub>2</sub>. Ultimately the sulfur is incorporated into the clinker lattice structure, thus minimizing the amount emitted to the atmosphere. Some additional SO<sub>2</sub> removal through contact with particulate matter may also take place in the kiln/cooler baghouse.

A review of the BACT determinations for cement plants as contained in the BACT Clearinghouse indicates SO<sub>2</sub> reduction levels from 70 to 96% (percent) from facilities utilizing the dry processes. The Department did not find instances of BACT involving measures beyond those proposed by FCS. Some plants use baghouses as proposed by FCS instead of Electrostatic Precipitators (ESPs) for particulate control. It is possible that the filter cake on the bags enhances SO<sub>2</sub> removal compared with an ESP. However, the difference is marginal compared with the primary removal mechanism involving oxidation of SO<sub>2</sub> to SO<sub>3</sub>, alkali reactions, and subsequent removal of sulfates as particulate matter and with the clinker.

The SO<sub>2</sub> limit proposed by the applicant, 0.23 lb/ton clinker, is substantially less than the 0.55 lb/ton value proposed in the original application submitted by FCS in 1995 and is equal to the BACT emission limit (on a unit basis) set by the Department in its review of the previous PH kiln proposal. A survey of stack test data from different facilities around the country operating for at least three years demonstrates that the proposed limit is low but achievable.

**Carbon Monoxide and Volatile Organic Compounds**

Carbon monoxide (CO) is a pollutant formed by the incomplete combustion (oxidation) of carbon containing compounds in the cement kiln fuel and during the transformation of cement raw materials to cement clinker. When insufficient oxygen is provided, more CO and less CO<sub>2</sub> are formed than under excess air conditions. Substantial quantities of CO and CO<sub>2</sub> are also generated through calcining of limestone and other calcareous material. This calcining process thermally decomposes CaCO<sub>3</sub> to CaO and CO<sub>2</sub>. The calcining of limestone in the cement manufacturing process liberates large amounts of CO<sub>2</sub>, which is available for dissociation into CO.

Emissions of CO can potentially be reduced at portland cement plants by two main methods: utilization of proper combustion practices to maximize the oxidation of CO to CO<sub>2</sub> and reducing the quantity of CO in the flue gas stream (flue gas control).

VOC is also a pollutant formed by the incomplete combustion of fuel or hydrocarbons contained in the raw materials. The temperatures of the gases in the kiln will reach between 3700 to 3800 degrees Fahrenheit. At these high temperatures, virtually all VOCs will be consumed or destroyed regardless of their source (limestone, mill scale, coal, fuel oil, etc.). Clinker production requires certain temperatures, residence time, and turbulence within the kiln. These factors are sufficient to ensure the destruction of almost all VOCs at cement plants.

Emissions of VOC can be controlled by add-on control devices by the mechanisms of adsorption, absorption, or incineration (afterburning). Incineration processes include flame incineration, thermal incineration, and catalytic incineration. No add-on controls for CO or VOC have been demonstrated for cement plants.

The high temperatures and control of excess air and fuel, typically results in simultaneous optimization for control of products of incomplete combustion and NO<sub>x</sub>. The applicant proposes proper combustion practices

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**APPENDIX BD  
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

as BACT to control emissions of CO from this plant. The applicant estimates low emissions of VOC such that the new kiln will not be subject to BACT for this pollutant.

A review of the BACT Clearinghouse reveals that for CO and VOC, BACT from cement plants for these pollutants is proper combustion practices.

DEPARTMENT BACT DETERMINATION:

**Particulate Matter**

BACT for visible emissions was determined to be more stringent than the NSPS for Portland Cement Plants, 40 CFR 60, Subpart F. With respect to the kiln, BACT for PM was also determined to be more stringent than the NSPS for Portland Cement Plants, 40 CFR 60, Subpart F. This value of 0.2 lb/ton kiln feed is equal to the Department's previous BACT determination for the PH kiln and equal to the proposed determinations made for the Florida Rock Industries kiln in Newberry and the Southdown Cement Plants in Brooksville.

Based on actual data the kiln and cooler PM limits are considered to be low and achievable.

For each small baghouse in the material handling process the exhaust gases must not exhibit greater than 5 percent opacity. The Department has determined that 5 percent opacity is BACT, and is attainable with a baghouse.

**Nitrogen Oxides Determination**

The Department has determined that the NO<sub>x</sub> level proposed by the applicant is similar to the lowest emission limits from plants already in operation throughout the country and reflects recent BACT determinations for Florida portland cement plants.

FCS previously ruled out SNCR as unfeasible for the previous PH design because the "optimum temperature range to drive the SNCR reactions between 1600-2000 degrees F is encountered in a typical kiln system only in the kiln itself." FCS contended that injection of ammonia/urea in the kiln will cause increases in NO<sub>x</sub>. In the new PH/PC arrangement, the temperature range for SNCR will occur outside of the kiln and its use is at least plausible.

The Department believes that the proposed NO<sub>x</sub> limit of 2.8 lb/ton clinker (at 104.2 TPH clinker production) is BACT for this plant. Therefore, BACT for NO<sub>x</sub> emissions from the cement kiln is determined to be equal to 2.8 lb/tons of clinker. The Department believes that this limit can be achieved by the technology proposed by FCS. If it is not met within the time allotted in the proposed construction permit, then FCS must examine the option of employing SNCR or propose an alternative technology to accomplish the same end.

**Sulfur Dioxide Determination**

The Department has also determined that the SO<sub>2</sub> BACT limit proposed by the applicant is also one of the lowest in the country and is equal to recent BACT Determinations by the Department for this pollutant. It is the conclusion of the Department that the key factors in SO<sub>2</sub> removal are maintaining proper ratios of sulfur and alkali in the kiln environment and intimate contact between raw materials and exhaust gases. This is

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**APPENDIX BD**  
**BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

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considered by the Department to be the mechanism by which the proposed limit of 0.23 lb/ton clinker will be achieved.

The Department believes that FCS will meet the SO<sub>2</sub> limits as proposed. This is substantiated by the letter of October 28, 1983 from Sholtes and Koogler, Environmental Consultants, regarding the existing PH kiln at FCS. Per page 13, "Polysius (cement plant designer) states that if only sulfur dioxide from the cement plant were considered, sulfur dioxide emissions as low as 20 pounds per hour could be expected from the cement plant." This is further proved by actual emissions tests from the original kiln which average about 10 lb of SO<sub>2</sub> per hour or approximately 0.1 lb/ton clinker.

The Department has also concluded that sulfuric acid mist emissions are not expected to be significant because free sulfite (SO<sub>3</sub>) will preferentially react with clinker and kiln dust in the alkali environment of the kiln. Also, little water is available to complete the reaction to acid mist. No BACT determination was required for sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>).

An emission limit of 0.23 lb SO<sub>2</sub>/ton clinker will insure that ambient SO<sub>2</sub> concentration increases will be less than the applicable National Park Service Significant Impact Level. Although it appears that FCS can achieve even lower values, it would be prudent to allow sufficient flexibility such that emissions of all combustion products can be minimized simultaneously. To provide further assurance that this limit will be met, the Department proposes a limit on the sulfur content of the coal of 1.25 percent.

#### **CO Determination**

BACT for CO was determined to be 2.0 lb/ton clinker. This value is equivalent to that proposed by FCS and the Department's previous BACT determination for Cement Plant 2. It is lower than the value given in AP-42 and will provide sufficient flexibility to minimize NO<sub>x</sub> and SO<sub>2</sub> emissions. The Department requests that FCS continue to be judicious in its procurement of raw materials such as coal ash with low levels of unburned carbon to minimize CO generation in the PH.

#### **Other Pollutants**

No BACT determination was required for VOC as it will not be emitted in significant amounts.

No BACT determination was required for Pb. The limit requested by FCS insures BACT will not be triggered. Removal will be accomplished by the particulate control system and incorporation into the clinker matrix.

No BACT was required for Be. The adopted value will result in emissions less than the PSD significant threshold value. The particulate control system will remove Be which will also be largely incorporated into the clinker matrix.

No BACT was required for Hg. The estimate provided by FCS will result in emissions less than the applicable BACT threshold. This is consistent with information available to the Department on mercury levels in raw materials and coal as well as tests conducted at kilns in Florida.

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# APPENDIX BD BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

The BACT emissions established by the Department are summarized as follows:

## SOURCE

## POLLUTANT EMISSION LIMIT

### KILN

Kiln (PM/PM <sub>10</sub> )	0.2 lb/ton kiln feed (dry basis) and 0.3 lb/ton clinker - 1 hour average
Kiln (VE)	Visible emissions not to exceed 10 percent opacity
Kiln (SO <sub>2</sub> )	0.23 lb/ton clinker 24 hr rolling average
Kiln (NO <sub>x</sub> )	2.8 lb/ton clinker - 24 hr rolling average
Kiln (CO)	2.0 lb/ton clinker - 1 hr average
Kiln (SO <sub>3</sub> )	0.014 lb/ton clinker (non-BACT)
Kiln (VOC)	0.085 lb/ton clinker (non-BACT)
Kiln (Be)	$8.2 \times 10^{-7}$ lb/ton clinker (non-BACT)
Kiln (Hg)	$2.4 \times 10^{-5}$ lb/ton clinker (non-BACT)
Kiln (Pb)	$5.2 \times 10^{-4}$ lb/ton clinker (non-BACT)
Fuels	Coal (1.25 % S), blend of fuel oil and on-spec used oil (1.5 % S), tires (up to 15% of heat input), and natural gas are the <u>only</u> fuels allowed

### COOLER

Cooler (PM/PM <sub>10</sub> )	0.1 lb/ton kiln feed (dry basis) and 0.15 lb/ton clinker
Cooler (VE)	Visible emissions not to exceed 10% opacity

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APPENDIX BD  
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)

ASSOCIATED EQUIPMENT

Minor points with baghouses Visible emissions not to exceed 5% opacity

FUGITIVES SOURCES

Fugitive sources Visible emissions not to exceed 10% opacity

COMPLIANCE

Compliance with the particulate emission limitations shall be demonstrated using EPA Reference Method 5 as contained in Appendix A, 40 CFR 60, and set forth in Subsection 60.64 of the NSPS for Portland Cement Plants, 40 CFR 60.

Compliance with opacity standards (minor sources controlled by baghouses) shall be determined by conducting observations in accordance with 40 CFR 60, Appendix A, Method 9.

Continuous Opacity Monitors (kiln and cooler) shall meet the requirements of the 40 CFR 60, Appendix B and 40 CFR 60, Subpart F, NSPS for Portland Cement Plants. Compliance with the opacity standard for the kiln and cooler shall be demonstrated by EPA Reference Method 9 as contained in Appendix A, 40 CFR 60.

Compliance with the opacity standards for fugitive sources shall be determined by EPA reference Method 22 as contained in Appendix A, 40 CFR 60.

Compliance with the SO<sub>2</sub> and NO<sub>x</sub> emission limitations shall be demonstrated using CEMs. The CEMs shall meet all the applicable requirements of 40 CFR 60, Appendix B and Appendix F.

Compliance with the CO limitations shall be demonstrated by 3 one-hour tests using EPA Method 10.

Pursuant to F.A.C. 62-4.070(3), 62-212.400(6) and 62-296.520, the kiln/cooler exhaust system shall be equipped with continuous monitors to record NO<sub>x</sub> and SO<sub>2</sub> for the purposes of compliance; opacity at the stack to indicate proper maintenance and operation; and CO and/or O<sub>2</sub> to optimize combustion conditions for pollution control.

Compliance with the VOC limitations shall be demonstrated (on a one time basis) by three one hour stack tests using Method 25 or 25A to confirm emission rate is less than the PSD significant emission rate.

Compliance with the Pb, Hg, and Be limitations shall be demonstrated (on a one time basis) by three one-hour stack tests using EPA Method 29 to confirm emission rate is less than the PSD significant emission rate.



**APPENDIX BD  
BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION (BACT)**

**BACT/LAER/RACT CLEARINGHOUSE DATABASE COMPARISON**

The following table is to be used for reference and comparison with portland cement facilities listed in the BACT/LAER/RACT Clearinghouse database:

POLLUTANT	lb/ton clinker	lb/ton kiln <sub>ph</sub> feed	lb/ton kiln feed	lb/MM BTU
PM/PM <sub>10</sub> (kiln)	0.3	0.18	0.2	0.09
SO <sub>2</sub> (kiln)	0.23	0.14	0.15	0.07
NO <sub>x</sub> (kiln)	2.80	1.68	1.83	0.89
CO (kiln)	2.0	1.20	1.31	0.64
VOC (kiln)	0.09	0.05	0.06	0.03
H <sub>2</sub> SO <sub>4</sub> (kiln)	0.014	8.37 E-03	0.009	4.46 E-03
Be (kiln)	8.2 E-07	4.90 E-07	5.56 E-07	2.65 E-07
Hg (kiln)	2.4 E-05	1.44 E-05	1.57 E-05	7.69 E-06
Pb (kiln)	5.2 E-04	3.13 E-04	3.40 E-04	1.67 E-04
PM/PM <sub>10</sub> (Cooler)	0.15	0.09	0.1	0.04

Based on the following FCS process rates:  
 Preheater feed rate (kiln<sub>ph</sub> feed) : 173.2 TPH  
 Kiln feed rate : 159.4 TPH  
 Clinker production : 104.2 TPH  
 Heat Input : 325 MMBTU/hr

DETAILS OF THE ANALYSIS MAY BE OBTAINED BY CONTACTING

Teresa Heron, Review Engineer,  
 A. A. Linero, P.E., Administrator  
 New Source Review Section  
 Department of Environmental Protection  
 Bureau of Air Regulation  
 2600 Blair Stone Road  
 Tallahassee, Florida 32399-2400

Recommended By:

Approved By:

\_\_\_\_\_  
 C. H. Fancy, P.E., Chief  
 Bureau of Air Regulation

\_\_\_\_\_  
 Howard L. Rhodes, Director  
 Division of Air Resources Management

\_\_\_\_\_  
 Date:

\_\_\_\_\_  
 Date:

APPENDIX GC  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

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- G.1 The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
- G.2 This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings or exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
- G.3 As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
- G.4 This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
- G.5 This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
- G.6 The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
- G.7 The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
- Have access to and copy and records that must be kept under the conditions of the permit;
  - Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
  - Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.
- Reasonable time may depend on the nature of the concern being investigated.
- G.8 If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
- A description of and cause of non-compliance; and
  - The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and
  - Steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.
- The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.



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APPENDIX GC  
GENERAL PERMIT CONDITIONS [F.A.C. 62-4.160]

- G.9 In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
- G.10 The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
- G.11 This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
- G.12 This permit or a copy thereof shall be kept at the work site of the permitted activity.
- G.13 This permit also constitutes:  
Determination of Best Available Control Technology ( X ) - Attached as incorporated as a condition of this permit.  
Determination of Prevention of Significant Deterioration ( X ); and  
Compliance with New Source Performance Standards ( X ).
- G.14 The permittee shall comply with the following:
- (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
  - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
  - (c) Records of monitoring information shall include:
    - The date, exact place, and time of sampling or measurements;
    - The person responsible for performing the sampling or measurements;
    - The dates analyses were performed;
    - The person responsible for performing the analyses;
    - The analytical techniques or methods used; and
    - The results of such analyses.
- G.15 When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

# Memorandum

# Florida Department of Environmental Protection

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TO: Clair Fancy

THRU: Al Linero *Al Linero* 11/6

FROM: Teresa Heron *TH*

DATE: November 6, 1996

SUBJECT: Florida Crushed Stone, PSD-FI-227(A) and AC27-274892(A)  
Project Modification and Production Increase

Attached is a draft construction permit for this facility. The permit will provide for a change in the kiln technology (adds a precalciner) and a production increase for the previously proposed and permitted Portland Cement Plant No. 2.

The revised project includes a dry process kiln with a preheater/precalciner, clinker cooler, crushers, raw mill, finish mill, material and fuel handling equipment, silos, and shipping facilities. Pollution control equipment includes a common fabric filter system (baghouse) for particulate emissions from the kiln and cooler; absorption of sulfur compounds and metals into the product; combustion controls for volatile organic compounds (VOC) and CO; combustion controls for NO<sub>x</sub> with additional controls to be specified as needed to meet permit limits; and baghouses for particulate emissions from other process emission units.

The BACT determination is the same on a unit basis as the one previously approved in the existing permit.

I recommend your approval and signature



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary


## P.E. Certification Statement

**Permittee:**  
Florida Crushed Stone Company  
Brooksville Facility  
Brooksville, Florida

**File No.:** 0530021-001-AC and PSD-FI-227(A)  
**Facility ID No.:** 0530021

**Project type:** Application for Revised Permit Incorporating Modern Kiln Technology  
and Production Increase - Portland Cement Plant No. 2 and Associated Equipment

*I HEREBY CERTIFY that the engineering features described in the above referenced file 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).*

  
A.A. Linero, P.E.      11/6  
Date  
Registration Number: 26032

Department of Environmental Protection  
Bureau of Air Regulation  
New Source Review Section  
2600 Blair Stone Road, MS 5505  
Tallahassee, Florida 32301  
Phone (904) 488-1344  
Fax (904) 922-6979

*004*      *11/6*

"Protect, Conserve and Manage Florida's Environment and Natural Resources"