Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

December 14, 1995

Mr. Arthur W. Saarinen, Jr., P.E.
3616 N.W. 186th Street
Newberry, Florida 32699

Dear Mr. Saarinen:

RE: Notice of Public Hearing
Florida Rock Industries
PSD-FL-228, AC 01-267311

Attached is one copy of the Notice of Public Hearing regarding the Department's Intent to Issue a Prevention of Significant Deterioration (PSD) air permit to Florida Rock Industries, Inc. The project is to construct a 2,300 ton per day cement plant at the company's existing quarry in Alachua County, Florida.

If you have any questions please call Teresa Heron or Kanani K. Winans at (904) 488-1344.

Sincerely,

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

CHF/th/w

Enclosure

Is your RETURN ADDRESS completed on the reverse side?

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.
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- 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):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Mr. Arthur W. Saarinen, Jr., P.E.
3616 N.W. 186th Street
Newberry, Florida 32669

4a. Article Number
Z127 633 223

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery 12/18/95 KP

5. Signature (Addressee)

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

6. Signature (Agent)

PS Form **3811**, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Z 127 633 223

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

PE

Sent to Mr Arthur W. Saarinen Sr.
Street and No. 3616 NW 186th St.
P.O., State and ZIP Code Newberry FL 32669

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	12-15-95

PS Form **3800**, March 1993

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

December 14, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Priscilla Harris
Haile Community Association
Post Office Box 702
Green Cove Springs, Florida 32043

Dear Ms. Harris:

RE: Notice of Public Hearing
Florida Rock Industries
PSD-FL-228, AC 01-267311

Attached is one copy of the Notice of Public Hearing regarding the Department's Intent to Issue a Prevention of Significant Deterioration (PSD) air permit to Florida Rock Industries, Inc. The project is to construct a 2,300 ton per day cement plant at the company's existing quarry in Alachua County, Florida.

If you have any questions please call Teresa Heron or Kanani K. Winans at (904) 488-1344.

Sincerely,

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

CHF/th/w

Enclosure

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- 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):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

*Consult postmaster for fee.

3. Article Addressed to:

Ms. Priscilla Harris
Haile Community Association
Post Office Box 702
Green Cove Springs, Florida 32043

4a. Article Number
Z 127 633 222

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

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**

Thank you for using Return Receipt Service.

Z 127 633 222

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Ms Priscilla Harris	
Street and No. Haile Comm. Assoc.	
P.O., State and ZIP Code P.O Box 702 Green Cove Spgs FL 32043	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 12-15-95 KLEO Notice of Pub. Info Hearing	

PS Form **3800**, March 1993

Patty's

ACCORD, INC.
(Formerly Haile Community Association)
3616 N.W. 186th St.
Newberry, Florida 32669

April 10, 1995

Ms. Teresa Heron
Review Engineer
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Air Construction Permit Application by Florida Rock Industries, Inc.

Dear Ms. Heron:

Following our telephone conversation of Friday, April 7, I attempted to contact Patricia Reynolds in the FDEP Gainesville office in order to inspect the air construction permit application of Florida Rock Industries, Inc., for a Portland cement manufacturing plant near Newberry, Florida. Dr. Reynolds was out of the office so at this time we have been unable to inspect the application. In light of the closing for comments on April 14, I am writing to you to be certain that our comments are part of the FDEP review package.

ACCORD, Inc., is a group of citizens who live and own property in the vicinity of the proposed cement plant. We have heard multiple presentations by Florida Rock, examined all of their submissions to Alachua County, attended a tour of operating cement plants near Brooksville and are quite familiar with the proposed site. On March 17, 1995, ACCORD, Inc., filed a verified complaint against the Alachua County Board of County Commissioners in which we state that the issuance of a special use permit for this plant is in violation of the County's Comprehensive Land Use Plan and County zoning ordinances and is therefore illegal. A copy is enclosed for your information. The County Commission will reconsider their action on April 11, 1995. If the County Commission does not reverse the original decision, we have instructed our attorney to file a suit in the Circuit Court to have their action set aside.

We have carefully studied the Regulatory Determination on Cement Kiln Dust issued by Carol M. Browner, Administrator of the Environmental Protection Agency, on February 7, 1995. I am enclosing a copy for your interest and guidance. This determination concludes "that additional control of cement kiln dust (CKD) is warranted in order to protect the public from human health risks and to prevent environmental damage resulting from current disposal of this waste. The primary environmental concerns to be addressed through additional controls are documented damages to **ground water and potable water supplies, and potential human health risks from inhalation of airborne CKD and ingestion via food chain pathways**" (emphasis added).

EPA's modeling of "indirect" food chain pathways, both aquatic and agricultural, indicates potential human health effects, both carcinogenic and other. Of the EPA-observed production sites, the report notes that because some CKD disposal units are located near and in some instances immediately adjacent to farm fields, rural residences with gardens, or surface waters containing fish, there is potential for indirect risk from the consumption of CKD-contaminated beef, vegetables and fish as well as ingestion of CKD-contaminated water during recreational swimming.

Within 1200 feet of the proposed Florida Rock plant, there are rural residences with vegetable gardens. Within 2000 feet there are ponds which are stocked with bass and fished regularly as a food source. In the immediate community there are farm crop fields for human and livestock consumption, dairies and other livestock pasturage, commercial blueberry and blackberry farms, just the kinds of uses which EPA describes as being pathways.

On the proposed site, immediately adjacent north, east and south of the production facility itself, are approximately 20 acres of exposed Floridan aquifer water surface in Florida Rock limerock mine pits. Approximately 2000 feet east of the production facility location are another 20 acres or more of exposed Floridan aquifer in abandoned mine pits on property owned by members of ACCORD, Inc. The Floridan is the sole drinking water supply for all members of ACCORD, Inc. living in this rural residential community, many of whom have wells downgradient (north) of the proposed site (Suwanee River Water Management District aquifer potentiometric surface maps).

Quoting further from the Regulatory Determination: "The Agency believes that there are adequate existing authorities in the Clean Air Act to address risks via the air pathway posed by the management of CKD. However, there appears to be a need for increased regulation and implementation under the Clean Air Act. The Agency has information that indicates releases of particulate emissions at cement plants are common, persistent, and continuing. The RTC documents 21 incidents of CKD releases at 13 facilities. With the exception of one case that involved fugitive dust emissions from a CKD pile, all cases involved visible emissions violations (opacity) related to equipment malfunctions associated with CKD handling equipment (kilns, baghouses, screw conveyors) [FN11]. "

We believe that this site is too small (irregularly shaped1300 acres) to effectively buffer the surrounding community from fugitive dust. From County plat maps and other property appraiser data, we estimate that 1000 to 1200 people live within a two-mile radius of the proposed facility. The nature of this community is such that severe health and environmental damage may occur as a result of fugitive dust.

We believe that until EPA concludes its study and recommendations for the further controls it has stated are necessary, it would be improper for FDEP to issue an air construction permit for this facility. We question whether it would be financially feasible for Florida Rock to retrofit new CKD control technology required by the anticipated EPA regulations to an already constructed facility at this location. Further, until such time as the legal issues around the

County's Comprehensive Plan and zoning regulations resolved, we believe it would be improper for FDEP to issue any permits.

ACCORD, Inc., requests that FDEP deny the air construction permit application submitted by Florida Rock Industries, Inc., for the construction of this cement manufacturing plant in our community.

Sincerely,

Arthur W. Saarinen, Jr. P.E.
President, ACCORD, INC.

Encl: Verified Complaint

cc: John Hankinson, EPA Region IV Administrator
Dan Thompson, FDEP Assistant Secretary
Howard Rhodes, FDEP Director, Air Resources Management
Eric Livingston, FDEP Director, Surface Water Management
Rodney DeHan, FDEP Director, Ground Water Management
Emerson Raulerson, FDEP NE District Office
Lalit Lalwani, FDEP NE District Branch Office
Patricia Reynolds, FDEP NE District Branch Office
Patty Adams, FDEP Bureau of Air Regulation
Vickie Schutt, Secretary, ACCORD, INC.

HAILE COMMUNITY ASSOCIATION, INC.
3616 N. W. 186th. St.
Newberry, Florida 32669
Telephone (904) 472-9359 FAX (904) 472-8034

May 11, 1995

Ms. Teresa Heron
Review Engineer
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Newberry Cement Plant
Permits Nos. AC01-267311 and PSD-Fl-228

Dear Ms. Heron:

On April 10, 1995, I wrote to you concerning the subject permit application under the letterhead, ACCORD, INC. Unfortunately, that name had already been taken by another organization, so we have now incorporated our group under the name, Haile Community Association, Inc. I hope this will not create any confusion for you.

We appreciate your sending us a copy of your initial response to Florida Rock Industries setting forth additional information needed to continue your review. We would also like to have a copy of their further submittals and subsequent correspondence. Please mail or FAX it to us at the address shown above.

We would like to offer some initial comments on their application. In view of the concerns about CKD expressed by EPA in their February 7 regulatory determination, the applicant's assertions that the public health and welfare is protected against any known or anticipated adverse effects of the pollutants from this proposed facility is inconsistent with facts presented in the EPA regulatory determination and, thus, are unacceptable to us. Your question 4 addresses this same issue. We believe there are no such assurances possible and this permit should be denied on this basis. *We demand a public hearing on this application in Newberry prior to any draft or other permit being issued.*

You have suggested in your comment number 3, that the applicant use a tiering approach being developed by EPA Region VII for cement kilns burning hazardous waste. We take strong exception to such a suggestion as it would seem to lead the applicant toward the possibility of burning hazardous waste at this facility. The suggestion of burning hazardous waste in any form either recycled, blended, mixed or derived from hazardous wastes requires that we be given ample opportunity to schedule our experts to present our position. Please help us better understand the nature of the Department's position on this very critical issue; i.e., hazardous wastes and their potential for use as fuel at this facility. Our research shows us that under current regulations this facility could be allowed to burn recycled hazardous wastes, inks, recycled oils, oily rags, and pharmaceutical chemicals as well as tires. We believe that a thorough study of the emissions and the near and long term effects of them on the surrounding

environment, the population within 10 miles, as well as the extensive horse, dairy, beef cattle, hay, forage crops and unprocessed crops marketed for human consumption and grown in the surrounding area would be a minimum requirement.

Are you taking into consideration the air pollution contribution of tires used as fuel? What would be the effects from emissions in the event of a fire within the tire storage area and the large fuel oil storage facility?

The applicant indicates a 50,000 gallon #2 fuel oil tank and 8 other smaller fuel and oil tanks are to be constructed. These tanks are not located on the site plan. Please clarify.

Are you considering the impacts to the environment of a disaster such as a fire, explosion, other industrial accident, tornado/hurricane or other such catastrophe releasing thousands of pounds of CKD, other PM, HAP's, and VOC's into our air and surface/groundwater? The extremely sensitive nature of this site to such a spill must be given extraordinary attention.

How are you coordinating your review with other media; i.e., groundwater and surface water?

Is continuous monitoring of emissions required by FDEP permit conditions? By whom? What is the required frequency of reports to FDEP? What is the procedure used by the Department following violations?

The special use permit granted by the County requires that all construction and building on the premises be removed upon permanent abandonment or termination of the cement plant operation. In view of the hazardous nature of the materials at this site, it is appropriate that you require a detailed plan for decommissioning, decontaminating, and clean-up of this site upon termination of the special use permit.

Is it your intention to make your NE District Branch Office in Gainesville the repository of all plans, drawings, specifications, files, computer print-outs, and other data and information pertaining to this application, so that it is available to the public for scrutiny and copying?

We appreciate your consideration of our concerns and for keeping us informed of all activities related to this application. For your information, on April 28, our organization filed suit against Alachua County in the Circuit Court alleging that the County acted illegally in granting the special use permit for this cement plant.

Sincerely,

Arthur W. Saarinen, Jr. P.E., DEE
President, Haile Community Association, Inc.

cc: John Hankinson, EPA Region IV Administrator
Dan Thompson, FDEP Assistant Secretary
Howard Rhodes, FDEP Director, Air Resources Management
Eric Livingston, FDEP Director, Surface Water Management
Rodney DeHan, FDEP Director, Groundwater Management
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Lalit Lalwani, FDEP NE District Branch Office
Patricia Reynolds, FDEP NE District Branch Office
Patty Adams, FDEP Bureau of Air Regulation
Vickie Schutt, Secretary, Haile Community Association, Inc.

ACCORD, INC.
3616 N.W. 186th St.
Newberry, Florida 32669

April 10, 1995

Mr. John Hankinson
Regional Administrator
U.S. Environmental Protection Agency
345 Courtland St. N.E.
Atlanta, GA 30365

Subject: Florida Rock Industries Proposed Portland Cement Manufacturing Plant in Newberry, Florida

Dear Mr. Hankinson:

The Alachua County Board of County Commissioners has issued a special use permit to Florida Rock Industries, Inc. to construct a Portland cement manufacturing plant in Section 23, Township 9 South, Range 17 East, in the midst of our rural residential community. ACCORD, INC., opposes this action and has filed a Verified Complaint against the County Board which states that the issuance of a special use permit for this plant is in violation of the County's Comprehensive Plan and its zoning ordinances and is, therefore, illegal. A copy of the Complaint is enclosed for your information.

The County Commission will reconsider their action on April 11, 1995. If they do not reverse their original decision, we have instructed our attorney to file a suit in Circuit Court to have their action set aside. We believe it would be improper for EPA to issue any permits in connection with the construction of the proposed facility until the litigation is resolved.

ACCORD, INC., members live and own property adjacent to the irregularly shaped 1300-acre site owned by Florida Rock. There are residences within 1200 feet of the proposed plant and from County plat maps and other property appraiser data, we estimate 1000 to 1200 people live within a two-mile radius of the proposed facility. The area in which the plant is proposed for construction is karst topography. In fact, there is only a shallow soil mantle over the Ocala limerock formation which you will recognize as the principal aquifer, the Floridan. This aquifer is the sole source of water supply for our community as, indeed, it is for all of North Central Florida. Many members of ACCORD, INC. have water supply wells downgradient (north) and within 3000 feet of the proposed site (Suwanee River Water Management District aquifer potentiometric surface maps).

On the proposed site, immediately adjacent north, east and south of the planned production facility itself, are approximately 20 acres of exposed Floridan aquifer water surface in Florida Rock limerock mine pits. These ponds are now and have for many years functioned as surface water lakes. Approximately 2000 feet east of the production facility location are another 20 acres or more of abandoned quarries owned by members of ACCORD, INC. These pits house

surface water ponds which have been stocked with bass and have been fished regularly for 30 years or more.

We have carefully studied the Regulatory Determination on Cement Kiln Dust issued by Administrator Browner on February 7, 1995. In the Determination "...EPA has concluded that additional control of CKD is warranted in order to protect the public from human health risks and to prevent environmental damage resulting from current disposal of this waste."

We note with great concern that there are no Federal standards that are adequate to address the risks posed by CKD via the groundwater pathway. However, the Determination states that "...the Clean Water Act, through existing effluent guideline regulations, NPDES permits, water quality standards, and existing and forthcoming storm water permits, provide considerable authority to control risks associated with contamination of surface waters by the management of CKD."

It is very clear that contamination of these adjacent surface water bodies by CKD through fugitive dust, "blowouts," or other catastrophic events such as tornados or hurricanes will lead directly to groundwater contamination.

We call on you to exercise EPA's "considerable authority" to deny any and all NPDES permits sought by Florida Rock Industries, Inc., for stormwater or wastewater facilities for this site. In the event Florida Rock Industries, Inc. has a general permit, we dispute the applicability of the general permit for this specific application.

Sincerely,

Arthur W. Saarinen, Jr., P.E.
President, ACCORD, INC.

Encl: Verified Complaint

CC: Roosevelt Childress, Stormwater Permit Section, EPA Region IV
Dan Thompson, Assistant Secretary, Florida DEP
Eric Livingston, Surface Water Programs, Florida DEP
Rodney DeHan, Groundwater Programs, Florida DEP
Vickie Schutt, Secretary, ACCORD, INC.

Clair - Pls handle thru
Howard 3/21

HAILE COMMUNITY ASSOCIATION
3616 N. W. 186th St.
Newberry, Florida 32669

March 16, 1995

Mr. Ernest Frey, District Director
Florida Department of Environmental Protection
7825 Baymeadows Way Suite B-200
Jacksonville, Florida 32256-7590

Dear Mr. Frey,

The Alachua County Commission has recently granted a Special Use Permit to Florida Rock Industries, Inc. to construct a 750,000 ton per year Portland cement manufacturing plant in western Alachua County. Specifically, the proposed plant site is in Section 23, Township 9 South, Range 17 east.

The Haile Community Association is a group of about 75 residents, property owners, and concerned citizens who oppose the siting of this plant in our community. We will challenge the action of the County Commission in court, if necessary. We are deeply concerned about threats from this smokestack industry to our air and water environment and its impact upon our health and quality of life.

We hereby request that we be notified of any and all applications for permits for air emissions, water supply, wastewater and stormwater facilities filed with the Department of Environmental Protection by Florida Rock Industries, Inc. or their agents in connection with this proposed cement plant.

We thank you for your cooperation.

Yours very truly,

Arthur W. Saarinen, Jr. P.E.
President

cc Howard Rhodes, Air Resources Management
Richard Harvey, Water Facilities Division
Vickie Schutt, Secretary-Treasurer, HCA

HAILE COMMUNITY ASSOCIATION, INC.
3616 N. W. 186th. St.
Newberry, Florida 32669
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May 11, 1995

Ms. Teresa Heron
Review Engineer
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Newberry Cement Plant
Permits Nos. AC01-267311 and PSD-Fl-228

Dear Ms. Heron:

On April 10, 1995, I wrote to you concerning the subject permit application under the letterhead, ACCORD, INC. Unfortunately, that name had already been taken by another organization, so we have now incorporated our group under the name, Haile Community Association, Inc. I hope this will not create any confusion for you.

We appreciate your sending us a copy of your initial response to Florida Rock Industries setting forth additional information needed to continue your review. We would also like to have a copy of their further submittals and subsequent correspondence. Please mail or FAX it to us at the address shown above.

We would like to offer some initial comments on their application. In view of the concerns about CKD expressed by EPA in their February 7 regulatory determination, the applicant's assertions that the public health and welfare is protected against any known or anticipated adverse effects of the pollutants from this proposed facility is inconsistent with facts presented in the EPA regulatory determination and, thus, are unacceptable to us. Your question 4 addresses this same issue. We believe there are no such assurances possible and this permit should be denied on this basis. *We demand a public hearing on this application in Newberry prior to any draft or other permit being issued.*

You have suggested in your comment number 3, that the applicant use a tiering approach being developed by EPA Region VII for cement kilns burning hazardous waste. We take strong exception to such a suggestion as it would seem to lead the applicant toward the possibility of burning hazardous waste at this facility. The suggestion of burning hazardous waste in any form either recycled, blended, mixed or derived from hazardous wastes requires that we be given ample opportunity to schedule our experts to present our position. Please help us better understand the nature of the Department's position on this very critical issue; i.e., hazardous wastes and their potential for use as fuel at this facility. Our research shows us that under current regulations this facility could be allowed to burn recycled hazardous wastes, inks, recycled oils, oily rags, and pharmaceutical chemicals as well as tires. We believe that a thorough study of the emissions and the near and long term effects of them on the surrounding

Exhibit 1
Arthur Saavedra

environment, the population within 10 miles, as well as the extensive horse, dairy, beef cattle, hay, forage crops and unprocessed crops marketed for human consumption and grown in the surrounding area would be a minimum requirement.

Are you taking into consideration the air pollution contribution of tires used as fuel? What would be the effects from emissions in the event of a fire within the tire storage area and the large fuel oil storage facility?

The applicant indicates a 50,000 gallon #2 fuel oil tank and 8 other smaller fuel and oil tanks are to be constructed. These tanks are not located on the site plan. Please clarify.

Are you considering the impacts to the environment of a disaster such as a fire, explosion, other industrial accident, tornado/hurricane or other such catastrophe releasing thousands of pounds of CKD, other PM, HAP's, and VOC's into our air and surface/groundwater? The extremely sensitive nature of this site to such a spill must be given extraordinary attention.

How are you coordinating your review with other media; i.e., groundwater and surface water?

Is continuous monitoring of emissions required by FDEP permit conditions? By whom? What is the required frequency of reports to FDEP? What is the procedure used by the Department following violations?

The special use permit granted by the County requires that all construction and building on the premises be removed upon permanent abandonment or termination of the cement plant operation. In view of the hazardous nature of the materials at this site, it is appropriate that you require a detailed plan for decommissioning, decontaminating, and clean-up of this site upon termination of the special use permit.

Is it your intention to make your NE District Branch Office in Gainesville the repository of all plans, drawings, specifications, files, computer print-outs, and other data and information pertaining to this application, so that it is available to the public for scrutiny and copying?

We appreciate your consideration of our concerns and for keeping us informed of all activities related to this application. For your information, on April 28, our organization filed suit against Alachua County in the Circuit Court alleging that the County acted illegally in granting the special use permit for this cement plant.

Sincerely,

Arthur W. Saarinen, Jr. P.E., DEE
President, Haile Community Association, Inc.

cc: John Hankinson, EPA Region IV Administrator
Dan Thompson, FDEP Assistant Secretary
Howard Rhodes, FDEP Director, Air Resources Management
Eric Livingston, FDEP Director, Surface Water Management
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Emerson Raulerson, FDEP NE District Office
Lalit Lalwani, FDEP NE District Branch Office
Patricia Reynolds, FDEP NE District Branch Office
Patty Adams, FDEP Bureau of Air Regulation
Vickie Schutt, Secretary, Haile Community Association, Inc.

BEST AVAILABLE COPY

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 261

[EPA 530-Z95-003; FRL-5149-6]

RIN 2050-AD99

Regulatory Determination on Cement Kiln Dust

UNDERLINE EMPHASIS ADDED

Tuesday, February 7, 1995

AGENCY: Environmental Protection Agency.

ACTION: Regulatory determination.

SUMMARY: Today's action presents the Environmental Protection Agency's (EPA) regulatory determination on cement kiln dust (CKD) waste. This action is required by the Resource Conservation and Recovery Act (RCRA). EPA has concluded that additional control of CKD is warranted in order to protect the public from human health risks and to prevent environmental damage resulting from current disposal of this waste. The primary environmental concerns to be addressed through additional controls are documented damages to ground water and potable water supplies, and potential human health risks from inhalation of airborne CKD and ingestion via food chain pathways. The Agency has decided to take a common sense approach in imposing such controls. In order to avoid duplication among regulatory programs, the Agency will use, as appropriate, its various authorities under the Clean Air Act, Clean Water Act, and RCRA to address the relevant pathways of potential contaminant releases from CKD.

Under Subtitle C of RCRA, the Agency will develop a tailored set of standards for CKD that controls releases to ground water. The tailored standards will protect human health and the environment, while imposing a minimal burden on the regulated community. Until the tailored regulations are published by the Agency, CKD will retain the Bevill exemption and the status of CKD under RCRA Subtitle C will remain unchanged. Those cement manufacturing facilities that burn RCRA hazardous waste in their kilns will still be required to test their CKD to see that it remains unaffected by the combustion of hazardous waste.

EPA has not included an evaluation of clinker or other products or by-products of cement production in this regulatory determination. In the absence of the CKD regulatory exemption, under certain regulatory scenarios clinker produced from re-introduced CKD could be considered a hazardous waste. However, as part of the regulations that EPA will promulgate as a result of today's determination, EPA intends to exclude clinker from regulation as a derived-from hazardous waste when CKD is

Exhibit 2
Arthur Saavedra

re-introduced. At this time, EPA has no indication that such clinker poses an unacceptable threat to human health or the environment.

ADDRESSES: Copies of this regulatory determination and the supporting record docket are available for public inspection and copying at the RCRA docket, 401 M Street, SW., Washington, DC, Room M2616, 2nd floor, Waterside Mall. The docket number for this action is F-94-RCKD-FFFFF. The docket is open from 9 to 4 p.m., Monday through Friday, except federal holidays. In order to access the docket, please call (202) 260-9327 to make an appointment. Copies are free up to 100 pages and thereafter cost $0.15/page.

This document and the Response to Public Comments document are also available on the EPA's Clean-up Information Bulletin Board (CLU-IN). To access CLU-IN with a modem of up to 28,800 baud, dial (301) 589-8366. First-time users will be asked to input some initial registration information. Next, select "D" (download) from the main menu. Input the file name "CKD6.ZIP" to download this notice. Input the file names "CKD7.ZIP" and "CKD8.ZIP" to download the two files that contain the two response to public comments documents. Follow the on-line instructions to complete the download. More information about the download procedure is located in Bulletin 104; to read this bulletin type "B 104" from the main menu. For additional help with these instructions, telephone the CLU-IN help line at (301) 589-8368.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA/Superfund Hotline at (800) 424-9346 or (703) 412-9810; for technical information contact Bill Schoenborn, U.S. Environmental Protection Agency (5302W), 401 M Street SW., Washington, DC 20460, at (703) 308-8483.

SUPPLEMENTARY INFORMATION:

Table of Contents

I. Background

A. Statutory Authority

EPA is issuing today's notice under the authority of section 3001(b)(3)(C) of the Resource Conservation and Recovery Act (RCRA), as amended. This section requires that, after completing the Report to Congress (RTC) mandated by section 8002(o) of RCRA, the EPA Administrator must determine whether Subtitle C regulation of CKD waste is warranted. The RTC documents EPA's study of CKD. It was signed by the Administrator on December 30, 1993.

B. Public Comment Process

After submitting the RTC to Congress, EPA provided the public with an opportunity to comment on the report and the appropriateness of regulating CKD under RCRA Subtitle C (59 FR 709, 1/6/94). The public comment period lasted until February 22, 1994 (59 FR 709, 1/6/94). Due to numerous requests to lengthen the comment period, EPA extended the comment period to March 8, 1994 (59 FR 6640, 2/11/94). To ensure that all interested parties had an opportunity to present their views, EPA not only held a public hearing in Washington, DC, but also held a series of public meetings with representatives of the cement industry, the hazardous waste treatment industry, regional and state environmental authorities, and citizen groups.
EPA received approximately 1,100 written comments, 18 videotapes, and a number of photographs prior to the close of the RTC comment period. All individual comments and a transcript from the public hearing are available for public inspection in the RTC docket (Docket No. F-94-RCKA-FFFFF). The docket also contains a summary of all the comments presented at the public meetings and public hearing, as well as those submitted in writing.
To supplement the information included in the CKD RTC, the Agency analyzed the public comments and undertook several additional data collection and analysis efforts. The new data generated by EPA were placed into the RCRA docket for public

inspection and comment and a Notice of Data Availability (NODA) was published in the September 14, 1994, Federal Register (59 FR 47133). The Agency provided a 30-day comment period for review of the new data and analyses. The principal new documents placed in the docket addressed the following issues: Additional CKD damage cases; environmental justice; analysis of CKD generation and characteristics data; costs of CKD management alternatives; and human health and environmental risks posed by CKD management.

Subsequent to issuing the NODA, EPA identified certain errors and, in a supplemental errata document, corrected certain portions of the new data pertinent to additional assessments of potential risk from CKD waste. EPA published a correction Notice on October 11, 1994 (59 FR 51440) that identified the corrections and provided a public comment period on the corrected materials until November 10, 1994.

In preparing both of these Notices, the Agency made a special effort to make the data accessible to the public. In addition to placing this information in the RCRA docket, the Agency posted data files in electronic format on EPA's Superfund electronic bulletin board (CLU-IN) and made these data available on disk upon request.

Today's decision is based on the RTC and the data and analyses that underlie the report, as well as on public comments received during the public hearing and public meetings, or in written form submitted during the comment periods, and EPA analyses of these comments.

C. Stakeholder Comments

The Agency received over 1,100 public comments on the RTC on Cement Kiln Dust and subsequent Technical Background Documents from individual companies and trade organizations representing the cement industry and their affiliated consultants, suppliers, and waste fuel blenders; individual companies and trade groups representing the hazardous waste incineration industry, and their associated consultants; other companies that handle CKD; public interest groups; and private citizens.

Comments were received on a wide variety of topics discussed in the RTC and NODA including cement production and CKD generation and characteristics; current and alternative CKD management practices; documented damage and potential danger to human health and the environment; existing regulatory controls on CKD management; and cost and economic impacts of alternatives to current CKD disposal practices. The following is a brief summary of the major positions presented in the public comments. (A detailed response to all of the comments is included in two background documents that are identified below.)

Companies and groups representing the cement manufacturing industry generally stated that CKD exhibits low inherent toxicity and poses minimal risk to human health and the environment. They argued for continued management of CKD using existing Federal and State authorities, and urged the Agency to work with the cement industry to develop voluntary standards for the management of all CKD.

Commenters from companies that handle CKD stated that CKD has numerous beneficial uses (e.g., as a liming agent or sewage sludge stabilizer) which would be detrimentally affected by regulation of CKD as a hazardous waste.
Companies and groups representing the hazardous waste treatment industry generally argued for an aggressive regulatory determination for CKD. These commenters generally favored removing the exemption and immediately imposing hazardous waste regulations for the management of CKD, especially dust from kilns that burn hazardous waste.
Public interest groups generally stated that current industry management of CKD from kilns that burn hazardous waste causes chronic human health problems and extensive environmental damages, including degraded water and air quality, affecting local residents around cement manufacturing facilities. These commenters generally argued for immediate adoption of hazardous waste regulations for CKD generated from hazardous waste-burning kilns.
Most of the comments from public citizens were from residents living around cement manufacturing facilities, and the commenters were divided in their position on CKD. Some commenters expressed concern over potential loss of jobs at plants in their communities if CKD is regulated as a hazardous waste. Others commenters, generally residents who live around cement plants that burn hazardous waste, stated that releases of CKD from plants in their communities are a visual nuisance, degrade the air and vegetation, and cause health problems for themselves and their neighbors.
EPA has carefully reviewed all comments in arriving at today's final determination. The Agency has prepared a detailed summary of comments received, along with responses, in two background documents that are available for viewing in the RCRA docket. The first document, titled Summary of and Responses to Comments on the Report to Congress, presents the public comments and the Agency's response to these comments on the Report to Congress on Cement Kiln Dust; the second document, titled Summary of and Responses to Comments on the Notice of Data Availability, presents the public comments and the Agency's response to the material announced in the NODA.

II. Major Findings of the RTC and NODA

In this section, EPA briefly restates some of the basic technical findings presented in the RTC, as well as new insights presented in the technical background documents announced in the NODA. These findings are generally presented in categories that correspond to the study factors listed in RCRA section 8002(o).

A. Sources and Volumes of Waste

Information received by the Agency since publication of the RTC (in comments and from additional research) suggests that, as of 1992, the domestic cement industry consisted of 111 plants operated by 46 companies. The five largest cement clinker producing states are California, Texas, Pennsylvania, Missouri, and Michigan. The

cement industry burns large amounts of high Btu fuels, primarily coal and other fossil fuels, during the manufacturing process. In 1990 and in 1992, 23 facilities also burned hazardous waste as fuels.

Based on an analysis of existing data, including data collected by the Portland Cement Association and separately by EPA under RCRA section 3007 authority from operators of cement manufacturing facilities, the Agency has determined that, nationally, cement plants generate large quantities of CKD. In particular, EPA has estimated that in 1990, the generation of gross CKD (i.e., CKD that is collected by air-pollution control devices) was 12.7 million metric tons. There are, however, wide variations among kilns and plants in the amount of gross CKD generated per ton of clinker.

In addition, there are also wide variations among kilns and plants in the amount of net CKD (i.e., CKD that is either disposed or used beneficially off- site) that is generated. For example, 25 percent of the facilities produce essentially no net CKD, while 10 plants (about 10 percent of the population) generate 40 percent of all net CKD.

Finally, the Agency also found that the burning of hazardous waste is correlated with the volume of dust that is actually disposed. Kilns that burn hazardous waste remove from the kiln system an average of 75 to 104 percent more dust per ton of clinker than kilns that do not burn hazardous waste. Regression modeling conducted by EPA for the NODA analyses showed a consistent, statistically significant association between hazardous waste fuel burning in cement kilns and increased CKD generation on a gross, net, and disposed basis. EPA's work does not establish the cause of this statistical relationship between hazardous waste fuel burning and CKD generation. The Agency, however, believes that increased CKD generation is maybe due either to the burning of hazardous waste, or to some other plant-specific operating factors such as the composition of the raw material feed.

B. Current and Alternative CKD Management Practices

Most of the gross CKD--8.2 million metric tons, or 64 percent--was recycled directly back into the kiln or raw feed system in 1990. For that portion of CKD that is disposed, standard industry practice is to place it in piles, quarries, or landfills, most of which are unlined and uncovered. Some active piles are also managed underwater or adjacent to surface water and/or agricultural lands. Although most CKD removed from the kiln system is disposed on-site, some is sold for off-site beneficial use. For example, in 1990, about 7 percent of CKD generated (897,000 metric tons) was sold for off-site use, most of it as a waste stabilizer, liming agent, or materials additive. Cost-effective opportunities may exist, however, to further reduce the amount of CKD that is disposed by recycling it back into the kiln. The Agency has identified a number of pollution prevention opportunities, including flue gas desulfurization, fluid-bed dust recovery, and leaching with water, that may, in some instances, represent low-cost and potentially profitable alternatives to CKD disposal. In addition, the Agency has received some evidence, in comments from cement companies, that raw material substitution may be a highly effective means of increasing CKD recycling rates. This may be done by controlling the input of contaminants (in raw materials and fuels) to

the kiln system, thereby reducing or eliminating the need to purge the kiln system of contaminants by removing larger volumes of CKD from the system.

C. Existing Regulatory Controls

Federal statutes that potentially affect CKD management include the Clean Air Act (CAA), Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Regulations developed under authority of the CAA and CWA impose controls on releases of CKD to the air (via stack or fugitive dust emissions, 40 CFR Part 50) and water (National Pollution Discharge Elimination System (NPDES), 40 CFR Part 122, point source effluent discharges, and 40 CFR Part 411, effluent guidelines for cement manufacturing facilities), respectively. Under both RCRA and CERCLA, the Federal government can respond where the release of CKD or its constituents may present an imminent and substantial danger to human health or the environment. CKD that is not directly recycled is also subject to regulation under Subtitle D of RCRA as a solid waste. In addition, CKD generating facilities that burn RCRA hazardous waste in kilns are subject to the RCRA Boiler and Industrial Furnace (BIF) rule (40 CFR part 266) and other RCRA requirements if the CKD from that combustion is "significantly affected" by the hazardous waste fuel. See 40 CFR 266.112.

For states with the highest cement production capacity (California, Michigan, Pennsylvania, and Texas), the Agency has found that CKD waste is subject to some regulation under State and local laws, but the requirements vary significantly from State to State. For example, California regulates CKD as a non-RCRA hazardous waste, but has suspended enforcement of the management requirements for CKD that fails the State's hazardous waste corrosivity test, pending the results of further study of CKD and other cementitious materials. Pennsylvania regulates CKD as a residual waste, requiring facilities to comply with site-specific disposal requirements and waste reduction strategies, which are both periodically updated by the State. In contrast, Michigan and Texas both consider CKD an industrial non-hazardous waste. Michigan requires permits, ground water monitoring, and regular reports of ground water sampling results, whereas Texas issues non-enforceable guidance. [FN1]

FN1 Texas is in the process of developing on-site management standards for cement kiln dust and expects to propose them in 1995.

D. Waste Characteristics

While CKD itself does not exhibit the RCRA Subtitle C hazardous waste characteristic of corrosivity (40 CFR 261.22) [FN2], EPA's data show that mixtures of CKD and water often exhibit the characteristic of corrosivity. In particular, runoff from precipitation that contacts CKD storage and waste piles generates considerable volumes of wastewater. EPA data show that the pH level in such precipitation runoff

typically exceeds 12.5 standard units, the standard for the corrosivity characteristic for hazardous wastes (40 CFR 261.22).

FN2 EPA hazardous waste identification rules do not include a characteristic or definition for solid corrosives.
In addition, EPA's analyses of CKD show that CKD does contain certain metals listed in Appendix 8 ("Hazardous Constituents") part 261 of RCRA. Table 1 presents the range of total concentration levels for a number of other toxic metals EPA has observed in CKD.

Table 1.--Measured Metals Levels in CKD [FN1]

[Mg/kg (parts per million), total basis]

Metal	No. of samples	Min.	Mean	Max.
Antimony	52	0.09	11.5	102
Arsenic	60	0.26	14.1	80.7
Barium	59	0.43	181	900
Beryllium	53	0.1	1.03	6.2
Cadmium	61	0.065	9.7	44.9
Chromium	61	3.9	31.2	105
Lead [FN2]	63	3.1	287	2,620
Mercury	57	0.003	0.33	2.9
Nickel	45	3	19.9	55
Selenium	52	0.1	12.2	103
Silver	56	0.25	5.9	40.7
Thallium	57	0.44	33.6	450

FN1 Metals data sources include 1992 APCA survey, EPA sampling data, and public comments on the RTC.
FN2 The median value for lead is 113 mg/kg.

For many of the toxic metals, the concentrations detected in kiln dust were not significantly different whether the dust is generated from kilns that burn or do not burn hazardous waste. However, for lead, cadmium, and chromium, the mean concentration found in CKD generated by kilns that burn hazardous waste is measurably higher than in CKD from those kilns that do not burn hazardous waste; conversely, thallium and barium concentrations are measurably higher in CKD from kilns that do not burn hazardous waste. [FN3] [FN4]

FN3 The differences cited are those discernible at a 95 percent confidence level.

FN4 While lead, cadmium, and chromium were observed to be higher in CKD from facilities that burn hazardous waste, generally the difference in mean constituent concentrations by themselves are not enough (i.e., do not differ by more than a factor of about 2) to result in discernible risk estimates between facilities that do and do not burn hazardous waste, after considering other site-specific factors affecting exposure (e.g., proximity of exposure points, topography). The concentrations of barium, chromium, and nickel in CKD are within the typical range found in U.S. soils.
With respect to organics, volatile and semi-volatile compounds were generally not found in CKD. However, levels of 2,3,7,8-substituted dioxin, and 2,3,7,8- substituted dibenzofuran were detected, although the concentrations were generally low--ranging from 0.5 to 20 ppt for dioxin and non-detected to 470 ppt for furan. The calculated 2,3,7,8-TCDD TEQ values for the facilities sampled by EPA ranged from non-detected to 9 ppt.
Note: EPA sampling data for one cement plant reported a total dioxins concentration in CKD as high as 16 ppb, with a TEQ value for the managed CKD of 195 ppt. The total dioxins level measured for this plant were at least 2 1/2 times higher than those found at any of the other plants sampled by EPA.
In terms of potential constituent solubility and release, leach test results show that no significant distinction can be made between CKD generated from kilns that burn hazardous waste and those that do not burn hazardous waste. (This finding was corroborated for metals in CKD by leachate test results submitted to the Agency by the cement industry.) For example, laboratory analysis of CKD using the Toxicity Characteristic Leaching Procedure (TCLP) shows that trace metal concentrations rarely exceed RCRA toxicity limits, whether or not the CKD is generated at kilns that burn hazardous waste. [FN5]

FN5 A separate issue raised by commenters is whether the TCLP adequately depicts the potential for metals to leach from CKD. See the background document to this Notice entitled Summary of and Response to Comments on the Report to Congress in the RCRA docket for a discussion of this issue.

E. Documented Evidence of Damage

Migration of potentially hazardous constituents, including metals, has occurred from CKD waste sites. In the RTC and subsequent NODA, EPA identified 14 cases of damage (10 documented and 4 potential) to surface water and ground water and 36 cases of documented damage to air from CKD waste. [FN6] By damage, the Agency means that metal constituents have contaminated ground water and/or surface water, and/or air above a federal or state standard (e.g., a maximum concentration limit). Constituents of concern that have been released to ground and surface waters include arsenic, chromium, and lead, among others. When ground water and surface water exceedances do occur, the magnitude of the exceedance is variable, going as high as two orders of magnitude above the standard. Environmental damage generally affects the area in the immediate vicinity of the waste disposal site. However, in some cases,

nearby wetlands and streams that are off-site were also affected. For example, excessive discharges from two facilities in Mason City, Iowa caused severe degradation of the aquatic habitat in nearby Calmus Creek. Observed releases are commonly chronic at sites at which exceedances have been documented. However, most of the documented surface water damage cases occurred prior to 1991, which was before implementation of NPDES general stormwater permits.

FN6 EPA received many comments on the specific damage cases described in both the RTC and subsequent NODA. Based on review of the damage cases, except for only one reassessment, the Agency believes the information received does not contradict the Agency's basic conclusions regarding any of the damage cases. Information on environmental quality, on which this evidence is based, is limited by available data from each of the 127 sites evaluated. For those sites for which data were available, files contained information on releases, but little human exposure data. Significantly, releases to ground water were observed at all sites for which EPA has received ground water monitoring data; if there had been additional ground water monitoring data from other sites, further evidence of leaching and contamination would likely have been found. While the Agency has no documented data on contaminant transport off-site, or documented data on human exposure and risk at the point of drinking water use, this is because the drinking water wells at these sites are currently located far enough away, and/or tap aquifers are isolated enough, to be unlikely to intersect contaminated ground water. To the extent that wells would be drilled closer to the sites or the contamination spreads, there is potential that the wells would tap CKD-contaminated ground water. Waste disposal practices at sites where water damages have been documented include management in waste piles, abandoned quarries, or landfills, all of which were unlined. Air damages are cited as primarily due to mechanical failure of dust handling equipment.

F. Potential Risks to Human Health and the Environment

Based on an extensive data base compiled from industry sources, Agency field visits, RCRA section 3007 information requests, information submitted in comments, literature reviews, and other public sources, the Agency conducted a series of risk screening and site-specific risk modeling studies to evaluate potential risks from on-site management and off-site uses of CKD. Methodologies and results of these studies were documented in Chapter 6 of the RTC and its related technical background document and in two subsequent EPA technical background documents titled Human Health and Environmental Risk Assessment in Support of the Regulatory Determination on Cement Kiln Dust (August 31, 1994) and Supplemental Errata Document for the Technical Background Document for the Notice of Data Availability on Cement Kiln Dust (September 30, 1994). Principal findings from these studies include the following:

- Among a sample of 83 plants for which EPA had sufficient data to conduct a site-specific risk screening evaluation for metals in CKD, the Agency predicted only

low or negligible risk potential from on-site management of CKD via conventional direct pathways of constituent transport and exposure (drinking water, incidental direct ingestion, chemical inhalation) via ground water contamination, surface water runoff to streams or lakes, or windblown dust. However, there are three principal and important qualifications to these direct pathway findings:

- As noted above, EPA has found empirical evidence of ground water contamination near the management unit at each cement manufacturing facility where ground water quality data exist; these sites are located in both areas of karst and non-karst terrain.
- According to U.S. Geological Survey maps and other sources, about half of all cement plant sites are underlain by limestone formations in areas of karst landscape. These limestone formations may have fissures caused by rock dissolution along joints or bedding planes with hydraulic characteristics that allow leachate to directly enter ground water aquifers without substantial dilution or attenuation. Available ground water pathway modeling techniques are not applicable under these conditions. This does not necessarily mean that ground water contamination will occur at these cement plants (although that would be consistent with some of the damage cases); however, it should be regarded as a significant qualification to the general findings of low or negligible risk from the ground water pathway risk modeling results.
- In its follow-up work leading to the NODA, EPA did find evidence of possible risk to human health due to the fine particulate nature of inhaled dust. Although the Agency's direct inhalation exposure modeling studies described in the RTC did not indicate significant risk from inhaled chemical constituents in CKD, subsequent screening-level modeling on a small number of plants did indicate that windblown dust from uncontrolled CKD waste management units could exceed EPA's health-based fine particulate (10 micron or less) National Ambient Air Quality Standard (NAAQS) at plant boundaries, and potentially at nearby residences. Results from a more recent extension of this work to a larger sample of 52 cement plants suggest that 28 of the plants could exceed NAAQS standards at plant boundaries, if the plants do not have effective dust control mechanisms. [FN7] Although quantitative risks presently can not be estimated, these initial modeling results relating to fine particulates suggest cause for concern and argue for further attention to this source of fugitive dust.

FN7 Documentation and detailed results of five case study facilities are documented in the technical background document for the NODA on human health and environmental risk assessment (see 59 FR 47133). The documentation and detailed results of the more recent work are presented in the Technical Background Document on Potential Risks from Cement Kiln Dust in support of the Cement Kiln Dust Regulatory Determination, January, 1995. This document is located in the RCRA docket No. F-95-RCKD-FFFFF.

- The Agency also modeled health risks via indirect food-chain pathways (i.e., risks from ingestion of crop or livestock products or fish containing CKD- derived chemical contaminants). These contaminants reach the food chain as part of storm water run-off and/or wind erosion from uncontrolled CKD storage or disposal areas to nearby water bodies and farm fields. The Agency's indirect pathway methodology is relatively

new, complex, and still under refinement and peer review. Therefore, the reported results must be regarded as preliminary and subject to substantial uncertainties. However, the methodology represents the best available approach for evaluating these potential risk pathways of interest.

EPA's indirect food chain risk modeling estimated that potential individual cancer risks in the 110 super5 (1 in 100,000) to 110 super3 (1 in 1,000) range to highly exposed subsistence farmers and subsistence fishers from CKD metals (principally arsenic) could occur at about 12 percent of the 83 cement plants studied. Similar risk levels due to dioxins are also possible at some additional sites, although the Agency's data base on dioxin concentrations in CKD was not extensive enough to conduct a similar large sample study. In addition, about 18 percent of the plants (mostly the same plants with the higher estimates for cancer risks) were estimated to have potential non-cancer hazard ratios greater than 0.1 for highly exposed potential farmer/fisher individuals. That is, they would contribute enough of a toxic metal such as cadmium, chromium, or thallium through a possible food source (fish, vegetable, or beef and milk source) to equal one-tenth of a subsistence individual's allowable health-based-standard intake from all sources. In a few instances, a toxic metal food chain exposure was estimated to exceed a non-cancer health based standard by more than a factor of 100. Preliminary analysis presented in the September 1994 technical background document also suggested possibilities for elevation of blood lead levels in children living near uncontrolled CKD piles, due to food chain exposures.

These indirect pathway risk estimates are based on current standard Agency methods to account for toxic metals and dioxins to be bio-concentrated in plant and animal components of foods for human consumption. The Agency did not have direct data on local food consumption patterns for backyard gardeners, subsistence farmers, or recreational or subsistence fishermen in areas of potential exposure. In this instance, standard Agency assumptions (as documented in the RTC and background document) regarding consumption rates of home-grown beef, dairy products, vegetables and family-caught fish were used to estimate exposures to these potentially affected consumers.

The particular sites selected for indirect pathway analysis from among the 83 plants in EPA's study were carefully screened with respect to the potential for CKD releases from currently active piles and exposures via land, air, and surface water pathways. Proximity to nearby streams or lakes (for possible risk via fish ingestion) and distance to actual farm fields and rural dwellings likely to have gardens (for potential exposures from home grown vegetables and/or beef and milk) were determined from a variety of sources, including company-provided maps, U.S. Geological Survey maps, and aerial photographs.

EPA's risk assessment work did not explicitly consider the potential for changes in population around CKD management units, which would alter future direct and indirect exposure potentials. Proximity to the source is one of the more important determinants of risk, and many cement plants are experiencing encroachment by human populations.

- The Agency also studied several off-site beneficial uses of waste dust. Most current off-site uses, such as for waste stabilization or general construction, are either currently regulated (under RCRA for hazardous waste stabilization, or under the Clean Water Act in the case of municipal sewage sludge) or appear to present low risk due to low exposure potential. However, one current use--as a lime/fertilizer substitute on agricultural fields--was found to present some potential for indirect food chain risk under plausible exposure modeling assumptions for highly exposed farmers.
As reported in the RTC and the December 1993 technical background document, median industry-wide CKD constituent concentration values for metals and dioxins did not yield cancer or non-cancer human health risks of concern when modeled using current Agency indirect food chain modeling procedures and a normal land application rate of two tons of CKD per acre every three to five years. However, cancer risks for subsistence farming in excess of 110 super4 (1 in 10,000) were estimated when high-end (upper 95th percentile) reported constituent concentration levels for metals and dioxins were used.
Again, these indirect exposure results should be reviewed with caution due to the substantial uncertainties involved in this risk modeling methodology, which is still under refinement and peer review. The Agency believes, the results do suggest the need for further study regarding possible human health implications from this current off-site use of CKD.

G. Environmental Justice

As part of its analysis of risks to human health posed by CKD, the Agency investigated whether there are environmental justice issues associated with the management of CKD. Executive Order 12989, dated February 11, 1994, and titled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," directs federal agencies to consider environmental justice issues. The Agency's risk modeling results indicate that subsistence farmers and subsistence fish consumers would be most susceptible to the risks posed by the management of CKD. [FN8] In the RTC, EPA solicited comment on the prevalence of these activities around existing cement manufacturing facilities. The Agency also requested comment on environmental justice issues (i.e., the fair treatment of people of all cultures, incomes, and educational levels with respect to protection from environmental hazards) associated with the management of CKD.

FN8 For purposes of this report, subsistence farmers and subsistence fish consumers are those whose diets are very heavily dependent on home-grown foods or locally caught fish. Particularly high exposures to contaminants can result from bioaccumulation of toxic constituents in the locally-grown farm products or fish, compounded by a high proportion of these foods in the diet.
As part of the NODA, EPA announced the availability of a report titled Race, Ethnicity, and Poverty Status of Populations Living Near Cement Kilns in the United States. The report includes numerous analyses and summaries of the demographics data, and is

available in the RCRA docket. One analysis indicated that, of the facilities studied, approximately three-fourths of the sites have a minority population at or below the national average of 24 percent living within one mile of the facility while the remaining sites had minority populations higher than the national average living within a mile of the site. With regard to poverty level, approximately 54 percent of the facilities had less than 13 percent of the population (national average) living below the poverty level within one mile of the facility while 46 percent of the facilities had more than 13 percent of the population living below the poverty level within one mile of the facility.

H. Potential Costs and Impacts of Subtitle C Regulation

The analysis presented in the RTC indicates that if CKD were managed as a RCRA hazardous waste under the full Subtitle C regulatory scheme, including minimum technology (RCRA section 3004(o)) and land disposal restriction requirements (RCRA section 3004(d-g)), there would most likely be significant compliance costs for a substantial number of cement plants. Costs would, however, vary considerably, depending on individual plant efficiencies in converting raw materials into finished cement. For the 25 percent or so of U.S. cement plants that presently generate little or no wasted dust for on-site disposal, compliance costs for CKD would be negligible. For the remaining 75 percent, the Agency estimates the annualized incremental compliance costs at between $2 million and $14 million per year per plant (not including corrective action), depending on an individual plant's current CKD quantity and local landfill construction conditions. This range for typical annual plant costs translates into $3 to $28 per ton of cement, or 6 to 56 percent of a plant's annual gross value of sales (at a nominal selling price of $50 per ton of cement).
Such high costs are a result of the relatively high waste-to-product ratios among plants in this industry and the high unit compliance costs for the full Subtitle C technology. Costs at individual plants might be reduced if facility operators could decrease net waste generation rates by improving basic plant efficiencies, substituting lower alkali raw materials, or implementing dust reclamation and recycling technologies, as discussed in Chapters 8 and 9 of the RTC. The extent to which these pollution prevention options can be implemented economically, however, is uncertain.
For those facilities with high CKD generation rates that cannot reduce their waste-to-product ratios economically, costs for the full Subtitle C scenario would be prohibitively high, and a substantial portion of the industry could become noncompetitive. Projected impacts under this regulatory scenario suggest a substantial curtailment of domestic cement capacity and production, a shift in market share towards the more efficient domestic producers, higher prices for cement in most regions of the country, and substantially increased imports. Important secondary impacts on regional construction industries and on small communities affected by cement industry employment losses also would be projected.
The costs of managing CKD as a hazardous waste would be reduced if certain Subtitle C requirements (e.g., land disposal restrictions, minimum technology requirements for managing CKD) were modified. In the RTC, the Agency speculated

that plant-level costs under this scenario might amount to one-third to one-half the cost of full Subtitle C for typical plants with median to high CKD generation rates. Alternative, more tailored standards were estimated to require even lower compliance costs, particularly for favorably located plants or plants already employing available containment measures. Depending upon specific requirements, the costs for these types of controls generally were less than one percent of the industry cement sales value, although they could be higher for some facilities located in areas of karst terrain, which might require more extensive ground water protection measures.
In addition to these two lower-cost versions of a possible Subtitle C land management option, the cement industry suggested, in public comment, a "voluntary contingent management practice" proposal, that was estimated by industry representatives to cost between $5 and $14 per ton of CKD at various plants and to average about $10 per ton. Although EPA has not been able to confirm these estimates, this land disposal technology would, using the industry's cost figures, require an average industry-wide compliance cost of about one percent of gross cement sales.
Though by no means negligible, costs averaging one per cent of sales would not imply the dire consequences for the industry that would be suggested by the full Subtitle C regulatory scenario.
In addition, cost effective dust reduction and reclamation options remain a possibility under any of the regulatory scenarios discussed. Industry representatives in public comment have challenged the efficacy and cost effectiveness of these waste reduction and recovery options. Nevertheless, operational prototypes do exist and technologies such as the Passamaquoddy flue-gas scrubber and alkali leaching (both described in Chapter 8 of the RTC) do show benefits in stack gas pollution control and/or by-product sales to help offset capital and operating costs, as well as reducing basic raw material requirements. Further examination of the economics of the Passamaquoddy recovery scrubber, as reported in the September NODA document, indicated that prospective unit costs for plants with lower CKD quantities would be higher than originally estimated in the RTC. However, otherwise, the Agency continues to believe that this and other alternatives can potentially serve as technically and economically viable options to land disposal of CKD, at least for some plants.

I. Regulatory Options

Based on the findings of the RTC, the Agency considered a number of options for the management of CKD. These options represent a range of requirements for management of CKD waste. From these, the Agency chose to highlight five specific options, including three in which CKD would be managed under RCRA Subtitle C. (For more detail on the options, see 59 FR 709, 1/6/94.) The specific options are:
Option 1: Retain the CKD exemption.
Option 2: Retain the CKD exemption, but the Agency would enter into voluntary agreements with the industry whereby they would implement dust recycling technologies, reduce waste, and monitor and control CKD management and use.

Option 3: Remove the CKD exemption, but delay implementation for some period of time (e.g., two years) that would allow industry time to employ pollution prevention measures.
Option 4: Remove the CKD exemption, and implement the compliance measures within six months.
Option 5: Promulgate tailored regulatory standards for the management of CKD waste under Subtitle C of RCRA.
In presenting this list of options, the Agency noted that control of CKD under Subtitle C may not be warranted or appropriate if other statutes administered by EPA (such as the Clean Water Act, Clean Air Act, or Toxic Substances Control Act) are better suited to address the concerns identified in the RTC. The Agency indicated that these statutes were also being considered in the Agency's decision to either retain or remove the CKD exemption.

III. Applying the Decision Rationale in Making the Regulatory Determination

In its decision making process, the Agency's approach was the same as for previous special waste determinations [FN9]. As explained in the RTC, the study factors were evaluated in a step-wise sequence to arrive at a decision. This approach allows EPA to make a systematic evaluation of the information presented in the RTC, the notices, and in all public comments. The Agency has carefully evaluated all comments received in making its decision. (All of the comments received on the RTC, the NODA, and the correction notice are addressed in the background documents titled Analysis of and Responses to Comments on the Report to Congress on Cement Kiln Dust and Analysis of and Consolidated Responses to Comments on the Notice of Data Availability, which are available in the RCRA docket.)

FN9 For a discussion of EPA's approach in combining the RCRA study factors, see the discussion of the Agency's approach in the Final Regulatory Determination and Final Rule for Special Wastes From Mineral Processing (56 FR 27300, June 13, 1991).
The Agency considers its step-wise methodology to be consistent with Congressional intent that EPA consider all the study factors listed in RCRA section 8002(o). In addition, EPA received no substantive comments on the RTC that disagreed with any aspect of its decision methodology. Therefore, no changes have been made in the approach.
The step-wise process that the Agency applied to the available information is presented below.

A. Step 1: Does Management of CKD Pose Human Health and Environmental Problems? Might Current Practices Cause Problems in the Future?

The initial component of the Agency's decision making process is to determine whether CKD either has or may adversely impact human health or the environment. To resolve these issues, EPA has posed the following key questions:

Substep 1. Has CKD as Currently Managed, Caused Documented Human Health Impacts or Environmental Damage?

The Agency has determined that CKD has caused documented impacts (and may continue to cause impacts) at levels of concern. As explained in the RTC, danger to human health and the environment is defined to include various effects associated with the management of CKD, including acute and chronic human health effects, significant impairment of natural resources (e.g., contamination of a source of drinking water), degradation of natural ecosystems and habitats, and detrimental impacts to terrestrial or aquatic fauna. A case is considered proven if damages are documented as part of a scientific investigation, administrative ruling, or court decision. In its examination of cases of damage to human health and the environment, the Agency identified fourteen cases of ground water and/or surface water contamination (10 documented and 4 potential), including two sites that are listed on the CERCLA (Superfund) National Priorities List (NPL). In each case, there is information available to indicate that on-site surface water and/or ground water has been affected by CKD management units. Typical impacts include elevated pH, total dissolved solids, and sulfate above secondary federal or state concentration limits as well as elevated levels of certain potentially toxic metals such as arsenic, cadmium, chromium, and lead that are above primary drinking water MCLs.

One of the NPL sites with ground water damage is in an area of karst terrain. The RTC described a release at this site of contaminants to ground and surface water through a "blowout" (i.e., sudden discharge) into a nearby creek that resulted in increased turbidity and an abrupt decline in stream biota downstream of the release. An investigation by the facility showed waste kiln dust to be the original source of contamination. Since the site is in an area of karst terrain, it is both logical and reasonable to believe that the waste dust rapidly migrated through discrete channels in the bedrock, with minimal attenuation, to the point of the blowout. The fact that this occurred at the site suggests EPA's MMSOILS ground water model is not suitable for karst type terrain, since the model assumes ground water migration through bedrock that is uniformly porous, and lacks discrete channels.

Of particular concern to the Agency is the extent of documented contamination of ground water. Even though limited information exists on ground water contamination due to a lack of monitoring programs at most sites, each case with available information on ground water shows contamination at levels of concern. Only 17% of all cement manufacturing facilities have ground water monitoring systems around their dust management units. These plants are considered to be representative of the industry. Thus, the Agency considers it likely that more damages exist, even though it did not conduct a detailed investigation of ground water beneath all CKD waste management units.

Environmental damages can also be attributed to particulate emissions of CKD from quarries, haul roads, and CKD handling equipment (screws, conveyors, and trucks), and are traceable to kilns that do and do not burn hazardous waste. Several commenters on the RTC indicated that air dispersion of CKD was a significant source of pollution to local residents living around cement manufacturing facilities. In addition, the RTC identified numerous citizen complaints of excessive particulate matter from cement plant operations collecting on cars, lawns, gardens, chairs, and other personal property of area residents. While developing the RTC, the Agency reviewed numerous letters in state files from residents living near cement kilns who complained of fugitive dust emissions (which may be due to release of CKD from plant operations and/or dust disposal piles). Although the Agency recognizes that dust from mining and quarry operations could contribute to the particulate emissions from a cement plant, other evidence (i.e., damage cases) indicates that fugitive CKD emissions are a substantial contributor to environmental damages in the form of air quality degradation.

Substep 2. Does EPA's Analysis Indicate That CKD Could Pose Significant Risk to Human Health or the Environment At Any of the Sites that Generate It (or In Off-Site Use), Under Either Current Management Practices or Plausible Management Scenarios?

The Agency's analysis indicates that there are potential risks warranting concern, from both current on-site management practices and certain off-site beneficial uses. In the RTC and NODA documents, the Agency reported on plant-specific risk screening and quantitative risk modeling conducted to evaluate potential risks from current and plausible future management of CKD. As summarized in the findings above, current on-site land management practices appear generally to pose relatively low risks to human health via direct pathways of contaminant transport and exposure.
However, with respect to possible ground water contamination, a large percentage of cement plants (and CKD management units at those cement plants) are located in areas of karst terrain, many of which may be underlain by bedrock with hydrological characteristics conducive to relatively direct leachate transport to off-site locations. In karst aquifers, contaminants can potentially migrate long distances through open conduits with little of the filtration, adsorption, and dispersion that are typical of contaminant dispersal in porous bedrock.
In addition, modeling of windblown dust from CKD management areas suggests that dust piles, when uncontrolled (i.e., uncovered and dry), may typically release sufficient quantities of fine particulates to exceed health-based National Ambient Air Quality Standards (NAAQS) at plant boundaries, and sometimes as far away as nearby residences.
The Agency's quantitative modeling of "indirect" food chain pathways, both aquatic and agricultural, indicates potential human health effects, both cancer and non-cancer. A wide range of chemical constituents, including arsenic, cadmium, chromium, barium, thallium, lead, and dioxins, were indicated as constituents of concern at various plants. Because some CKD disposal units are located near, and in some instances

immediately adjacent to, farm fields, rural residences with gardens, or surface waters containing fish, there is potential for indirect risk from the consumption of CKD-contaminated beef, vegetables and fish, as well as ingestion of CKD-contaminated water during recreational swimming.
Although limited by available data and assessment methodology, the Agency's risk assessment studies also indicated potentials for adverse aquatic ecological effects due to possible chemical releases to streams and lakes adjacent to some cement plants. Aquatic ecological damages due to siltation and sedimentation were not specifically studied in the risk assessment, but were observed in field visits and reported as a problem in damage case documents and in public comments.
The Agency's risk assessment for off-site beneficial uses of CKD indicated that, except for direct application as a lime/fertilizer substitute, most off- site uses do not pose significant risks. Direct cropland application, however, occurs at a number of locations in the country and is essentially unregulated at the state and federal levels. Analysis suggests that, at plausible application rates, CKD that contain sufficiently high concentrations of arsenic or other metals or dioxins (as documented in the Agency's CKD constituent data base), could cause food chain risks of concern that may warrant some type of regulation for these off-site uses.

Substep 3. Does CKD Exhibit Any of the Characteristics of Hazardous Waste?

Although all of the toxicity characteristic (TC) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) were detected in CKD, CKD exhibits the toxicity characteristic infrequently, and only for certain metals. This is based analysis of the CKD analytical data available to the Agency. Although CKD itself is not corrosive under EPA's rules because it is a solid, water-CKD mixtures are highly alkaline. Data presented in the RTC indicate that the pH of CKD leachates (using standard EPA leach test procedures) are typically between 11 and 13 standard units. In addition, the elevated pH of a CKD-water mixture is a prominent factor in 10 out of 14 cases of damage (documented and potential) to surface water and/or ground water. In six of these cases, including the ground water damages described for the two plants listed on the NPL, CKD-water mixtures are reported to have a pH exceeding the EPA standard of 12.5 for corrosive hazardous waste (40 CFR 261.22).
The results of Step 1 of the decision process indicate that CKD has posed and may continue to pose risks to human health and the environment under plausible management scenarios. Releases have occurred and may continue to occur as a result of current management practices (e.g., management of CKD in unlined, uncovered piles near shallow ground water and surface water bodies), posing risk to human health and the environment.

B. Step 2: Is More Stringent Regulation Necessary and Desirable?

EPA evaluated State and Federal regulations pertaining to CKD waste. The Agency has determined that the answer to this question is yes, more stringent regulation of CKD is necessary and desirable.

Substep 1. Are Current Practices Adequate to Limit Contaminant Release and Associated Risk?

The Agency has determined that current practices are inadequate to limit contaminant releases and associated risks. CKD is now managed primarily on- site in non-engineered landfills, piles, and ponds. Many piles and landfills lack liners, leachate controls, or run-on/run-off collection systems. In addition, while dust suppression measures exist at many facilities, it appears that they are generally ineffective at controlling airborne releases of CKD.

Substep 2. Are Current Federal and State Regulatory Controls Adequate to Address the Management of CKD?

The Agency has determined that Federal and State regulatory controls need to be improved for the proper management of CKD. Some existing regulations do apply to CKD piles, but are rarely tailored to the cement industry. In addition, problems with repeated releases of CKD to the environment suggest that implementation of existing regulations is uneven.
The Agency has analyzed the application of regulations and standards under the Clean Air Act (CAA) for cement manufacturing facilities. Implementation of the CAA requirements varies from State to State. In addition to the baseline Federal requirements, [FN10] each of the four States studied in the RTC selectively implements more stringent standards on a case-by-case basis. For example, California regulates two more pollutants than required under the NAAQS. Pennsylvania has fugitive dust controls as a permit condition and discourages the open storage of CKD.

FN10 The Clean Air Act is implemented through the State implementation plan (SIP). As explained in the RTC, the Clean Air Act as amended (see section 110(a)(2)) requires an acceptable SIP to contain detailed provisions to address: Emission limitations and control measures; monitoring requirements, review of new and modified sources for compliance with new source performance standards, prevention of significant deterioration, and non- attainment review; adequate legal authority; and a permit program.
The Agency believes that there are adequate existing authorities in the Clean Air Act to address risks via the air pathway posed by the management of CKD. However, there appears to be a need for increased regulation and implementation under the Clean Air Act. The Agency has information that indicates releases of particulate emissions at cement plants are common, persistent, and continuing. The RTC documents 21 incidents of CKD releases at 13 facilities. With the exception of one

case that involved fugitive dust emissions from a CKD pile, all cases involved visible emissions violations (opacity) related to equipment malfunctions associated with CKD handling equipment (kilns, baghouses, screw conveyors) [FN11]. In addition, persistent releases of CKD are documented in the Agency's NODA for one facility in Pennsylvania. This facility was cited for 16 air emissions violations between March 1983 and June 1989. Also, significant releases of airborne particulates at other facilities were frequently observed first-hand by Agency staff during the course of this study [FN12].

FN11 One plant has submitted a video to the Agency that indicates that its CKD management practices have changed.

FN12 A general description of these emissions can be found in the EPA CKD sampling trip reports which are located in the support section of the RCRA docket on the Report to Congress, Docket No. F-94-RCKA-FFFFF.

Numeric standards for point source discharges of wastewater from cement facilities have been established under the Clean Water Act, and are administered through the NPDES permit program (40 CFR part 122) along with industry-tailored effluent limitations for runoff from materials storage piles (40 CFR part 411). Indirect discharges via publicly owned treatment works (POTWs) are subject to general pretreatment standards under 40 CFR part 403. Wastewater discharges from individual facilities may also be subject to state water quality standards and state or local effluent discharge standards.

In addition, EPA proposed a multi-sector stormwater general permit under the NPDES program on November 19, 1993 (58 FR 61146). The proposed permit contains limits to control effluent discharges specific to the cement industry (among other industries) and requires each plant to develop facility-specific pollution prevention plans and demonstrate best management practices (BMP) to minimize the contact between stormwater runoff and CKD or other pollutant sources, or else remove CKD (or other constituents) before the stormwater is discharged. This permit will be in addition to previously issued and effective storm water baseline general permits that were issued in 1992 by EPA and between 1991 and 1993 by the 40 states with authorized NPDES programs. The final multi-sector storm water general permit is expected to be issued by EPA in early 1995.

With respect to ground water, there are no Federal standards that are adequate to address the risks posed by CKD via the ground water pathway. The Safe Drinking Water Act (42 U.S.C. 300 f-j) protects drinking water by setting maximum contaminant levels (MCLs) for toxic contaminants, including metals. However, drinking water standards are only protective at the point of consumption. Public water supply wells are protected through the wellhead protection program under the SDWA (41 U.S.C. 300h-7(e)).

Of the states studied in the RTC, three (California, Michigan, and Pennsylvania) have primacy for implementing the NPDES program. The program in Texas is administered by EPA but incorporates more stringent Texas water quality requirements. These four

states have ground water protection programs that set non-degradation of ground water quality as a goal. In addition, Texas implements an EPA-approved wellhead protection program.

Water quality regulations vary from state to state. California's water quality program includes long range resource planning, annual inspection of all facilities, and compliance with stringent surface water and ground water quality standards. The California program also grants broad enforcement authority to its State Water Resources Control Boards. Pennsylvania and Michigan inspect major industrial dischargers (including some cement plants) annually, and enforce permit requirements. In addition, Michigan requires compliance with ground water quality standards. Pennsylvania approaches ground water protection through permit requirements for wastewater and stormwater discharges, but has no separate ground water quality standards. In Texas, cement plants are considered "minor" facilities and are not inspected annually like all facilities that have major discharges, unless the facility burns hazardous waste, has a past record of environmental violations, or has a complaint filed against it. However, Texas is considering requiring subsurface investigations at all facilities that dispose of CKD as part of an effort to establish minimum technical standards for the on-site management of CKD.

The Clean Water Act, through existing effluent guideline regulations, NPDES permits, water quality standards, and existing and forthcoming storm water permits, provide considerable authority to control risks associated with contamination of surface waters by the management of CKD. [FN13] However, EPA has identified releases of CKD to surface waters, and to ground water as well. In its investigation of CKD waste, the Agency uncovered 14 cases of water damage, of which seven involved ground water. Both ground water and surface water damages were major factors cited for including two CKD disposal units on the CERCLA NPL. Furthermore, only 17% of all CKD management units nationwide have ground water monitoring systems, while 25 of 91 cement manufacturing facilities (27 percent) were reported in a 1991 industry survey to be located within one mile of a public drinking water well.

FN13 In fact, the Agency believes that once the storm water permits are fully implemented, no further water permits or regulations will be needed to address releases to surface water.

Based on the above analysis, the Agency believes the following factors warrant additional environmental controls for CKD: (1) The general lack of current regulations applicable to contaminant discharges to ground water for protection of human health and the environment; (2) the general lack of ground water monitoring systems at CKD disposal units; and (3) the existence of damages to ground water and air that are persistent and continuing, and for which no requirements exist to address the risks posed via these pathways.

At the federal level, authorities exist to address site-specific problems posing imminent and substantial danger to human health or the environment under RCRA section 7003 and CERCLA sections 104 and 106. However, the Agency believes that cost-effective

controls that prevent contamination are preferable to cleaning up after contamination and damages occur.

C. Step 3: What Would Be the Operational and Economic Consequences of A Decision To Regulate Under Subtitle C?

The Agency has determined that industry-wide regulation of CKD under full Subtitle C, including land disposal restrictions, would impose extremely high costs on a substantial portion of the U.S. cement industry. While the Agency believes that CKD waste minimization and reclamation/recycling options exist that could limit the cost exposure for many plants, there is considerable uncertainty and disagreement at this time regarding their general technical availability and ability to serve as low cost substitutes for land management of CKD.

Thus, it is likely that full Subtitle C regulation could impose compliance costs in excess of 20 percent of sales value for a significant part of the industry and a resulting inability to compete. Expected economic consequences include a combination of reduced domestic cement capacity and production, sharply higher prices for cement (particularly in interior regions of the country), and substantially increased imports. Substantial adverse secondary effects on regional construction industries and on communities experiencing losses in cement industry-related employment could also be expected.

Thus, based on the factors in RCRA section 3001(b)(3) and section 8002(o), full RCRA Subtitle C regulation is unwarranted. However, the Agency also believes that special Subtitle C regulations tailored to local cement plant conditions could be developed using the broad regulatory flexibility provided by RCRA, including section 2002, section 3001(b)(3)(C), and section 3004(x). These regulations could be based on either technology or performance standards or a combination of both. These regulations could be implemented at far lower cost at most plant locations requiring controls to prevent contamination of ground water. In addition, regulations for CKD to prevent releases to the air can be improved or implemented under CAA authority, and releases to surface water are regulated under CWA authority. These authorities provide the Agency with additional flexibility to prevent releases of CKD to the environment, while at the same time minimizing the burden on the regulated community.

The cement industry's voluntary CKD management proposal, submitted as a comment on the RTC, tends to support this conclusion. This tailored program for constructing and operating CKD monofills would include the following site- specific features: a hydrogeological assessment, water inflow modeling, ground water monitoring, surface water management in accord with NPDES and storm water discharge permits, run-on/run-off controls, fugitive dust emissions control measures, personnel training, a written closure plan, financial assurance, and post-closure care, including security and maintenance and repair of the cap and vegetation as suggested by periodic inspections. Thus, special tailored standards under Subtitle C of RCRA as well as under other Agency authorities can be expected to pose far less dire consequences

for the U.S. cement industry and the economy as a whole than would regulation under full Subtitle C.

IV. Regulatory Determination for Cement Kiln Dust

Pursuant to RCRA sections 3001(b)(3)(C) and 8002(o), EPA has determined that additional control of CKD is warranted. The Agency's concerns about the harm to human health and the environment posed by CKD suggest the need for regulation under RCRA Subtitle C authority. However, the Agency recognizes that certain of these areas of concern (those related to releases to air and surface waters) are more appropriately controlled under other EPA-administered statutes. In order to avoid unnecessary duplication among regulatory programs, EPA would rather use the other existing regulatory programs to control risks where appropriate, and develop a more creative, affordable, and common sense approach that would control the adverse effects of CKD.

The Agency will develop, promulgate, and implement regulations for CKD as necessary to protect human health and the environment by using a variety of statutes. This regulatory program will apply to CKD from all cement manufacturing facilities, regardless of the type(s) of fuels used in the manufacturing process, or other factors. In particular, the Agency will develop and implement additional controls/activities to limit releases to the air using its Clean Air Act authority. For surface waters, the Agency believes that existing regulations and the planned general permit under the NPDES permitting program will provide an adequate mechanism for controlling point source discharges and for managing storm water that contains CKD. Thus, no additional water controls, beyond these already planned, are considered necessary. The Agency will evaluate the need for additional controls for a limited number of off-site uses of CKD (such as use as a lime fertilizer on agricultural fields) in its regulatory proposal. However, for most off-site uses (e.g., in waste stabilization or certain construction uses) EPA's current record indicates there are no significant risks. The Agency will restrict its focus to those off-site uses for which there are significant risks.

With respect to ground water, the Agency will use its authority under Subtitle C of RCRA to address these concerns. The Agency will use its broad authority provided by RCRA section 2002(a), section 3001(b)(3)(C), and section 3004(x) to develop a program tailored to local cement plant conditions to control the specific risks identified while minimizing compliance costs. Until the Subtitle C tailored rules take effect, the Agency will retain the Bevill exemption. The Bevill exemption will be removed when final regulations under RCRA authority take effect.

The Agency believes that subjecting CKD waste to the full RCRA Subtitle C program would be prohibitively burdensome on the cement industry, and is not a feasible regulatory option under the factors cited in RCRA section 8002(o). Although EPA at this time is not proposing the specifics of a RCRA regulatory program for CKD, EPA intends to apply only those components of Subtitle C that are necessary, based on our current knowledge of the cement industry and the human health and environmental

concerns associated with CKD, to achieve a common sense result with respect to the hazards posed by CKD on a site-specific basis. The Agency anticipates that any such standards would be designed to be protective, yet minimally burdensome, and may not necessarily apply to all facilities or may not apply to all facilities in the same manner or to the same extent.

The specific RCRA Subtitle C components that EPA believes may deserve particular scrutiny in developing a minimal, tailored approach, including site- specific considerations, include the following: facility-wide corrective action under section 3004(u); land disposal restriction requirements (LDRs) under sections 3004 (c), (d), (e), (f) and (g); minimum technology standards under section 3004(o); and permit requirements under section 3005. EPA believes that most of the concerns addressed by the land disposal restrictions program, permit requirements, and the minimum technology standards might be best addressed through management standards developed specifically for CKD, and the Agency will carefully study those possibilities as an alternative to some or all LDRs and minimum technology standards. Moreover, because the costs for including all solid waste management units under facility-wide corrective action at all cement plants may be prohibitively burdensome on the cement industry, EPA intends to explore less burdensome, site-specific, tailored approaches to identifying and correcting problems that may occur from existing CKD piles and preventing problems arising from future CKD management. This may include ground water monitoring, a reliance on existing response authorities under RCRA section 7003 and CERCLA (or state response authorities), or may focus on site-specific factors, such as geography and hydrology, in determining the need for corrective action requirements. Because most of the Agency's ground water concerns are associated with potential contamination in areas of limestone with karst features, EPA will focus on tailored standards for CKD disposal in karst terrain. The Agency believes that concerns about contamination in non-karst areas can be addressed through the adoption by industry of good CKD waste management practices.

In addition, EPA believes it is appropriate to consider other RCRA Subtitle C requirements to see if, and to what extent, they are necessary to address the human health and environmental concerns discussed in this regulatory determination. In doing so, EPA will also consider the costs associated with those Subtitle C requirements. EPA intends to develop a regulatory program for CKD waste only after full participation by the various stakeholders. Consistent with the spirit of that commitment, EPA at this time is neither definitively limiting the scope of, nor determining that any particular elements necessarily will be included in any proposed CKD regulatory program.

Finally, as discussed in the RTC, CKD is often re-introduced into the kiln as a substitute for raw material in clinker production. In the absence of the CKD regulatory exemption, under certain regulatory scenarios clinker produced from re-introduced CKD could be considered a hazardous waste under the derived-from rule (40 CFR 261.3(c)(2)(i)). As part of the regulations that EPA will promulgate as a result of today's determination, EPA intends to propose exclusion of clinker from regulation as a derived-from hazardous waste when CKD is reintroduced. When reintroduced, CKD

Under current internal EPA guidance, however, any economic impact is considered a significant impact, and any number of small entities is a substantial number. [FN14]

FN14 USEPA, 1992. EPA Guidelines for Implementing the Regulatory Flexibility Act, Office of Regulatory Management and Evaluation, Office of Policy, Planning, and Evaluation.

In keeping with this policy, EPA has performed an initial evaluation of the domestic cement industry to determine whether or not there are small entities operating U.S. cement plants. The results of this analysis show that 23 of the 115 operating domestic cement plants are owned and operated by companies that are defined as small entities. [FN15] These 23 plants are owned/operated by 16 of the 40 companies comprising the domestic cement industry.

FN15 The definition of small entity is established by the Federal Small Business Administration, which has promulgated regulations found at 13 CFR 121.601. The criterion for determining small business status in the hydraulic cement industry (SIC Code 3241) is company-wide employment of less than 750 employees.

Because in today's regulatory determination EPA does not establish new regulatory controls, the Agency has not conducted a full Regulatory Flexibility Analysis in support of today's action. EPA will, however, consider the potential impacts of the new regulations that will be developed as a result of this action on these small entities. In the process, the Agency will examine potential impacts of regulatory alternatives on these entities, and identify and evaluate alternative approaches that could mitigate such impacts, as required by the RFA.

VII. Executive Order 12866

Under Executive Order 12866 (58 FR 51735, 10/4/93), the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a "significant regulatory action" because it raises novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the

Executive Order. This action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

VIII. Regulatory Determination Docket

Documents related to this regulatory determination, including EPA's response to the public comments, are available for inspection in the docket. The relevant docket numbers are: F-95-RCKD-FFFFF for the regulatory determination, F-94-RCKA-FFFFF for the RTC and F-94-RC2A-FFFFF for the NODA. The EPA RCRA docket is located at the following address: United States Environmental Protection Agency, EPA RCRA Docket, Room M2616, 401 M Street SW., Washington, DC 20460. The docket is open from 9 a.m. to 4 p.m., Monday through Friday, except for Federal holidays. The public must make an appointment to review docket materials. Call the docket clerk at (202) 260-9327. Copies are free up to 100 pages and thereafter cost $0.15 per page. In addition to the data and information that was included in the docket to support the RTC on CKD and the Technical Background Documents, the docket also includes the following documents:
- Analysis of and Responses to Public Comments on the Report To Congress; and
- Analysis of and Response to Comments on the Notice of Data Availability.

List of Subjects in 40 CFR Part 261

Environmental protection, Bevill exemption, Cement kiln dust, Incineration, Special wastes.
Dated: January 31, 1995.

Carol M. Browner,

Administrator.

[FR Doc. 95-2832 Filed 2-6-95; 8:45 am]

BILLING CODE 6560-50-P

60 FR 7366-01, 1995 WL 44328 (F.R.)

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.

V. Next Steps

This section provides an overview of the Agency's plans for developing and issuing tailored regulations for CKD. The Agency recognizes that the selection of a regulatory approach for CKD waste may involve difficult choices and policy decisions with wide-ranging economic and environmental implications. EPA believes that the development of regulations under multiple statutes (without duplication among regulatory programs) that adequately address the risks identified in the RTC, yet are economically affordable to the industry, should involve participation by all interested parties. To this end, EPA is announcing a regulation development process designed to encourage involvement by all stakeholders. The regulation development process will be conducted in similar fashion to the Agency's Common Sense Initiative, notably with early-on participation by all stakeholders. This process will be directed towards development of environmentally protective regulations that provide for highly flexible methods to administer and implement them. The Agency's concern for minimizing the burden on State and local regulatory authorities and minimizing compliance costs and resource burdens on the regulated community will be an important principle in the regulation development process.

EPA will begin this process by conducting a series of meetings with interested parties, including industry, government, and public interest groups. The initial meetings with the parties will be used to solicit technical information and approaches that will facilitate the Agency's analysis of regulatory options (e.g., CKD management technologies, cost information, and economic information). The Agency plans to conduct the initial meetings during the spring and summer of 1995. Before these meetings are held, the Agency will identify specific questions and issues on which the Agency would like to receive information.

During the regulation development process, the Agency will use the information in the cumulative record of the RTC and regulatory determination, along with any new information received, to formulate its approach to developing tailored regulations for CKD. Before the rule is proposed, the Agency may publish an advance notice of proposed rulemaking (ANPR) to present and solicit comment on various approaches to developing the regulations.

VI. Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA) of 1980 (Pub. L. 96-354), which amends the Administrative Procedure Act, requires Federal regulatory agencies to consider "small entities" throughout the regulatory development process. Section 603 of the RFA requires an initial screening analysis to be performed to determine whether a substantial number of small entities will be significantly affected by a regulation.

1. In a meeting at the Alachua City Hall in early July FRK VP Fred Coors who will operate the facility said and was quoted in the High Springs Herald,
" The company would like to burn 400,000 tires per year."
"At 2700 degrees Fahrenheit, there is no odor."

The Application calls for 36,792 tons of tires to be burned.

Would you check my math?

36,792 tons of tires = 30% of total heat

36,792 tons x 2,000 lb. per ton = 73,584,000 lb. tires

22 lb. per tire divided into 73,584,000 = 3,344,727 tires

3,344,727 tires per year

Exhibit 3
Peter Waithaw

Florida Administrative Code
F.A.C. Rule 62-701.300

1b. No person shall store or dispose of solid waste in a manner or location that causes air quality standards to be violated or water quality standards or criteria of receiving waters to be violated.

2b. No solid waste shall be stored or disposed of by being placed in any area where the absence of geological formations or subsurface features would allow for the unimpeded discharge of waste or leachate to ground water or surface water.

2d. No solid waste shall be stored or disposed of by being placed in a dewatered pit.

2f. No solid waste shall be stored or disposed of by being placed in a natural or artificial body of water including ground water.

Exhibit 4
Peter Walther

Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 14, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Arthur Saarinen, Jr., President
Haile Community Association, Inc.
3616 Northwest 186th Street
Newberry, Florida 32669

Re: Your Letter of May 11, 1995
Florida Rock Cement Plant Application

Dear Mr. Saarinen:

Thank you for your letter of May 12 regarding the Florida Rock project. We passed along our initial comments through Pam McVety's letter of June 19 which was in response to the letter you wrote her on June 5. At the time, she informed you that we had received the application and had advised the applicant that it was incomplete. She also described the air permit review and public notice process which we follow on our permitting actions.

I discussed the status of the application and some of the items in your letter with Peter Walther of the association. I told him I would write down some the main points that he and I discussed and send you an update.

We will send you copies of correspondence and submittals as you requested and will also make them available at our Gainesville office. Both the Gainesville and the Northeast District offices will have copies of key documents for public accessibility. Following our discussions with Mr. Walther, we sent him whatever correspondence he did not already have. Per his request, we sent him copies of emissions estimating techniques applicable to the cement industry from EPA Publication AP-42. He will also receive a diskette containing air dispersion modeling data.

The present status of the application is that it is still under completeness review following a reply received on July 3 to our letter of June 16. We have until August 2 to determine if the application is complete. Once it is complete, then we will conduct our technical evaluation and advise the applicant within 90 days that we intend to issue or deny a permit to construct the proposed facility. The applicant must publish a Public Notice of this intent in a local newspaper of general circulation in Alachua County.

The Public Notice will briefly advise the public of the project, the Department's intended action and where documents will be available for their review. It will also give the public the opportunity to submit written comments within 30 days, request a Public Information Hearing within 30 days or request an Administrative Hearing under Chapter 120 of the Florida Statutes within 14 days. We will mail you a copy of the Intent as well as the Public Notice and a copy of the draft permit and technical evaluation if our intent is to issue a permit.

We appreciate the information the association provided on Cement Kiln Dust as well as the information on the geology and water rescues. We will consult with other groups in the Department about these matters. Once the application is complete, we will conduct our technical review and address the items mentioned in your letter in accordance with applicable Department regulations.

If you or other members of the association have any questions about this matter, please contact me or Teresa Heron at (904)488-1344 or Dr. Pat Reynolds of our Gainesville office at (904)336-2095.

Sincerely

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

AAL/al/t

cc: Pam McVety, DEP
Chris Kirts, NED
Pat Reynolds, Gainesville DEP
Mona Sullivan, Alachua County

Is your RETURN ADDRESS completed on the reverse side?

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.
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I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
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Consult postmaster for fee.

3. Article Addressed to:
Arthur Saarinen Jr, VP
Haile Community Assoc
3616 NW 186th St.
Newberry, Fl 32669

4a. Article Number
Z 392 979 052

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

5. Signature (Addressee)

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6. Signature (Agent)

PS Form **3811**, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

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UNITED STATES POSTAL SERVICE

PS Form **3800**, March 1993

Sent to: Arthur Saarinen	
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P.O., State and ZIP Code: Put in Newberry	
Postage: Fla. Rock $ file	
Certified Fee: Newberry, Fl	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$

Postmark or Date
Newberry 7-14-95
Fla Rock Cement Plant

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

CERTIFIED

Z 392 979 057

MAIL

TALLAHASSEE FL JUL 19'95 PB METER 6846314

U.S.POSTAGE 2.52

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REASON CHECKED
Unclaimed ___ Refused ___
Attempted-Not known ___
Insufficient Address ___
No such street ___ number ___
No such office in state ___
Do not remail in this envelope

Mr. Arthur Saarinen, Jr., President
Haile Community Association, Inc.
3616 NW 136th Street
Newberry, FL 326[illegible]

JUL 21 1995

7.27

AUG 03 1995

Claire Fauny

RECEIVED

OCT 0 6 1995

Division of Air
Resources Management

HAILE COMMUNITY ASSOCIATION, INC.
3616 N.W. 186th. St.
Newberry, Florida 32669

October 4, 1995

Mr. Ernest Frey, District Director
Florida Department of Environmental Protection
7825 Baymeadows Way Suite B-200
Jacksonville, Florida 32256-7590

Dear Mr. Frey:

On the occasion of our meeting with you and your staff in Jacksonville on September 5, 1995, you posed a question to me: Assuming this proposed cement manufacturing facility met all requirements of Florida DEP regulations, would we oppose the issuance of a permit? I responded: Yes, because we believe DEP monitoring and enforcement are not reliable. We believe this to be true for several reasons.

First, DEP regulations have their origins in the Legislature and the current political climate suggests significant uncertainty for future environmental regulations. Second, DEP's ability to monitor performance and enforce regulations and permit conditions is dependent upon an adequate budget appropriated by the Florida Legislature. Again, the present political climate makes the question of budget adequacy doubtful. Third, even within present regulatory and budget conditions, DEP permitting and enforcement is clearly responsive to political pressure directly or indirectly from the regulated industry. Finally, even if DEP was completely reliable, the regulations still allow an unacceptable level of pollution of both the air and exposed aquifers.

A recent regulatory issue calls into doubt the Department's will to "protect the public health and safety" under present conditions. I refer to Dr. Patricia Reynolds' Warning Letter No. WL95-0359SW01NED written to White Construction Co. and dated September 13, 1995. Department personnel investigated this matter on August 10, 1995, following television news commentary and persistent calls by members of our Association.

We have learned that the illegal dumping has been occurring at least since 1993. The Alachua County government was well aware of the situation, having cited and fined White Construction and/or its sister company several times.

Where was DEP? What has transpired as a result of the very tentatively worded "Warning Letter," which requested a written response within 10 days? To the best of our knowledge, as of October 3, 1995, twenty days after Dr. Reynolds' letter, White Construction has not delivered a written response.

The citizens of the Haile Community in Alachua County have lost respect for the Florida Department of Environmental Protection and its ability to function and protect the environment now or in the future. How could we possibly expect DEP to monitor the Florida Rock cement manufacturing plant proposed for our community, and to enforce permit conditions for a very

complex facility, when the Department is unwilling to act effectively against a clear cut violation such as this long term illegal dumping operation!

Sincerely,

Arthur Saarinen, Jr.
President
Haile Community Association, Inc.

cc: Rep. Bob Casey
Virginia Wetherell
Alachua County Board of County Commissioners
Howard Rhodes
Patricia Reynolds
Rick Smith
Clay Polk
Jana Middleton
Bruce Ritchie
Annie Hall

LAW OFFICES

OERTEL, HOFFMAN, FERNANDEZ & COLE, P.A.

TIMOTHY P. ATKINSON
M. CHRISTOPHER BRYANT
R. L. CALEEN, JR.
C. ANTHONY CLEVELAND
TERRY COLE
SEGUNDO J. FERNANDEZ
KENNETH F. HOFFMAN
KENNETH G. OERTEL
PATRICIA A. RENOVITCH
SCOTT SHIRLEY
THOMAS G. TOMASELLO
W. DAVID WATKINS

2700 BLAIR STONE ROAD, SUITE C
POST OFFICE BOX 6507 (ZIP 32314-6507)
TALLAHASSEE, FLORIDA 32301

(904) 877-0099
FAX (904) 877-0981

JOHN H. MILLICAN
HAROLD QUACKENBUSH
G. DOUG DUTTON
ENVIRONMENTAL CONSULTANTS
(NOT MEMBERS OF THE FLORIDA BAR)

SPECIAL COUNSEL
MERCER FEARINGTON
TALLAHASSEE, FLORIDA

November 1, 1995

Mr. Al Linero
Division of Air Resources Management
111 South Magnolia
Tallahassee, Florida 32301

Re: DEP File PSD-FL-228, AC01-267311

Dear Mr. Linero:

Thank you for meeting with us on October 24, 1995. This letter shall serve as a summary of our meeting, which was a follow-up to our meeting of October 11, 1995. The meeting dealt primarily with matters related to NOx emission limits.

Florida Rock Industries (FRI) was represented by Fred Cohrs (FRI Vice President), Steve Cullen (Koogler & Associates-Air Consultants), and Segundo Fernandez (Oertel, Hoffman, Fernandez & Cole - legal counsel). The Department of Environmental Protection (Department) was represented by Clair Fancy, Al Linero, Teresa Herron, and John Reynolds.

The BACT determination in the draft permit documents which accompanied the Intent to Issue in this matter was set at 2.5 pounds NOx per ton of clinker, on a 24 hour rolling average. This number was derived, in large part, from data obtained on a cement plant in California, which, while using the same process as FRI, relied on western coal and processed somewhat different materials.

During our 10/11/1995 meeting, FRI presented information demonstrating the influence of coal properties on NOx emissions. In the 10/24/1995 meeting FRI presented more quantitative data related to this matter. FRI presented and discussed information which showed that typical coal from the western U.S. has different properties than typical coal from the eastern U.S., specifically heat content and volatility:

- Heat Content: Eastern coal = 12,762 Btu/lb vs. western coal = 11,409 Btu/lb

- Volatility: Eastern coal = 39% volatile vs. western coal = 44% volatile

This information was developed from analyses of 143 coal samples presented in an EPA document, EPA-600/7-77-064, Trace Elements in Coal: Occurrence and Distribution.

It was agreed by FRI and the Department that these coal differences would make direct numerical comparison of NOx emission limits for western plants and eastern plants inappropriate. FRI suggested that the Southdown, Inc. BACT determination of February 1993 (3.14 lb/ton clinker, 30-day average) represented the BACT limit for NOx emissions from Florida cement kilns. This was suggested because the Southdown plant in Brooksville, Florida utilizes raw materials and fuels similar (but not identical) to those planned for use by FRI in Newberry, Florida. Also, the Southdown BACT determination is recent and the cement manufacturing process has not changed since that determination.

FRI stated that BACT for cement kilns is dry process kiln with a preheater and a precalciner and modern combustion technology. No add-on controls for NOx have been suitably demonstrated as applicable to cement kilns. Selective non-catalytic reduction (SNCR) has been demonstrated only in short-term tests and is not considered an available technology for NOx control from cement kilns as defined in BACT regulatory language.

Further discussion and negotiation by FRI and the Department resulted in agreement that the BACT emissions limit for NOx from the FRI kiln will be as follows:

- NOx emissions: 2.8 lb/ton clinker - 30-day rolling average
- FRI agreed that the Department could revise this limit downward, if appropriate documentation (performance tests plus CEM data) shows the actual emission level is significantly and consistently lower.

Compliance with the BACT emission levels will be demonstrated by the prescribed testing over a two-year period following the achievement and maintenance of the permitted production rate. This two-year period will allow for process optimization. Compliance with the NSPS emission levels will be demonstrated by initial compliance testing within 180 days of achieving and maintaining the permitted production rate.

Thank you again for your cooperation in these matters. We will be submitted further comments on the draft permit and related documents under separate cover.

Sincerely,

Segundo J. Fernandez

SJF:nhg

Attachment

cc: Mr. Clair Fancy
Ms. Teresa Herron
Mr. Jeff Braswell
Mr. Fred Cohrs
Mr. Steven Cullen

sjf\2320\linero2.ltr

CC: EPA
NPS
A. Saarinen, HCA
C. Kirts, NED
P. Reynolds, NEDB
M. Sullivan, Alachua Co

LAW OFFICES

OERTEL, HOFFMAN, FERNANDEZ & COLE, P.A.

TIMOTHY P. ATKINSON
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W. DAVID WATKINS

2700 BLAIR STONE ROAD, SUITE C
POST OFFICE BOX 6507 (ZIP 32314-6507)
TALLAHASSEE, FLORIDA 32301

(904) 877-0099
FAX (904) 877-0981

SPECIAL COUNSEL
MERCER FEARINGTON
TALLAHASSEE, FLORIDA

JOHN H. MILLICAN
HAROLD QUACKENBUSH
G. DOUG DUTTON
ENVIRONMENTAL CONSULTANTS
(NOT MEMBERS OF THE FLORIDA BAR)

November 1, 1995

Mr. Al Linero
Division of Air Resources Management
111 South Magnolia
Tallahassee, Florida 32301

Re: DEP File PSD-FL-228, AC01-267311

Dear Mr. Linero:

Thank you for meeting with us on October 24, 1995. This letter shall serve as a summary of our meeting, which was a follow-up to our meeting of October 11, 1995. The meeting dealt primarily with matters related to NOx emission limits.

Florida Rock Industries (FRI) was represented by Fred Cohrs (FRI Vice President), Steve Cullen (Koogler & Associates-Air Consultants), and Segundo Fernandez (Oertel, Hoffman, Fernandez & Cole - legal counsel). The Department of Environmental Protection (Department) was represented by Clair Fancy, Al Linero, Teresa Herron, and John Reynolds.

The BACT determination in the draft permit documents which accompanied the Intent to Issue in this matter was set at 2.5 pounds NOx per ton of clinker, on a 24 hour rolling average. This number was derived, in large part, from data obtained on a cement plant in California, which, while using the same process as FRI, relied on western coal and processed somewhat different materials. True.

During our 10/11/1995 meeting, FRI presented information demonstrating the influence of coal properties on NOx emissions. In the 10/24/1995 meeting FRI presented more quantitative data related to this matter. FRI presented and discussed information which showed that typical coal from the western U.S. has different properties than typical coal from the eastern U.S., specifically heat content and volatility:

- Heat Content: Eastern coal = 12,762 Btu/lb vs. western coal = 11,409 Btu/lb

than in California

• Note: The real issue is that the limestone in Newberry is wetter, and therefore more fuel and NOx emissions per unit of clinker would be expected. The coal differences were not given much weight by DEP. Caleen

- Volatility: Eastern coal = 39% volatile vs. western coal = 44% volatile

This information was developed from analyses of 143 coal samples presented in an EPA document, EPA-600/7-77-064, Trace Elements in Coal: Occurrence and Distribution.

Though plausible, we did not agree. We agreed that limestone moisture was main issue.

It was agreed by FRI and the Department that these coal differences would make direct numerical comparison of NOx emission limits for western plants and eastern plants inappropriate. FRI suggested that the Southdown, Inc. BACT determination of February 1993 (3.14 lb/ton clinker, 30-day average) represented the BACT limit for NOx emissions from Florida cement kilns. This was suggested because the Southdown plant in Brooksville, Florida utilizes raw materials and fuels similar (but not identical) to those planned for use by FRI in Newberry, Florida. Also, the Southdown BACT determination is recent and the cement manufacturing process has not changed since that determination.

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Further discussion and negotiation by FRI and the Department resulted in agreement that the BACT emissions limit for NOx from the FRI kiln will be as follows:

- NOx emissions: 2.8 lb/ton clinker - 30-day rolling average true
- FRI agreed that the Department could revise this limit downward, if true. appropriate documentation (performance tests plus CEM data) shows the actual emission level is significantly and consistently lower.

for NOx!

Compliance with the BACT emission levels will be demonstrated by the prescribed testing over a two-year period following the achievement and maintenance of the permitted production rate. This two-year period will allow for process optimization. Compliance with the NSPS emission levels will be demonstrated by initial compliance testing within 180 days of achieving and maintaining the permitted production rate.

Thank you again for your cooperation in these matters. We will be submitted further comments on the draft permit and related documents under separate cover.

Sincerely,

Segundo J. Fernandez

SJF:nhg

Attachment

cc: Mr. Clair Fancy
Ms. Teresa Herron
Mr. Jeff Braswell
Mr. Fred Cohrs
Mr. Steven Cullen

sjf\2320\linero2.ltr

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 187-94-02

March 11, 1996

Mr. Howard Rhodes
Director
Division of Air Resources Management
101 Magnolia Drive
Tallahassee, FL 32301

Dear Mr. Rhodes:

Certain developments at the hearing on the Florida Rock Industries permit application for a dry process portland cement plant last week in Gainesville, Florida, have left me extremely concerned about the Department's actions with regard to the application, of which I am the Professional Engineer of record.

First, I have relied, and continued to rely, upon the statements of your staff that the application has provided the requested and required reasonable assurance for permit issuance.

Second, if anyone on the Department's staff - particularly legal counsel - felt that staff's representations, as well as my own professional conclusions - did not meet the pre-requisite standard for reasonable assurance, the least courtesy that could have been extended to the application and me would have been adequate and specific notice of the perceived deficiency so that I could have addressed these matters at, or prior to, the hearing. This was not done.

Third, I find it professionally distressing that my P.E. certification is being questioned by a member of the Department's legal staff in a manner that has never, to my knowledge, occurred - either with applications I have submitted or with applications submitted by fellow P.E.s. The applicant's (Florida Rock) and my certification are consistent with every prior permitting matter that I have brought before the Department in the past 30 years.

The issue, as I am sure your staff has briefed you, ultimately concerns the "requirement" that the application provide detailed design specifications for the ESPs which Florida Rock proposed in the permit application. Had the third party Petitioner properly plead this as an issue, which as I have come to understand, they did not, or had the Department properly advised me, even 48 hours before I testified in rebuttal, which it did not, this matter could have been addressed.

I am enclosing the following specific documents, dated May 5, 1995:

1. May 5, 1995, letter from Robert L. Brown of Environmental Elements Corporation to Polysius Corporation

2. Environmental Elements Corporation Electrostatic Precipitator for Polysius Corporation

3. Section 2, Description of Equipment

4. Section 3, Technical Tabulation

5. Section 4, Operation Conditions and Guarantees

6. Section 5, Proposal Prices [Not included -Confidential]

7. Section 6, General Conditions of Sale for Material and Equipment

8. Section 7, Buyer's Specification Exceptions and Clarifications

9. Section 8, Installation List

10. Section 9, Attachments

11. Two sets of drawings from Environmental Elements Corporation

Had we been placed on notice this whole matter could have been addressed even to Department's counsel's satisfaction. Instead, the implication has been made that while an ESP "could be designed", one "had not been designed" or even that FRI did not propose a specific engineering design because it was not technically feasible to do so.

I am sending you these documents to illustrate the absurdity of the position that seems currently being considered, without technical basis whatsoever. Please note that the date of the documents I am sending you is May 5, 1995. These documents have been in the possession of Polysius ever since.

I appreciate your review of the matter and look forward to discussing these matters with you during our meeting on March 19, 1996.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK:wa
Enc.

c: Mr. C. H. Fancy, FDEP
Mr. A. Linero, FDEP
Ms. Teresa Heron, FDEP
Mr. Ken Plante, OGC

KOOGLER & ASSOCIATES

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 187-94-02

October 6, 1995

RECEIVED
OCT 9 1995
Bureau of
Air Regulation

Mr. A. A. Linero, P.E.
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Published Notice of Intent to Issue Permit
Florida Rock Industries, Inc.
DEP File No. AC01-267311, PSD-FL-228

Dear Mr. Linero:

Florida Rock Industries, Inc. has published the Notice of Intent to Issue Permit in the *Gainesville Sun*, as required by the permit referenced above. The legal proof of publication is enclosed.

Please call if you have any questions in this matter. Thank you for your help.

Very truly yours,

KOOGLER & ASSOCIATES

Sharon Bryant

Sharon Bryant

Enc.
c. Mr. Fred Cohrs, Florida Rock Industries, Inc.

CC: T. Heron NED
C. Holladay EPA
P. Reynolds, NEDB NPS
A. Saarinen, HC
M. Costello
J. Braswell, OGC

№ 10430

THE GAINESVILLE SUN
Published Daily and Sunday
GAINESVILLE, FLORIDA

STATE OF FLORIDA
COUNTY OF ALACHUA

Before the undersigned authority personally appeared Naomi Williams-Jordan

who on oath says that he/she is Assistant Classified Mgr. of THE GAINESVILLE SUN, a daily

newspaper published at Gainesville in Alachua County, Florida, that the attached copy of advertisement, being a

Notice of Intent to Issue Permit

in the matter of .....

in the ..... Court, was published in said newspaper in the issue of, .

October 3, 19 95

Affiant further says that the said THE GAINESVILLE SUN is a newspaper published at Gainesville, in said Alachua County, Florida, and that the said newspaper has heretofore been continuously published in said Alachua County, each day, and has been entered as second class mail matter at the post office in Gainesville, in said Alachua County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount for publication in the said newspaper.

Sworn to and subscribed before me this

4 day of Oct A.D., 19 95

Martha A Pattison
(Seal) Notary Public

Naomi Williams-Jordan

MARTHA A. PATTISON
MY COMMISSION EXPIRES
APRIL 8, 1998
#CC 357902
Bonded thru
Troy Fain-Insurance
NOTARY PUBLIC, STATE OF FLORIDA

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NOTICE OF INTENT TO ISSUE PERMIT

AC 01-267311
PSD-FL-228

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Florida Rock Industries, Inc., (FRI), 155 East 21st Street in Jacksonville, Florida, for a 2,300 ton per day cement plant. The plant will be located at the site of FRI's existing quarry, 2.5 miles northeast of Newberry by County Road 235 in Alachua County, Florida. The project includes a single dry process tire and coal-fired 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 electrostatic precipitators (ESP) for particulate emissions from the kiln and cooler; absorption of sulfur compounds and metals into the product; combustion controls for volatile organic compounds (VOC), carbon monoxide (CO), and nitrogen oxides (NOx); and baghouses for particulate emissions from other process emission units.

A Best Available Control Technology (BACT) determination was required for emissions of sulfur dioxide (SO2), nitrogen oxides (NOx), particulate matter (PM), and carbon monoxide (CO) pursuant to 40 CFR 52.21, Prevention of Significant Deterioration (PSD).

Emissions of these pollutants will not exceed the following limits:

Pollutant, Maximum Emissions (Tons Per Year)
PM, 268
SO2, 109
NOx, 916
CO, 1289
VOC, 43
Lead (Pb), 0.26
Mercury, 0.07
Beryllium, 0.0006

An air quality impact analysis was conducted. Emissions from the facility will consume PSD increment but will not cause a violation of any state or federal ambient air quality standards. The maximum percent of allowable PSD Class V increment consumed from this project, along with all other sources in the area, will be as follows:

PSD Class II Increments (ug/m3)
SO2 Three-hour: 148; 24-hour: 45; Annual: 7.
PM 24-hour: 10; Annual: 1.
NO2 Annual: 8.
Allowable Increment (ug/m3)
SO2 Three-hour: 512; 24-hour: 91; Annual: 20.
PM 24-hour: 30; Annual: 17.
NO2 Annual 25.
Percent Increment Consumed
SO2 Three-hour: 29; 24-hour: 49; Annual: 35
PM 24-hour: 33; Annual: 6.
NO2 Annual 32.

The project has an insignificant impact on the Chassahowitzka and Okeefenokee PSD Class I areas; therefore, no increment consumption was determined.

No RCRA hazardous waste or used oil will be burned. Cement Kiln Dust (CKD) collected in the kiln ESP will be returned to the process. Any CKD not returned to the process will be handled in accordance with Subtitle C rules under development by EPA as well as the solid waste provisions of the air permit and a separate required stormwater permit issued by DEP on behalf of the Suwannee Water Management District.

Any person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department 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 facts which petitioner contents warrant reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and; (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

The application 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.

Department of Environmental Protection, Northeast District Office, 7825 Baymeadows Way, Suite B200, Jacksonville, Florida 32256-7577.

Department of Environmental Protection, Northeast District Branch Office, 5700 Southwest 34th Street, Suite 1204, Gainesville, Florida 32608,

Alachua County Environmental Protection Department, 226 South Main Street, Gainesville, Florida 32601-6538.

Any person may send written comments on this proposed action to Administrator, New Source Review at the Department of Environmental Protection, Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in this Department's final determination.

Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.
(10430) 10:03

File Copy

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

January 3, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John D. Baker
President
Florida Rock Industries, Inc.
155 East 21st Street
Jacksonville, Florida 32206

Re: FINAL Permit No. AC01-267311, PSD-FL-288
Portland Cement Plant

Dear Mr. Baker:

Please find the enclosed two tables, Table 1-Allowable Opacity Limitations, and Table II-Allowable Emissions that pertain to the above mentioned FINAL Permit. These tables should be attached to the permit. If you have any questions please call Al Linero or Teresa Heron at (904) 488-1344.

Sincerely,

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

AAL/hh

cc: Mr. Brian Beals, EPA
Mr. John Bunyak, NPS
Mr. Chris Kirts, NED
Ms. Pat Reynolds, NEDB
Mr. Doug Beason, OGC
Ms. Mona Sullivan, Alachua Co.
Mr. John Koogler, P.E., K&A
Mr. Segundo Fernandez, O,H,F&C
Priscilla Harris, Esq. for HC

Is your RETURN ADDRESS completed on the reverse side?

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- 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):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
MR. JOHN BAKER, PRESIDENT
FLORIDA ROCK INDUSTRIES, INC.
155 EAST 21st STREET
JACKSONVILLE, FL 32206

4a. Article Number
P 265 659 124

4b. Service Type
☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
1-6-97

5. Received By: *(Print Name)*

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

6. Signature: *(Addressee or Agent)*
X Mary LaGrone

Thank you for using Return Receipt Service.

PS Form **3811**, December 1994 Domestic Return Receipt

P 265 659 124

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

Sent to MR. JOHN D. BAKER	
Street & Number 155 EAST 21st STREET	
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PS Form **3800**, April 1995

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:
Florida Rock Industries
155 East 21st Street
Jacksonville, FL 32206

Permit Number: AC01-267311
PSD-FL-228
Expiration Date: 12/31/99
County: Alachua
Project: Portland Cement Plant

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-4, 204, 210, 212, 296, and 297. The above named permittee is hereby authorized to construct the emission units described in the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of a Portland cement manufacturing plant to be located approximately 2.5 miles Northeast of Newberry on Alachua County Road in Alachua County, Florida. The latitude and longitude are 29° 24' 21" and 82° 35' 00", respectively.

The emission unit shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Documents and Tables made part of this permit:

1. Table I -Allowable Opacity Limitations
2. Table II-Allowable Emissions
3. BACT Determination
4. Department of Environmental Protection's Final Order dated December 12, 1996

Relevant Documents:

The documents listed below are the basis of the permit. The documents listed below are specifically related to this permitting action. These documents are on file with the Department.

1. Application received on March 17, 1995.
2. Department's letters dated April 3, April 14, June 16, June 19, July 14, August 1, 1995, March 13, and October 3, 1996.
3. Alachua County Department of Growth Management's letter to John Baker dated March 3, 1995.
4. Koogler & Associates' correspondence dated May 16, June 30, July 17, July 25, August 15, and August 24, 1995 and March 11, 1996.
5. U.S. Department of Interior's letter dated June 9, 1995.
6. U.S. EPA's letter dated June 19, 1995.
7. Haile Association's letters dated March 16, April 10, May 11, June 5, 1995 and Fax dated January 16, 1996.
8. Florida Rock Industries' letter dated September 24, 1996.
9. Oertel, Hoffman, Fernandez & Cole, PA's letters of November 1, 1995.
10. Interim Determination dated November 17, 1995.
11. Division of Administrative Hearings' Recommended Order dated July 23,1996
12. Haile Community Association petition for Exception dated August 12, 1996.
13. DEP's Order of Remand dated September 6, 1996.
14. Division of Administrative Hearings' response to Order of Remand dated October 31, 1996.

Table I
Allowable Opacity Limitations

Stack #	Description	Emission Standard	OPACITY
Emission Unit 1: Raw Material			
Process Rate = 1,211,250 TPY Processed			
Fugitive	Material Processing		10
Fugitive	Handling and Storage		10
Fugitive	Crusher		15
Emission Unit 2: Raw Mill System			
Process Rate = 212 TPH Raw Materials			
E-28	ecycle dust + raw meal to homogenization si	0.01 gr/dscf	5
E-29	Recycle dust airlift	0.01 gr/dscf	5
G-07	ecycle dust + raw meal to homogenization si	0.01 gr/dscf	5
H-08	Raw meal + recycle dust to preheater	0.01 gr/dscf	5
Emission Unit 3: Kiln System			
Process Rate = 364 MMBTU/heat input			
E-21	Kiln Operations (ESP)		10
E-21	In-process fuel: coal		10
E-21	In-process fuel: tires		10
	Tires (30 % of total heat input)		
Emission Unit 4: Clinker Handling			
Process Rate = 95.83 TPH Clinker			
L-03	Clinker cooler to silos	0.01 gr/dscf	5
L-06	Clinker into clinker silos	0.01 gr/dscf	5
K-15	Clinker Cooler (ESP)		10
Emission Unit 5: Finish Grinding Operations			
Process Rate = 136 TPH Cement Output			
M-07	Clinker to finish mill	0.01 gr/dscf	5
M-08	Clinker to finish mill	0.01 gr/dscf	5
N-09	Finish mill air separator	0.01 gr/dscf	5
N-12	Finish mill	0.01 gr/dscf	5
N-14	Cement handling in finish mill	0.01 gr/dscf	5
Q-25	Cement storage silos	0.01 gr/dscf	5
Q-26	Cement storage silos	0.01 gr/dscf	5
Q-27	Cement storage silos	0.01 gr/dscf	5
Emission Unit 6: Cement Handling			
Process Rate = 500 TPH Cement Unloading			
Q-14	Cement silo loadout	0.01 gr/dscf	5
Q-17	Cement silo loadout	0.01 gr/dscf	5
Q-21	Cement silo loadout	0.01 gr/dscf	5
R-12	Cement bagging operation	0.01 gr/dscf	5
Emission Unit 7: Coal Handling and Grinding			
Process Rate = 14 TPH Pulverized Coal			
S-17	Coal Mill	0.01 gr/dscf	5
S-21	Pulverized coal storage bin	0.01 gr/dscf	5
Fugitive	Coal Handling & Storage		5 / 20

Table II
Allowable Emissions
Florida Rock Industries

Pollutant	Bact Emission Limit		Emission Rate *		Basis
	lb/ton clinker	lb/ton dry feed	lb/hr	ton/yr	
PM (kiln)	0.31	0.20	30.00	110.50	BACT
PM_{10} (kiln)	0.26	0.17	25.50	93.93	BACT
PM (cooler)	0.16	0.10	14.99	55.70	BACT-NSPS
PM_{10} (cooler)	0.13	0.09	12.71	47.34	BACT
SO_2 (kiln)+	0.28	0.18	28.82	108.55	BACT
NO_x (kiln)**	2.80	1.80	268.30	1018.00	BACT
H_2SO_4 (kiln)	TO BE DETERMINED BY FUTURE STACK TESTS				BACT
CO (kiln)	3.60	2.30	346.38	1288.60	BACT
VOC (kiln)	0.12	0.08	11.55	42.90	BACT
Beryllium	TO BE DETERMINED BY FUTURE STACK TESTS				BACT

Notes:

* The kiln emission rate includes fuel oil combustion emissions from the raw mill air heater.

** During the first two years after startup, the kiln shall not exceed a NO_x limit of 3.8 lb/ton clinker and 2.8 lb/ton clinker thereafter. The Department may revise the limit to less than 2.8 lb/ton clinker (30-day rolling average) based on compliance test and continuous emission monitoring data.

+ The Department may revise the SO_2 limit to less than 0.28 lb/ton clinker based on compliance test and continuous monitoring data.

P.O. Box 702
Green Cove Springs, FL 32043
November 1, 1995

BY FAX TO (904) 921-3000;
AND BY U.S. MAIL

Virginia Wetherell, Secretary
Department of Environmental Protection
C/o Office of General Counsel
The Douglas Building
3900 Commonwealth Blvd.
Tallahassee, FL 32399

BY FAX TO (904) 922-6979;
AND BY U.S. MAIL

Mr. A. A. Linero
Department of Environmental Protection
Bureau of Air Regulation
Mail Station 5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Notice of Intent to Issue Air Construction Permit
DEP Permit File No. AC01-267311; PSD-FL-228

Dear Secretary Wetherell and Mr. Linero:

Please find enclosed a request by Haile Community Association, Inc., for a public hearing regarding the proposed permit to construct a cement plant by Florida Rock Industries, Inc., 2.5 miles northeast of Newberry, Florida.

Sincerely yours,

Priscilla Norwood Harris

Priscilla Norwood Harris, Esq.

Enclosure

In Re:

Notice of Intent to Issue Air Construction Permit
By Florida Department of Environmental Protection
To Applicant Florida Rock Industries, Inc.
DEP Permit File No. AC01-267311; PSD-FL-228

REQUEST FOR PUBLIC HEARING
BY HAILE COMMUNITY ASSOCIATION, INC.

1. Pursuant to Rule 62-210.350, Florida Administrative Code, Haile Community Association, Inc. ("Association") requests a public hearing regarding the proposed permit to construct a cement plant by Florida Rock Industries, Inc., 2.5 miles northeast of Newberry, Florida ("Proposed Facility"), Department of Environmental Protection ("DEP") Permit File No. AC01-267311; PSD-FL-228AC ("Proposed Permit").

2. The Association, through its Board Member and Registered Agent Arthur Saarinen, received notice of DEP's proposed action on October 2, 1995. Notice of the Department's proposed action was published in the *Gainesville Sun* on October 3, 1995.

3. On October 30, 1995, the Association filed a petition for an administrative hearing regarding the Proposed Permit ("Petition").

4. The Association is an interested party in this proceeding.

5. Petitioner is a Florida non-profit corporation. Its primary purposes are set out in Article II of its Articles of Incorporation: (1) "The protection of the environmental health of

the land, air and water in the vicinity of Alachua County, Florida; (2) The protection of property values by safeguarding the compatibility of land uses in the vicinity of Alachua County, Florida; (3) To engage in political and educational activities, administrative proceedings, litigation, and other lawful methods for achieving the purposes stated . . . above."

6. Petitioner's members have substantial interests which will be affected by the issuance of the Proposed Permit. A substantial number of Petitioner's members live, work, recreate, rely on well water, and/or own property in close proximity to the Proposed Facility. Also, there are members who are elderly, who are raising families, and/or who have health problems.

Respectfully submitted,

Dated: November 1, 1995

Priscilla Norwood Harris

Priscilla Norwood Harris
Florida Bar No. 0851574

P.O. Box 702
Green Cove Springs, FL 32043
Telephone: (904) 284-3367

Attorney for Haile Community Association, Inc.

CERTIFICATE OF SERVICE

Though not required by rule or statute, I hereby certify that on November 1, 1995, I mailed by United States mail a copy of the foregoing Request for Public Hearing to the following:

Segundo Fernandez, Esq.
P.O. Box 6507
Tallahassee, FL 32314-6507

DATED: November 1, 1995

Priscilla Norwood Harris
Priscilla Norwood Harris

November 2, 1995

BY FACSIMILE (904) 921-3000 AND BY MAIL

Virginia Wetherell, Secretary
Department of Environmental Protection
C/o Office of General Counsel
The Douglas Building
3900 Commonwealth Blvd.
Tallahassee, FL 32399

BY FACSIMILE (904) 922-6979 AND BY MAIL

Mr. A. A. Linero
Department of Environmental Protection
Bureau of Air Regulation
Maul Station 5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Notice of Intent to Issue Air Construction Permit
DEP Permit File No. AC01-267311; PSD-FL-228

REQUEST FOR PUBLIC HEARING

1. My name and address are Linda Young, 1202 Mitchell Avenue, Tallahassee, Florida, 32303.

2. I request that a public hearing be held on the proposed air construction permit which would allow Florida Rock Industries, Inc., to construct a cement plant in Alachua County, Florida. The Department of Environmental Protection Permit File No. Is AC01-267311 and PSD-FL-228AC.

3. Notice of the Department's proposed action was published in the *Gainesville Sun* on October 3, 1995. I did not receive actual notice of the proposed action until sometime after the date of publication.

4. I am an interested because I recreate in the vicinity of the proposed cement plant on a

regular basis; I was born in Alachua County and plan to move back there eventually; and I am now looking for property to purchase in the general vicinity of the plant.

Respectfully submitted,

Linda L. Young

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 • FAX 377-7158

Project 187-94-02

RECEIVED
JUL 17 1995
Bureau of
Air Regulation

FAX

To: Teresa Heron - Review Engineer

FDEP - DARM - Air New Source Review

Fax #: (904) 922-6979

From: Steve Cullen

Date: 17-JUL-1995 Sent by: SCC

Fax Phone: 904-377-7158 Voice Phone: 904-377-5822

The text being transmitted consists of 1 pages PLUS this one.

REMARKS:

Per your request: Information on fuel/oil storage at Florida Rock's Newberry cement plant site.

MEMORANDUM

DATE: July 17, 1995
TO: Teresa Heron - Review Engineer
FROM: Steve Cullen, Koogler & Associates
SUBJECT: Florida Rock Industries - Newberry Cement Plant
Fuel and Oil Use and Storage

This memorandum shall provide details on fuel and oil storage at the Florida Rock Newberry cement plant.

I. Existing Facilities:

The existing storage facilities provide support for the onsite mining activities. The existing facilities consist of eight (8) tanks in a concrete containment area. The containment area is located northwest of the existing scalehouse. This area is separate from the forty (40) acre cement plant site.

#	CONTENTS	CAPACITY	EST. THROUGHPUT	EMISSIONS
1	Diesel Fuel	12,000 gal.	96,000 gal/yr	6.21 lb/yr VOC
2	Unleaded Gas	1,000 gal.	8,000 gal/yr	638.2 lb/yr VOC
3	Waste Oil	250 gal.	1,000 gal/yr	0.0 lb/yr VOC
4	Bulk Oil	550 gal.	2,352 gal/yr	0.0 lb/yr VOC
5	Bulk Oil	275 gal.	2,352 gal/yr	0.0 lb/yr VOC
6	Bulk Oil	275 gal.	2,352 gal/yr	0.0 lb/yr VOC
7	Bulk Oil	275 gal.	2,352 gal/yr	0.0 lb/yr VOC
8	Bulk Oil	275 gal.	2,352 gal/yr	0.0 lb/yr VOC

permitted?

II. Proposed Facilities:

Upon application

The proposed facilities will store fuel oil for kiln startup. These facilities will be located near the cement kiln. Emissions were calculated based on a single 50,000 gallon tank.

CONTENTS	CAPACITY	EST. THROUGHPUT	EMISSIONS
Diesel Fuel	50,000 gal.	2,538,350 gal/yr	74.47 lb/yr VOC

It is likely that there will be two tanks, each of approximately 12,000 gallons capacity; instead of one 50,000 gallon tank. These tanks will be located near the burners (calciner burner and main burner).

If you have any further questions, please call me.

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

June 30, 1995

Mr. A. A. Linero, P.E.
Administrator
New Source Review Section
FDEP-DARM-BAR

SUBJECT: K&A 187-94-02
Florida Rock Industries, Inc.
Newberry Cement Plant
Permits Nos. AC01-267311 and PSD-FL-228
Response to Request for Additional Information, dated 16-JUN-1995

Dear Mr. Linero:

Enclosed please find the requested information for the referenced project. The format of this response is as follows:

1. All questions have been reproduced, preserving original numbering.
2. Responses follow each question.

If further information is required, please do not hesitate to call me or Steve Cullen (Project Engineer) at (904) 377-5822.

Sincerely,

John B. Koogler, Ph.D., P.E.
Koogler & Associates

copy to: Fred Cohrs, FRI

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
Florida Rock Industries, Inc. - Newberry Cement Plant
Permits Nos. AC01-267311 and PSD-FL-228

TABLE OF CONTENTS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1875 Century Boulevard
Atlanta, Georgia 30345

IN REPLY REFER TO:

JUN 09 1995

Mr. Clair H. Fancy
Chief, Bureau of Air Regulation
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

Dear Mr. Fancy:

We have reviewed the Prevention of Significant Deterioration Application for the new cement plant proposed by Florida Rock Industries, Incorporated. Enclosed are the technical review comments from our Air Quality Branch.

Thank you for giving us the opportunity to comment on this permit application. We appreciate your cooperation in notifying us of proposed projects with the potential to impact the air quality and related resources of our Class I air quality areas. If you have questions, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at telephone number 303/969-2617.

Sincerely yours,

Judy Jones

Noreen K. Clough
Regional Director

Enclosure

cc: Teresa Heron, BAR
Dave Holladay, BAR
Pat Reynolds, NED Branch
A. Saarinen
NED
EPA
NPS

Technical Review of Prevention of Significant Deterioration
Permit Application for Florida Rock Industries, Inc.'s
Proposed Cement Plant, Alachua County, Florida

by

Air Quality Branch, Fish and Wildlife Service - Denver

Florida Rock Industries, Incorporated (FRI), is proposing to build a new Portland cement plant at their existing quarry in Alachua County, Newberry, Florida. The new plant would be located 95 km north of Chassahowitzka Wilderness Area (WA) and 103 km south of Okefenokee WA, Class I air quality areas administered by the U.S. Fish and Wildlife Service (FWS). The new plant would emit significant amounts of particulate matter, PM-10, sulfur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOC), carbon monoxide, beryllium (Be), and hydrogen chloride (HCl).

Air Quality Modeling Analysis

The applicant used the EPA MESOPUFF II model to assess the impacts to Chassahowitzka and Okefenokee WAs from SO_2, NO_2, and PM-10. The modeling was performed for only one year (1986); our office was not consulted on this protocol. The applicant has subsequently stated that because of the effort required to run MESOPUFF II, the applicant felt that 1 year was acceptable rather than the 5 years recommended in the EPA document Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 1 Report: Interim Recommendation for Modeling Long Range Transport and Impacts on Regional Visibility (EPA-454/R-93-015, April 1993). For this one year, the applicant's impact was below the FWS Class I significant levels. In addition, this modeled impact is most likely conservative because the applicant did not employ the chemistry option in the model. Therefore, we will accept this analysis as indicating that impacts during the other four years are probably below the FWS Class I significant levels.

However, please note that future sources that contribute significantly to Class I increment consumption should consult with our office on modeling protocol. These sources may be required to model multiple years.

Best Available Control Technology (BACT)

Our office submitted comments regarding the BACT analysis on April 17. The BACT analysis now appears to be complete.

Air Quality Related Values (AQRV) Analysis

The applicant notes that no adverse impacts to AQRVs are expected as a result of this project because the source is 100 km from either Class I area and predicted concentrations of PM-10, SO_2, and NO_2 at the Class I areas are less than the FWS significant impact levels.

These reasons are insufficient to predict no adverse impact to Class I AQRVs. First, distance from the Class I area is not to be used as a criterion for determining whether adverse impacts may occur. Such impacts may occur from sources beyond 100 km. Second, FWS significant impact levels are to be used only to assess a source's contribution to Class I increment consumption. The FWS significant impact levels are not to be used to assess impacts to AQRVs. In addition, we are concerned not only with an individual source's impacts to AQRVs, but cumulative impacts to AQRVs, i.e., the total pollutant concentration that the AQRVs will experience. An AQRV analysis should consider all pollutant sources in the area that may affect the Class I area. We ask that future PSD applicants consult with our office regarding the need for a cumulative AQRV analysis.

The applicant did not perform a regional haze analysis for either Class I area. The procedures for the regional haze analysis are found in Appendix B of the IWAQM document. The applicant should contact our office for updates on these procedures. A measured background visual range of 65 km should be used. In addition, the analysis should use the 24-hour concentrations of SO_2 and PM-10 stack emissions at the respective Class I areas.

If you have any questions, please call Ellen Porter of our Air Quality Branch, at (303) 969-2617.

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

May 16, 1995

Mr. A. A. Linero, P.E.
Administrator
New Source Review Section
FDEP-DARM-BAR

SUBJECT: K&A 187-94-02
Florida Rock Industries, Inc.
Newberry Cement Plant
Permits Nos. AC01-267311 and PSD-FL-228
Response to Request for Additional Information, dated 14-APR-1995

Dear Mr. Linero:

Enclosed please find the requested information for the referenced project. The format of this response is as follows:

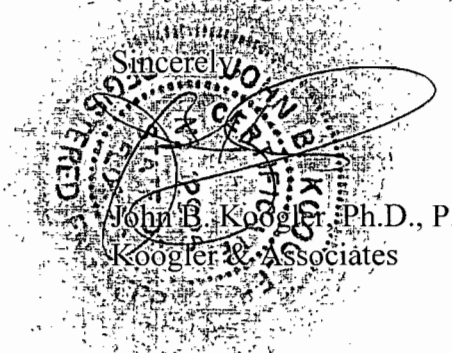
1. All questions have been reproduced, preserving original numbering.
2. Responses follow each question.
3. Tables and Attachments are numbered with respect to their corresponding questions; i.e. Table 9-1 is in support of the response to question 9.

Please be aware that the heights of two stacks have changed:

K15, Clinker Cooler ESP: increased from 35 meters to 60 meters
S17, Coal Mill Baghouse: increased from 15 meters to 50 meters

If further information is required, please do not hesitate to call me or Steve Cullen (Project Engineer) at (904) 377-5822.

Sincerely,



John B. Koogler, Ph.D., P.E.
Koogler & Associates

copy to: Fred Cohrs, FRI
ENCLOSURE: (3) 3.5" computer diskettes

NED Teresa
EPA Clare
NPS A. Saarinen
P. Reynolds

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
Florida Rock Industries, Inc. - Newberry Cement Plant
Permits Nos. AC01-267311 and PSD-FL-228

TABLE OF CONTENTS

EMISSION DATA

1. Supply detailed calculations of emissions of criteria and noncriteria pollutants from the burning of the different proposed fuels at this facility. These should be in the same detail as already provided for particulate emissions. Include calculations for each combustion emission unit.

RESPONSE: There are two emissions units (EU 2 &3) that involve combustion of fuels. The air heater detailed in Emission Unit 2 (Raw Mill System) will burn only No. 2 fuel oil. The emissions calculations for the air heater burning No. 2 fuel oil were submitted with the application. The burners associated with Emission Unit 3 (Kiln System) will burn coal, or coal with tires. The burning of tires will be limited to 30% of the kiln's total heat input. The emissions calculations for the kiln burning only coal were submitted with the application.

The emissions from burning coal and tires are assumed to be equal or less than the emissions from burning only coal. Detailed emissions estimates for the combustion of whole tires in cement kilns is not available. However, various references have shown that the emissions of criteria and noncriteria pollutants from cement kilns burning tires or tire-derived fuel (TDF) are not significantly different from emissions from kilns burning only their primary fuel. Portions of these references are presented below.

Reference 1: *Burning Tires for Fuel and Tire Pyrolysis: Air Implications*
USEPA, Document EPA-450/3-91-024, December 1991.

> (Page 4-36) 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.

Reference 2: *Scrap Tire Use/Disposal Study*
A.T. Kearney, Scrap Tire Management Council, September 1990.

> (Page 2) Either whole tires or tire-derived fuel (TDF) can be used as supplemental fuel in cement kilns, depending on kiln size and technology. The technology is proven...Based on testing results, burning scrap tires or TDF in kilns does not adversely affect environmental performance or product quality.

Reference 3: *Air Emissions Associated With The Combustion of Scrap Tires*
Malcolm Pirnie, Inc., May 1991.

> (Page 4-4) Advantages to combusting waste tires as supplemental fuel in cement kilns are as follows:
>
> 1. Nitrogen and sulfur emissions and ash quantities are lower than typical coal values;

2. The steel content provides supplemental iron for the cement; and

3. The ash is incorporated into the product (cement) and thus, is totally consumed.

(Page 6-1) According to Kearney (1990), combustion of scrap tires in cement kilns reduces NOx by approximately 10 percent. In general, the nitrogen (N) content is much lower than in coal (TDF = 0.24 percent N versus coal = 1.76 percent N). SO2 and CO emissions on the average do not show significant changes.

2. Per the 1990 Clean Air Act Amendment (CAAA), EPA is to issue a Maximum Achievable Control Technology (MACT) standard by November 15, 1997, applicable to cement plants. Per Title III (Air Toxics) of the CAAA's 189 Hazardous Air Pollutants (HAPS) are now regulated air pollutants. Please provide the emission rates and ambient maximum 8 hour, 24 hour and average annual concentrations for HAPs emitted from cement manufacturing.

RESPONSE: The emissions of HAPs from cement manufacturing were evaluated using AP-42, Fifth Edition, Table 11.6-9, *Summary of Noncriteria Pollutant Emission Factors for Portland Cement Kilns.* This evaluation identified four (4) HAPs which will be potentially emitted in reportable quantities: Beryllium, lead, hydrogen chloride, and benzene. The potential emissions of these HAPs were described in the application and PSD report. The emission rates and ambient maximum 1 hour, 8 hour, 24 hour and average annual concentrations for these HAPs are:

HAPs	Emission Rate		Ambient Concentration, $\upsilon g/m^3$			
	lb/hr	tpy	1-Hour	8-Hour	24-Hour	Annual
Beryllium, H021	0.0001	0.0002	9.48E-05	6.64E-05	3.79E-05	7.58E-06
Lead, H110	0.07	0.3	2.84E-02	0.019908	0.011376	0.002275
Hydrogen Chloride, H106	4.7	17.5	1.871	1.3097	0.7484	0.14968
Benzene, H017	0.3	1.1	0.1195	0.08365	0.0478	0.00956

3. On February 7, 1995, EPA issued a regulatory determination on Cement Kiln Dust (CKD) which was required by RCRA Subtitle C. Accordingly, EPA will develop CKD regulations. Although the present status of CKD will be maintained until such rules are written, we encourage the applicant to develop a multipathway health risk assessment to address the potential for indirect health and environmental effects from the kiln's emissions. EPA's Region VII Office (Kansas City, KA) is developing a generic workplan for cement kilns burning hazardous waste in their region. The workplan uses a tiering approach to expedite the process. It is suggested that the applicant review the draft document (a copy is available from this office, if requested) developed by the EPA Region VII Office as a possible mechanism for developing a less time and resource intensive protocol for completing a risk assessment.

RESPONSE: The cement plant will not generate cement kiln dust (CKD) as a waste product. All generated and captured dust will be returned to the production process to supplement the raw materials. Therefore, the tailored RCRA standards will likely not apply to this plant. As the risk assessment is specifically a tool for RCRA activities, it is not appropriate for this plant at this time.

The referenced workplan was obtained from the FDEP and reviewed for applicability. The workplan presents a second-tier multipathway risk assessment for cement plants burning hazardous waste. The cement plant did not include the combustion of hazardous wastes as an operating scenario in the Application to Construct, therefore the use of the referenced workplan is not appropriate for this plant at this time.

4. What additional assurance can you provide the Department that the emissions of the various pollutants emitted at this facility are not a threat to human health and welfare (such as by the fuels burned, etc.).

RESPONSE: Ambient air impact modeling was performed for all pollutants potentially emitted in reportable quantities. Ambient air quality standards are designed to protect human health and welfare from emissions of criteria pollutants. The Federal Boiler and Industrial Furnace (BIF) rules and the State Air Toxics Working Policy are designed to protect human health and welfare from emissions of noncriteria pollutants. The BIF rules establish Reference Air Concentrations (RAC, for non-carcinogens) and Risk Specific Doses (RSD, for carcinogens); and the State Air Toxics Working Policy establishes No Threat Levels for air toxics. The potential facility emissions are evaluated with respect to these various concentrations in the following table. All concentrations are described in $\mu g/m^3$. The table shows that all emissions result in ambient air concentrations that are below applicable standards.

TABLE 4-1
Modeled Ambient Air Concentrations
Reportable Pollutants

Florida Rock Industries, Inc.
Newberry Cement Plant
Alachua County, Florida

	AVG	FACILITY	NAAQS1	NAAQS2	FAAQS	BIF	NTL
	PERIOD	IMPACT					
PM10	24 hr	**29.09**	---	---	150	---	---
	Annual	**4.98**	---	---	50	---	---
SO2	3 hr	**196.75**	---	1300	1300	---	---
	24 hr	**57.06**	365	---	260	---	12.48
	Annual	**7.11**	80	---	60	---	---
NOx	Annual	**7.76**	100	---	100	---	---
CO	1 hr	**141.7**	---	---	40,000	---	---
	8 hr	**99.19**	---	---	10,000	---	---
Lead	8 hr	**0.019908**	---	---	---	---	0.5
	24 hr	**0.011376**	---	---	---	---	0.12
	Quarter	**0.011376**	---	---	1.5	---	---
	Annual	**0.002275**	---	---	---	0.09	9.00E-02
Beryllium	8 hr	**6.64E-05**	---	---	---	---	0.02
	24 hr	**3.79E-05**	---	---	---	---	0.0048
	Annual	**7.58E-06**	---	---	---	4.20E-03	4.20E-04
HCl	8 hr	**1.3097**	---	---	---	---	75
	24 hr	**0.7484**	---	---	---	---	18
	Annual	**0.14968**	---	---	---	7	7
Benzene	8 hr	**0.08365**	---	---	---	---	30
	24 hr	**0.0478**	---	---	---	---	7.2

NOTES:

1. All concentrations are described in $\upsilon g/m^3$
2. NAAQS1 = Primary National Ambient Air Quality Standards
3. NAAQS2 = Secondary National Ambient Air Quality Standards
4. FAAQS = Florida Ambient Air Quality Standards
5. BIF = Boiler and Industrial Furnace Rule
6. NTL = No Threat Level, FDEP air toxics policy

PROCESS EVALUATION

5. Emission Unit 1 (Raw Materials Handling and Storage). Is a baghouse or other air pollution control device used to control PM emissions from any storage building or process equipment?

RESPONSE: No baghouses or other air pollution control devices are associated with Emissions Unit 1 (Raw Materials Handling and Storage). The raw materials are processed with average surface moisture of 8-12%. Negligible emissions are assumed from the handling of wet materials (moisture > 1.5%, per AP-42). Material stockpiles at the plant are covered to limit particulate matter generated by wind erosion.

6. Submit design specifications of each baghouse that will be used. How was the flow (dscfm) calculated for each baghouse. Show any estimates used in these calculations.

RESPONSE: Baghouse design specifications are shown in Appendix A. Flow in dscfm is calculated from acfm, temperature of exhaust gas, and moisture content of exhaust gas. Flow in acfm and air-to-cloth ratio are design specifications, while temperature and moisture content are estimates based on process knowledge. The assumed baghouse exhaust gas loadings of 0.02 grains/dscf are also design specifications. The calculations to convert acfm to dscfm are cell formulas in Table 6-1. An example calculation is:

Given: Baghouse E-28, 15000 acfm, 2-3% moisture, 350° F

Determine: Flow in dscfm

Calculations: Flow in acfm must be adjusted for moisture content in excess of 0%, and temperature different than the standard temperature of 68° F. Temperatures must be converted to an absolute temperature scale (Kelvin or Rankine).

Equations: Moisture: acfm X [(100 - minimum moisture %)/100]

15000 acfm X [(100 - 2)/100] = 14700 dcfm = Q_D

Temperature: $^{o}F + 460 = {}^{o}R$

Standard Temperature = 68° F + 460 = 528° R

Exhaust Temperature = 350° F + 460 = 810° R

Dry Standard Flow: $Q_{DS} = Q_D \text{ X } (T_S/T_A)$ where:

Q_{DS} = Dry standard flow, dscfm

Q_D = Dry actual flow, dcfm

T_S = Standard temperature, °R

T_A = Actual temperature, °R

Q_{DS} = 14700 dcfm X (528°/810° R) = 9582 dscfm

7. Describe procedures for startup and shutdown of the process equipment to insure minimization of excess emissions.

RESPONSE: Dust collectors will be started-up and shut-down in the sequence suitable for the specific process application. The dust collectors will be in operation prior to the

commencement of material and gas flow, and will continue to run for some period of time after the material and gas flow has ceased.

8. Provide a plan to establish good combustion practice to minimize NOx, CO, and VOC emissions from the kiln. Ultimately, such a plan should be reflected in the plant operating procedures.

RESPONSE: Appendix B contains a drawing showing monitoring and control instrumentation. This instrumentation is used to monitor process parameters and maintain good combustion practice. Attachment 8-1 also contains elements of a plant operating plan. Adherence to this plan will minimize plant emissions.

9. Submit an analysis of specifications and quantities of the different fuel combinations to be burned at each combustion source at this facility. Discuss any blending of fuel types.

RESPONSE: A typical analysis for coal is attached in Appendix C. Typical analyses for No. 2 fuel oil are attached as Tables 9-2 and 9-3. A typical analysis for tires is attached as Table 9-4. The proposed quantities to be combusted of each type of fuel at each combustion source follow:

Combustion Source	Fuel	Annual Usage
Raw Mill Air Heater	#2 Fuel oil	2,485,106 Gallons
Kiln: Main Burner (Discharge End)	Coal	49,056 Tons (40% of total heat input)
Kiln: Main Burner (Discharge End)	#2 Fuel oil	125,000 Gallons (Kiln startup only)
Kiln: Calciner Burner (Preheater End)	Coal	73,584 Tons (60% of total heat input)
Kiln: Calciner Burner (Preheater End)	Tires (to replace coal)	36,792 Tons (30% of total heat input)

No blending of fuel types is proposed, except for the partial replacement of coal with tires at the calciner burner; and the use of No. 2 fuel oil in the main burner to allow for kiln preheating during startup. The use of No. 2 fuel oil in the main burner is necessary at startup to create favorable conditions for the combustion of coal.

10. Discuss how captured dust from the ESP will be removed from the system and disposed. What precautions will be used to minimize unconfined emissions while handling the dust?

RESPONSE: The dust captured in the kiln ESP will be returned to the process. There will be no disposal of captured dust. The process equipment utilized to transport the captured dust from the ESP back into the process is all enclosed and vented to baghouses. No unconfined emissions are expected from dust handling and transport activities. The dust handling systems for the ESP is described as follows:

Kiln/Raw Mill ESP: Dust is gravity-fed to a pneumatic screw pump through a conveying pipe. This operation is enclosed and vented to a baghouse. The dust is then pumped either into the homogenizing silo or into the kiln feed airlift. All of these activities are enclosed and vented to baghouses.

11. What reasonable precautions will be used to minimize unconfined particulate matter emissions from the plant (quarries, haul roads, CKD handling equipment, dust disposal piles, manufacturing area, etc.).

RESPONSE: The quarrying activities and material storage piles will involve moist or wet raw materials with negligible UPM emissions. Haul roads will be sprinkled by a water truck if this is deemed necessary. All CKD handling equipment is enclosed and vented to baghouses, resulting in negligible UPM emissions. There are no dust disposal piles planned for this facility. The manufacturing area will be paved, and all process equipment will process wet materials (moisture > 1.5%) or be vented to a particulate control device (baghouse or ESP).

BACT EVALUATION

12. Explain the NOx controls proposed for each combustion source. Provide drawings and design details (text) for any low NOx burners, staged combustion or other methods used to lower free O_2 available for NOx formation.

RESPONSE: NOx emissions will be limited through three approaches: Process design, indirect firing system, and staged combustion. These approaches are discussed further below.

PROCESS DESIGN: Preheater and precalciner kilns have lower NOx emission rates than long dry kilns and wet process kilns, due to higher fuel efficiency and lower firing rates in the kiln firing zone (discharge end burner). Secondary combustion of fuel is inherent in precalciner kilns, and combustion characteristics in the kiln firing zone and precalciner firing zones differ substantially. The very high temperature and fuel-lean conditions in the kiln firing zone contribute to higher NOx formation rates than in the precalciner firing zone, which has moderate flame temperature and fuel-rich conditions. In the Florida Rock kiln, approximately 40% of the fuel will be burned in the kiln, and 60% will be burned in the precalciner.

INDIRECT FIRING SYSTEM: An indirect fired system has separate coal pulverizing and firing circuits. This system is often used where there is a single pulverizer unit with multiple firing points (precalciner kilns), or high moistures in the coal to be ground. A process flow diagram of the indirect pulverizer/dryer system with multiple firing points was submitted with the Application to Construct (Appendix B, Process Flow Diagram #14 of 14).The significant features of this system are:

A. All or most of the pulverizer discharge gases are vented to the atmosphere.
B. Pulverized coal is stored in bins for a short period of time before it is delivered to the firing points.
C. Short interruptions in pulverizer operation will not affect kiln operation.
D. This type of system has the lowest overall heat consumption.
E. Since pulverizing and drying gases are separated from coal firing, inert (low oxygen) clinker cooler exhaust gases can be used as pulverizer drying gases.
F. A low volume of air is used to transport the pulverized coal to the firing points, allowing maximum use of high temperature secondary air from the clinker cooler.
G. Primary air supplied to the kiln burner (discharge end) can be optimized with an indirect system (10%-12% primary air), even with high moisture content in the coal. For coals with moisture contents above 12%-15%, indirect coal pulverizing/drying is the best solution for thermal efficiency.

The thermal efficiencies of the indirect firing system result from the utilization of otherwise waste heat from the clinker cooler exhaust gases. This negates the need for an additional hot air source for coal drying, and eliminates any NOx emissions from the combustion of additional fuel. Additionally, an indirect firing system increase overall

energy efficiency by allowing a greater proportion of clinker cooler exhaust air as secondary combustion air.

STAGED COMBUSTION: Staging of combustion air allows combustion of fuel to proceed in two distinct zones. The staged combustion is typically achieved by using only a part of the combustion air (primary air) for fuel injection in the flame zone with remaining secondary air being injected in a subsequent cooler zone.

In the first zone, the initial combustion is conducted in a primary, fuel-rich zone. This zone provides the high temperatures necessary for completion of the clinkering reactions. NOx formation in this zone is minimized by limiting excess oxygen available for combustion. The air used for conveying the pulverized coal from the coal mill is called primary air. The indirect firing system as described above can effectively limit the amount of primary air at each burner. A cement kiln using 10 to 12 percent of primary air is described as an indirect fired kiln.

The second combustion zone is characterized by lower temperatures and fuel-lean conditions as a result of excess available oxygen from secondary air. The temperature in this second zone is much lower than the first zone because of mixing with the cooler secondary air. The formation of NOx is thus minimized in spite of the excess available oxygen in the second zone.

The secondary air for both burners is ducted from the clinker cooler which maximizes the overall thermal efficiency of the process. The secondary air for the precalciner burner is ducted via the tertiary air duct.

13. Explore the option of utilizing a baghouse and discuss the benefits/problems of this approach compared to the ESP. Include a discussion of SO_2 control and HAPs and any effects on startup emissions of particulate matter and visible emissions. What is the actual SO_2 removal of the system?

RESPONSE:

BAGHOUSE VERSUS ESP: Either control device is capable of particulate removal efficiencies in excess of 99.9%; and are considered as equivalent technologies for this reason. The ESP was chosen for these applications (kiln and cooler) because it has a lower pressure drop than a baghouse. The lower pressure drop allows the use of lower horsepower fans resulting in lower fan-related power consumption. Further, industry experience has shown that an ESP is easier to maintain than a baghouse.

SO2 Control:
A substantial quantity of data was reviewed by Midwest Research Institute for the preparation of Section 11.6, *Portland Cement* Manufacturing, AP-42 Fifth Edition; and the associated documentation. The documentation contains an analysis of the uncertainty

in kiln emission factors, and states "...there is a slight pattern of lower SO2 emission factors with fabric filters than with ESP's or no controls but the difference may not be significant...".

It is assumed that significant reduction in SO2 mass will take place in the kiln and preheater environments; with additional reduction in the raw mill. Absorption of SO2 into collected particulate matter may take place in the ESP, as the gas stream passes between the collection plates; while in a baghouse this absorption would occur as the gas stream passes through the filter cake.

The projected SO2 removal efficiency of the total system is calculated from the total SO2 available for liberation, as compared to the proposed allowable emission limit. Sulfur dioxide is liberated by the combustion of coal and from sulfur compounds in the raw meal; and from the combustion of No. 2 fuel oil in the raw mill air heater.

Coal: 1.0% sulfur by weight, 14 tph combusted = 28,000 lbs/hr
Sulfur to sulfur dioxide ratio = 1:2 (2 lbs. SO2 per 1 lb. S)

SO2 from coal combustion =
28,000 lbs. coal/hr X 0.01 lb. S/lb. coal X 2 lbs. SO2/1 lb. S = 560 lbs/hr

Raw Meal:
Sulfite (SO3) from raw meal (as tested) = 0.08% by weight
Raw meal is processed at the rate of 150 tph = 300,000 lbs/hr
Sulfite to sulfur dioxide ratio = 5:4 (4 lbs. SO2 per 5 lbs. SO3)

SO2 from raw meal =
300,000 lbs/hr X 0.0008 lbs. SO3/lb X 4 lbs. SO2/5 lbs. SO3 = 192 lbs/hr

Raw Mill Air Heater:
0.05% Sulfur in No. 2 fuel oil, 280 gallons/hour burned
AP-42 factor = 142(%S)/1000 gallons burned = 7.1 lb. SO2/1000 gallons burned

SO2 from raw mill air heater =
280 gallons/hour X 7.1 lb. SO2/1000 gallons burned = 1.99 lbs/hr

Total SO2 from coal, raw meal, and air heater = 560 + 192 + 1.99 = **754 lbs/hr**
Proposed SO2 emission limit = 51.75 lb/hr (kiln) + 1.99 lb/hr (air heater) = **53.74 lbs/hr**

Estimated SO2 removal from total system:
100 % - [(53.74 lbs/hr emitted/754 lbs/hr liberated) X 100%] = **92.9%**
HAP Control:

The emissions of HAPs from cement manufacturing were evaluated using AP-42, Fifth Edition, Table 11.6-9, *Summary of Noncriteria Pollutant Emission Factors for Portland*

Cement Kilns. This evaluation identified four (4) HAPs which will be potentially emitted in reportable quantities: Beryllium, lead, hydrogen chloride, and benzene. The potential emissions of these HAPs were described in the application and PSD report. The table lists emission factors based on type of control: ESP's and fabric filters. The factors for the four applicable pollutants are compared as follows:

Beryllium: Factor is only provided for fabric filters. ESP control of beryllium is assumed as equivalent.

Lead: ESP = 7.1×10^{-4} lb/ton clinker
Fabric filter = 7.5×10^{-5} lb/ton clinker

Hydrogen Chloride: ESP = 0.025 lb/ton clinker
Fabric filter = 0.073 lb/ton clinker

Benzene: ESP = 0.0016 lb/ton clinker
Fabric filter = 0.008 lb/ton clinker

This analysis shows that emissions of hydrogen chloride and benzene may be lower with the ESP, while lead emissions may be higher.

STARTUP EMISSIONS/VISIBLE EMISSIONS: Under ideal operating conditions, the ESP is more likely to exhibit visible emissions at startup as the temperature and O_2 characteristics of the exhaust gas reach steady-state operating parameters; whereas the baghouse can filter the gas regardless of temperature and O_2 characteristics. However, industry experience shows that baghouses require extensive maintenance and bag failure is not uncommon.

14. Discuss feasibility of using cleaner fuels, such as natural gas or No. 2 fuel oil at 0.05% sulfur, to minimize SO_2 and NOx emissions. For reference permitted NOx emissions are 3.14 lbs/ton of clinker at Florida Mining and Materials (2/93) and permitted SO_2 emissions are 0.31 lb/ton of clinker at Ash Grove Cement (6/90). Investigate any emerging technology for the control of NOx.

RESPONSE:

Cleaner Fuels: "Types of fuels used vary across the industry. Historically, some combination of coal, oil, and natural gas was used, but over the last 15 years, most plants switched to coal, which generates less NOx than does oil or gas...The sulfur content of both raw materials and fuels varies from plant to plant and with geographic location. However, the alkaline nature of the cement provides for direct absorption of SO2 into the product, thereby mitigating the quantity of SO2 emissions in the exhaust stream." (*Emission Factor Documentation for AP-42 Section 11.6: Portland Cement Manufacturing*, USEPA 68-D2-0159, May 1994.)

The use of other fuels, such as natural gas or No. 2 fuel oil, is economically infeasible and would provide questionable environmental benefits. Natural gas is currently unavailable in the Newberry area, and its unit cost (where available) is approximately one and one-half times (1.5X) the unit cost of coal. Similarly, the unit cost of No. 2 fuel oil is approximately twice (2.0X) the unit cost of coal.

Referenced Emission Limits: It is inappropriate to compare the proposed SO2 emission rate (0.54 lb/ton clinker) to the Ash Grove emission level (0.31 lb/ton clinker) as the proposed emission level represents a maximum emission level while the Ash Grove emission level represents an average emission level.

It is inappropriate to compare the proposed NOx emission rate (4.6 lb/ton clinker) to the Florida Mining & Materials emission level (3.14 lb/ton clinker) as the proposed emission level represents a maximum emission level while the Florida Mining & Materials emission level represents an average emission level.

Emerging technologies for NOx control are discussed in the expanded BACT analysis (Attachment 15-1).

15. The BACT analysis must be expanded. BACT is done on a case-by-case basis and, at a minimum should include a technical, economic, and environmental analysis of any applicable control technology. Please refer to EPA's New Source Review Workshop Manual.

RESPONSE: See attached BACT analysis for NOx in Appendix D.

AIR QUALITY ANALYSIS

16. Although some preliminary air quality modeling results have been provided to the Department within the period of review of this letter, these results have shown that more extensive modeling is necessary to complete the required PSD air quality analysis. Therefore, further air quality analysis review can not be performed without the submittal of this more extensive modeling. Please provide a copy of all modeling input and output in both diskette and paper formats.

RESPONSE: See attached Air Quality Analysis in Appendix E.

APPLICATION FORM

17. Complete applicable questions on pages 104-106-108-112-113-115 of application form DER Form No. 62-210.900(1). There are also a few other blank fields throughout the application that need to be completed.

RESPONSE: Please see attached updated pages 104-106-108-112-113-115 of application form DER Form No. 62-210.900(1). These pages are in Appendix F.

GENERAL

18. Will the proposed project comply with all of the Alachua County air pollution control regulations?

RESPONSE: The Alachua County Office of Environmental Protection [(904) 955-2442] was contacted on April 20, 1995. Staff said that no air pollution control regulations have been issued by the Alachua County Office of Environmental Protection.

19. Please be advised that we are still awaiting comments from EPA and the National Park Service. As soon as we have received these comments, we will forward them to you.

RESPONSE: No response required.

SOLID WASTE REVIEW

20. Please locate and label on the drawings the areas to be used for storage of solid waste. These areas include, but are not necessarily limited to, the used tire, fly ash, sandblast grit, gypsum, and coal ash storage areas. Please provide information to ensure that the storage areas are not in violation of the prohibitions given in Florida Administrative Code (F.A.C.) Rule 62-701.300.

RESPONSE: The storage areas for coal ash and gypsum are labeled on Figure 2-3 (facility plot plan) as submitted with the Application to Construct. Used tires will be located near the rotary kiln as labeled in Figure 2-3. Sandblast grit, if used, will be stored in the area labeled sand. Any fly ash will be coal ash. The prohibitions given in Rule 62-701.300 (FAC) are addressed as follows:

(1)(b). No person shall store or dispose of solid waste in a manner or location that causes air quality standards to be violated or water quality standards or criteria of receiving waters to be violated.

RESPONSE: The handling of materials at this facility will not cause or contribute to the violation of any air or water quality standards.

(2)(a). No solid waste shall be stored or disposed of by being placed in an area where geological formations or other subsurface features will not provide support for the solid waste.

RESPONSE: All materials for use in cement production will be stored under cover on compacted clay to prevent the generation of runoff or leachate.

(2)(b). No solid waste shall be stored or disposed of by being placed in any area where the absence of geological formations or subsurface features would allow for the unimpeded discharge of waste or leachate to ground or surface water.

RESPONSE: All materials for use in cement production will be stored under cover on compacted clay to prevent the generation of runoff or leachate.

(2)(c). No solid waste shall be stored or disposed of by being placed within 500 feet of an existing or approved potable water well.

RESPONSE: A 500 foot minimum separation will be maintained between the material storage areas and any potable water well.

(2)(d). No solid waste shall be stored or disposed of by being placed in a dewatered pit.

RESPONSE: No materials will be stored or disposed of by being placed in any dewatered pits.

(2)(e). No solid waste shall be stored or disposed of by being placed in an area subject to frequent and periodic flooding unless flood protection measures are in place.

RESPONSE: The area where the cement plant will be located is not subject to frequent and periodic flooding.

(2)(f). No solid waste shall be stored or disposed of by being placed in any natural or artificial body of water including ground water.

RESPONSE: All materials for use in cement production will be stored under cover on compacted clay above the seasonal high water table.

(2)(g). No solid waste shall be stored or disposed of by being placed within 200 feet of any natural or artificial body of water, including wetlands within the jurisdiction of the Department, except bodies of water contained completely within the boundaries of the disposal site, which do not discharge from the site to surface waters.

RESPONSE: All bodies of water at the site (stormwater retention/detention ponds and mining pits) are contained completely within the boundaries of the site and do not discharge from the site to surface waters.

(2)(h). No solid waste shall be stored or disposed of by being placed on the right of way of any public highway, road, or alley.

RESPONSE: No material storage is located on the right of way of any public highway, road, or alley.

(2)(i). No solid waste shall be stored or disposed of by being placed within 1000 feet of an existing or approved potable water well serving a community water system as defined in Rule 62-550.200(9), FAC.

RESPONSE: No existing or approved potable water well serving a community water system exists within 1000 feet of any material storage area.

21. Please provide additional information concerning the handling of waste tires at the site. According to page 3 of the report portion of the application, the tires will be whole tires stored for use in burning only.

RESPONSE: Tires will be received in closed vans and unloaded in the tire feeding hopper. There will be a minimum inventory of tires on the ground in the immediate vicinity of the tire feed hopper, if any.

The tires on-hand will be limited to an amount which will result in inventory turnover within one week to protect against tire fires and mosquitoes.

22. Please provide a list of the sources of the materials to be used as additives, i.e. gypsum, coal ash, etc. In addition, please provide and /or propose a mix composition for the additives. This feed/product mix composition should also include that material generated on site such as material from the baghouse. Please note that it is unclear exactly what the 1.7 feed to clinker ratio mentioned in the application represents; therefore, clarification of what constitutes the feed and the clinker is required. Figure 2-5 indicates that gypsum is added after the clinker storage area. Is this the proposed addition point for all proposed additives except the fly ash which is to be added at the crusher? If not, is the crusher the addition point for all additives except gypsum?

RESPONSE:

SOURCES OF RAW MATERIALS AND ADDITIVES/ADDITION POINTS:

-Limestone, clay, sand: Mined on site, added at primary crusher

-Coal ash: From Seminole Electric (Palatka) and Gainesville Regional Utilities. The coal ash is stored under cover and added at the raw mill.

-Gypsum: From Spain or from Tampa Electric's flue gas scrubber product. The gypsum is added at the finish mill.

-Iron Oxide: Source as yet undetermined. Required only for Type II cement in quantities less than 1%. The iron oxide is added at the raw mill.

-Baghouse/ESP catch: This material is returned to the processes from which it is generated.

MIX COMPOSITION:

The mix composition will vary based on the target chemical composition of the cement. The anticipated mix proportions for raw mill feed are:

-Limestone, clay, sand, and recycle dust = 90-92%
-Coal ash = 8-10%
-Iron oxide = < 1%

The gypsum is interground with the clinker in the finish mill to produce cement. The gypsum is used at approximately 5% by weight of cement produced.

FEED TO CLINKER RATIO:

The *Raw Materials* (limestone, clay, sand, recycle dust, iron oxide, coal ash) are dried and ground in the raw mill, becoming *Raw Meal*. The *Raw Meal* is proportioned, blended, and fired in the kiln system, becoming *Clinker* [Calcium carbonate ($CaCO_3$) is thermally decomposed to calcium oxide and carbon dioxide (CaO, CO_2)]. The *Clinker* is interground with the gypsum in the finish mill, becoming *Cement*. The 1.7:1.0 feed-to-clinker ratio is determined as follows:

Raw material: **1.7 units** with 8% moisture (92% net)
Raw meal: 1.7 units X 0.92 = 1.4 units
Clinker: (approximately 29% lost as CO_2, 71% net); 1.4 units X 0.71 = **1.0 units**

23. Please provide a description of the handling (and transporting) of the residual material, such as the baghouse material, to ensure that it remains in the closed loop of the process and does not make contact with the soil at the facility at any time.

RESPONSE: All baghouse and ESP catches are returned to the processes from which they are generated. The return systems are close-circuited, whereby the materials do not make contact with the soil at any time. The catches are handled/transported by enclosed screw conveyors, air slides, bucket elevators, and gravity feeds. The conveying equipment is all vented to baghouses.

24. Please provide a contingency plan addressing timeframes and activities relating to the disposal of kiln dust, gypsum, fly ash, tires, coal ash and other solid waste materials should the facility cease operation or discontinue operation for some period of time that you propose. Please include a statement concerning how and where the solid waste items above will be disposed. Please note that the Department will make a determination concerning the proposed length of time requested prior to beginning disposal of stored solid waste at the facility.

RESPONSE: There will not be an inventory of kiln dust. All other raw materials will be stored under cover in moderate quantities and will be totally consumed in the event of a planned shut-down exceeding two months in duration. In the event of a permanent shut-down, all residual materials will be transported to an approved landfill or other cement production facilities within 6 months after such shutdown.

APPENDIX A

TABLE 6-1: BAGHOUSE DESIGN SPECIFICATIONS

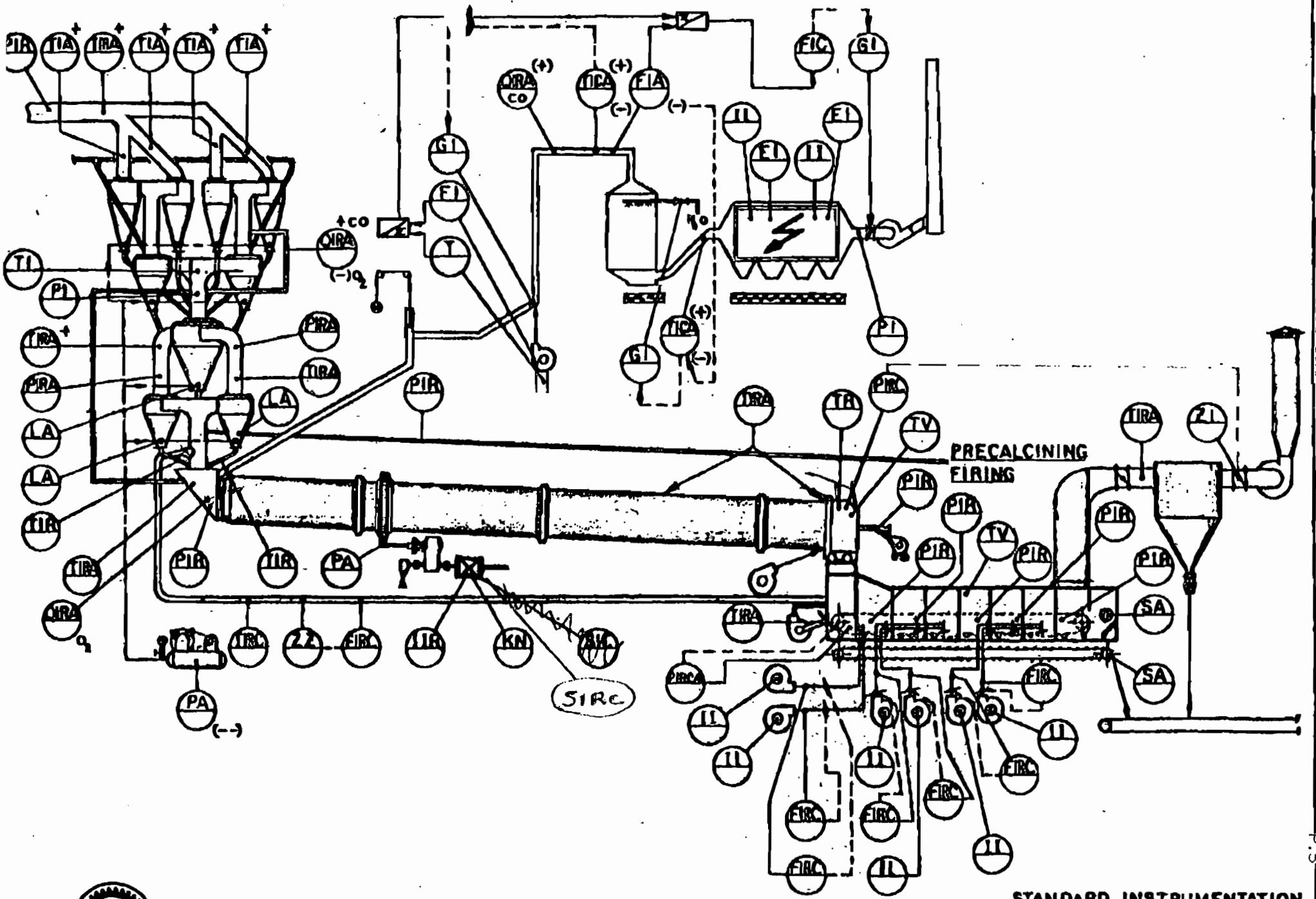
TABLE 6-1
Baghouse Design Specifications

Florida Rock Industries, Inc.
Newberry Cement Plant
Alachua County, Florida

	#	Description	acfm	°F	°R	H_2O	dscfm	Bag Area ft^2	Air:Cloth Ratio	Hours per Year	Height ft.	Stack Dia., in.	Type of Bags	Type of Cleaning
1	E-28	Recycle dust + raw meal to homogenization silo	15000	350	810	2%	9582	2604	5.8 :1	8760	40	26.2	Nomex	Pulse Jet
2	E-29	Recycle dust to airlift	1000	356	816	2%	634	188	5.3 :1	8760	10	6.8	Nomex	Pulse Jet
3	G-07	Recycle dust + raw meal into homogenization silo	15000	200	660	2%	11760	2604	5.8 :1	8760	225	26.2	Polyester	Pulse Jet
4	H-08	Raw meal + recycle dust to preheater	6000	200	660	2%	4704	1178	5.1 :1	8760	60	16.6	Polyester	Pulse Jet
5	L-03	Clinker cooler discharge and breaker	3000	300	760	2%	2043	577	5.2 :1	8760	10	11.7	Nomex	Pulse Jet
6	L-06	Clinker into clinker silos	4000	300	760	2%	2723	754	5.3 :1	8760	190	13.5	Nomex	Pulse Jet
7	M-07	Clinker to finish mill	4000	212	672	2%	3080	754	5.3 :1	8760	10	13.5	Polyester	Pulse Jet
8	M-08	Clinker to finish mill	4000	212	672	2%	3080	754	5.3 :1	8760	10	13.5	Polyester	Pulse Jet
9	N-09	Finish mill air separator	10000	210	670	2%	7723	1696	5.9 :1	8760	60	21.4	Polyester	Pulse Jet
10	N-13	Finish mill	30000	210	670	2%	23169	6834	4.4 :1	8760	123	37.1	Polyester	Pulse Jet
11	N-14	Cement handling in finish mill	6000	200	660	2%	4704	1178	5.1 :1	8760	60	16.6	Polyester	Pulse Jet
12	Q-25	Cement storage silos	12000	150	610	2%	10179	2121	5.7 :1	8760	260	23.5	Polyester	Pulse Jet
13	Q-26	Cement storage silos	12000	150	610	2%	10179	2121	5.7 :1	8760	260	23.5	Polyester	Pulse Jet
14	Q-27	Cement storage silos	12000	150	610	2%	10179	2121	5.7 :1	8760	260	23.5	Polyester	Pulse Jet
15	Q-14	Cement silo loadout	3000	150	610	2%	2545	484	6.2 :1	8760	30	11.7	Polyester	Pulse Jet
16	Q-17	Cement silo loadout	3000	150	610	2%	2545	484	6.2 :1	8760	30	11.7	Polyester	Pulse Jet
17	Q-21	Cement silo loadout	3000	150	610	2%	2545	484	6.2 :1	8760	30	11.7	Polyester	Pulse Jet
18	R-12	Cement bagging operation	12000	150	610	2%	10179	2121	5.7 :1	8760	100	23.5	Polyester	Pulse Jet
19	S-17	Coal mill	18000	150	610	6.50%	14568	4005	4.5 :1	8760	164	28.7	Polyester	Pulse Jet
20	S-21	Pulverized coal storage bin	3000	150	610	2%	2545	577	5.2 :1	8760	60	11.7	Polyester	Pulse Jet

APPENDIX B

ATTACHMENT 8-1: CONTROL INSTRUMENTATION AND OPERATING PLAN



POLYSIUS
ATLANTA GA. USA

STANDARD INSTRUMENTATION
PREPOL KILN WITH TERTIARY
DUCT & COOLER

G.P.H.6-2-70

END LEGEND
FOR CONTROL FLOW SHEET
ELECTROSTATIC PRECIPITATOR

A				A	(Alarm)
B				B	(State Display)
C				C	(Controlling)
D	(Density)	D	(Difference)		
E	(All Electrical Variables)			E	(Sensing Element)
F	(Flow Rate)	F	(Ratio)		
G	(Gauging, Position or Length)				
H	(Hand, Manually Initiated)				
I	(Ampere)			I	(Indicating)
J		J	(Scan)		
K	(Time or Time Program)				
L	(Level)				
M	(Moisture or Humidity)				
N	(Piece)			N	(User's Choice)
O	(User's Choice)			O	(Visual Indicator)
P	(Pressure or Vacuum)			P	(Test Point Connection)
Q	(Quality)	Q	Integral, (Integrate or totalize)	Q	(Integrating, or Summating)
R	(Nuclear Radiation			R	Recording
S	(Speed or Frequency)			S	(Switching)
T	Temperature			T	(Transmitting)
U	(Multi-Variable)			U	(Multi-Function Unit)
V	(Viscosity)			V	(Valve, Damper, Louvre, Actuating Element, Unspecified Correcting Unit)
W	(Weight or Force)				
X	(Unclassified Variables)			X	(Unclassified Functions, e.g., tv camera, cathode ray tube, radioactive source)
Y				Y	(Computing Relay, Relay)
Z				Z	(Emergency or Safety Rating)
+				+	(High)
/				/	(Intermediate)
-				-	(Low)

POLYSIUS CORPORATION

2. Interlock requirements and protective measures for firing systems and electrostatic precipitators.

2.1 Explanations of the Interlock Requirements

Below is a list, Serial Nos. 1 through 11 of the individual interlocks. The list is broken down according to the following categories:

Area: Under area we mean those units of equipment to which the corresponding measures refer.

Type: The type corresponds to the possible operating malfunction.

Measures: The measures are broken down so that the interlock, protective measure and monitoring can be individually recognized.

Note that existing internal equipment interlocks are not obviated by this list but rather retain their validity.

2.2 List of Interlocks

1. Sinter Zone Burner
2. Sinter Zone Burner with Calcining Operation - AT Process
3. Sinter Zone Burner with Calcining Operation - AS Process

5. Calcining Burner - AS Process
6. Electrostatic Precipitator
7. Auxiliary Firing
8. Switchover Simple/Compound Operation

10. Fuel Increase
11. Emergency Operation Due to Power Failure

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Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
1. Sintering Zone Burner				
1.1 Switch-On Requirements	1.1.1	Permissive	Electrostatic precipitator has to be grounded, high voltage has to be switched off.	
	1.1.2		Minimal gas analysis volume has to be supplied to the analyzer.	Gas flow from analysis device.
	1.1.3		Assure adequate purging of the plant following the CO-max. 2 switchoff	Purge cycle 5 minutes.
	1.1.4		Signal point CO-max. 1 not attained.	All CO analysis devices.
	1.1.5		Only with gas and oil firing. Quick shutoff valve closed.	*)
	1.1.6		Only with gas and oil firing. Fuel regulator valve closed and set value controller zeroed out.	*)
			Only in coal firing, fuel supplier switched off and set value controller zeroed out.	
	1.1.7		Exhaust gas fan and electrostatic precipitator fan have to be in operation.	Motor monitoring.

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Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
	1.1.8		Primary air fan must be in operation.	Motor Monitoring.
	1.1.9		Cool air fans of Compartments 1-3 must be in operation.	Motor Monitoring.
	1.1.10		Only in oil firing. Burner (lance) must be in operating position.	Limit Switch
	1.1.11		Throttle valves to the mill must be closed.	Limit Switch
	1.1.12		Damper for simple operation has to be at least 30% open. -fasten mechanically-	
	1.1.13		Only in oil firing. Oil temperature has to be above minimum.	Temperature measurement with adjustable limit value.
	1.1.14		Only for oil firing. Oil pressure must be greater than minimum.	Pressure measurement with adjustable limit values.

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Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
1. Sintering Zone Burner				
1.2 Constant Operating Conditions	1.2.1 Only with Oil Firing In case of failure of the primary air.	Quick shut-off of fuel supply.		Motor Monitoring
	Only with Coal Firing In case of failure of primary air.	Stop of fuel supply. Explanation: If the primary air fan is used also as a conveying fan, the conveying air and fuel feed have to be stopped immediately. In other cases the fuel feed is immediately stopped and the conveying air delayed in accordance with the purging time of the line.		Motor monitoring.

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Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
	Only for Gas Firing			
	In case of failure of primary air.	Quick shutoff with fan sizing of >5% primary air.	Warning signal with sizing of <5% primary air.	Motor monitoring.
	1.2.2 In case of failure of the exhaust gas fan following the preheater or following the electrostatic precipitator	Quick shutoff of fuel supply		Motor monitoring.
	1.2.3 Upon attaining a max. temperature after the preheater	Quick shutoff of fuel supply	Before attaining of the max. temperature a warning signal has to issue at a lower temperature.	Temperature measurement with adjustable limit values.
	1.2.4 Upon attaining a max. temperature after the kiln exhaust fan.	Quick shutoff of fuel supply	Before attaining the max. temperature a warning signal has to be issued at a lower temperature.	Temperature measurement with adjustable limit values.
	1.2.5 Upon attaining a max. temperature following the electrostatic precipitator.		Warning signal.	Temperature measurement with adjustable limit values.

POLYSIUS CORPORATION

Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
	1.2.6 In case of positive as well as negative pressure following the exhaust gas fan.	Quick shutoff of fuel supply		Pressure measurement directly after kiln exhaust gas fan with adjustable limit values
	1.2.7 Upon attaining the max, max. CO content after preheater.	In compound operation with auxiliary firing on, the auxiliary firing system also has to be discontinued during quick shutoff of the kiln firing.	Before attaining the max, max value, a warning signal has to sound at a lower level.	Gas analyzer

POLYSIUS CORPORATION

Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
5. Calcining Burner - AS Process				
5.1 Switch-on Requirements	5.1.1 Requirements as under Item 4.1			
5.2 Constant Operating Requirements	5.2.1 Requirements as under Item 4.2			
5.3 Switch-off Requirements	5.3.1 Requirements as under Item 4.3			
6. Electrostatic Precipitator	6.1.1		The precipitator ground should only be released when starting up cold if there is no CO measured.	Gas analyzer
6.1 Requirements for Switch-On	6.1.2		Following short-term interruption of the fuel feed due to plant interlocks, the high voltage can only be switched on again if, after a certain timespan (corresponding to the purging time of the system and the instructions of the precipitator supplier) no CO content is measured in the exhaust gas.	If there are no special instructions the purging cycle with running fans and opened throttle valves is 5 minutes. The purge cycle of the system starts after completion of the automatic purge cycle on the kiln burner Gas Analyzer

POLYSIUS CORPORATION

Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
7. Auxiliary Firing				
7.1 Switch-on	7.1.1		After CO max failure (kiln) one has to make certain that the purging of the system is completed and the indicated CO value falls beneath max 1.	Purging cycle: 5 minutes with running system fans and opened throttle valves.
	7.1.2		Fuel regulator valve has to be closed and set value controller zeroed out.	
	7.1.3		Quick shutoff valve has to be closed.	
	7.1.4		Primary air fan must be in operation.	Motor monitoring
	7.1.5		Mixed air fan in operation.	Motor monitoring
	7.1.6		Burner must be in operating position.	Limit switch
	7.1.7		Flame monitor must be ready for operation.	

POLYSIUS CORPORATION

Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
7.2 Constant Operating Conditions	7.2.1 In case of failure of the primary air	Quick shutoff of fuel feed		Motor monitoring
			Upon attaining minimal pressure value warning signal has to issue.	Pressure measurement with adjustable limit value following damper and fan.
	7.2.2 In case of failure of mix air	Quick shutoff of fuel feed	A warning signal has to sound upon attaining minimal pressure value	
	7.2.3 In case of failure of a downstream exhaust gas fan	Quick shutoff of fuel feed		Motor monitoring
	7.2.4 In case of failure of the sintering zone burner due to plant interlock by CO max.	Quick shutoff of fuel feed		
	7.2.5 Burner not in operating position	Quick shutoff of fuel feed		Limit Switch, if Present
	7.2.6 Upon attaining the max. temperature after burning compartment	Quick shutoff of fuel feed	Before attaining the max. value a warning signal has to sound.	Temperature measurement with adjustable limit values

POLYSIUS CORPORATION

Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
	7.2.7 If max. or min. pressure following kiln exhaust gas fan	Quick shutoff of fuel feed		Measurement of static pressure directly following kiln exhaust gas fan with adjustable limit values.
	7.2.8 In case of flame extinction	Quick shutoff of fuel feed		Flame monitor
	7.2.9 Upon attaining a minimal pressure following the burning chamber	Quick shutoff of fuel feed	Before attaining the minimum value a warning signal has to sound	Pressure measurement with adjustable limit values.
	7.2.10 Only with Oil Firing Upon attaining a minimal temperature of the fuel		Warning signal	Temperature measurement with adjustable limit values.

POLYSIUS CORPORATION

Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
8. Switchover	Simple/Compound Operation			
8.1 Switchover Requirements	8.1.1 When switching from simple to compound and vice-versa		Static pressure after kiln exhaust gas fan has to be held constant	Pressure measurement
9. Bypass				
9.1 Constant Operation	9.1.1 In case of failure of the bypass fan	Only with Bypass Values > or = 5%		
		Quick shutoff of fuel feed for the sintering zone burner		Differential between the volumetric flow measurement: fresh air and bypass volume
			Only for Bypass Volumes < = 5%	For bypass systems designed for > or = 5%
			Warning signal	Motor monitoring
				For bypass systems designed for >or = 5%

POLYSIUS CORPORATION

Area	Type	Measures		
		Interlock	Protective Measures	Monitoring
				Difference from the volumetric flow: fresh air and bypass volume.
10. Fuel Increment				
10.1 Requirements	10.1.1 Adjustment of the fuel increment to the time cycle of the gas analyzer		Additional fuel feed can only be possible after it has been ascertained that the gas analysis has already computed the preceeding fuel increment. Increase in the fuel volume has to take place in steps of max. 10% fuel increment each with a subsequent wait of 100 seconds.	
	10.1.2 When exceeding the control deviation (e.g., possible case of a cable breakdown of the actual value controller)	Quick shutoff of fuel feed (sintering zone burner and calciner burner)		

APPENDIX C

TABLES 9-1, 9-2, 9-3, 9-4: FUEL SPECIFICATIONS

SAMPLE ANALYSIS REPORT

STEAM COAL

ARCH OF KENTUCKY - UPPER LICK MINE

TABLE 9-1
COAL ANALYSIS

PROXIMATE ANALYSIS	As Rec'd	Dry Basis
Moisture	5.00	0.00
Ash	9.14	9.62
Volatile Matter	34.45	36.26
Fixed Carbon	51.41	54.12
BTU/lb.	12,571	13,233
Sulfur	0.75	0.79

SULFUR FORMS	As Rec'd	Dry Basis
Pyritic	0.28	0.30
Sulphate	0.04	0.04
Organic	0.43	0.45
Total	0.75	0.79

WATER SOLUBLE ALKALIES	As Rec'd	Dry Basis
Potassium Oxide, K2O	0.008	0.008
Sodium Oxide, Na2O	0.005	0.005
Chlorine	---	---

FUSION TEMPERATURE	Reducing	Oxidizing
Initial	2700 F	2700 F
Softening (H=W)	2700 F	2700 F
Hemispherical (H=1/2W)	2700 F	2700 F
Fluid	2700 F	2700 F

ULTIMATE ANALYSIS	As Rec'd	Dry Basis
Moisture	5.00	0.00
Ash	9.14	9.62
Hydrogen	4.85	5.11
Carbon	69.80	73.47
Nitrogen	1.35	1.42
Sulfur	0.75	0.79
Chlorine	0.14	0.15
Oxygen	8.97	9.44

MINERAL ANALYSIS	As Rec'd	Dry Basis
Moisture	5.00	0.00
Silicon Dioxide, SiO2	53.43	56.25
Aluminum Oxide, Al2O3	28.02	29.49
Titanium Dioxide, TiO2	1.14	1.20
Calcium Oxide, CaO	1.05	1.11
Iron Oxide, Fe2O3	7.01	7.38
Magnesium Oxide, MgO	1.05	1.10
Potassium Oxide, K2O	2.54	2.67
Sodium Oxide, Na2O	0.44	0.46
~~Sulfur Trioxide, SO3~~	~~0.14~~	~~0.15~~
~~Phos. Pentoxide, P2O5~~	0.17	0.18
Strontium Oxide, SrO	---	
~~Barium Oxide, BaO~~		
Manganese Dioxide, MnO2	---	---
Undetermined	0.01	0.01

MISCELLANEOUS				
Alkalies as Na2O (dry)	---	% Acidic	86.94
MAF BTU/lb.	14,642	% Basic	12.72
Equilibrium Moisture	3.02	Base:Acid Ratio	0.15
Hardgrove Grindability Index	49	Silica/Alumina Ratio	1.91
Free Swelling Index	3	Silica Ratio	85.43
Fouling Index	0.07	Bitum. or Lignite	"B"
Slagging Index	0.12	Dolomite	17.37
#Sulfur/MM BTU	0.60	T250 Temperature	+2700 F
#SO2/MM BTU	1.19		

Grade	No. 1 Fuel Oil	No. 2 Fuel Oil	No. 4 Fuel Oil	No. 5 Fuel Oil	No. 6 Fuel Oil
Type	Distillate (Kerosene)	Distillate	Very Light Residual	Light Residual	Residual
Color	Light	Amber	Black	Black	Black
API gravity, 60 F	40	32	21	17	13
Specific gravity, 60/60 F	0.8251	0.8654	0.9279	0.9529	0.9861
lb per U.S. gallon, 60 F	6.870	7.206	7.727	7 935	8.212
Viscos., Centistokes, 100 F	1.6	2.68	15.0	50.0	360.0
Viscos., Saybolt Univ., 100 F	31	35	77	232	—
Viscos., Saybolt Furol, 122 F	—	—	—	—	170
Pour point, F	Below zero	Below zero	10	30	65
Temp. for pumping, F	Atmospheric	Atmospheric	15 min.	35 min.	100
Temp, for atomizing, F	Atmospheric	Atmospheric	25 min.	130	200
Carbon residue, per cent	Trace	Trace	2.5	5.0	12.0
Sulfur, per cent	0.1	0.4–0.7	0.4–1.5	2.0 max.	2.8 max.
Oxygen and nitrogen, per cent	0.2	0.2	0.48	0.70	0.92
Hydrogen, per cent	13.2	12.7	11.9	11.7	10.5
Carbon, per cent	86.5	86.4	86.10	85.55	85.70
Sediment and water, per cent	Trace	Trace	0.5 max.	1.0 max.	2.0 max.
Ash, per cent	Trace	Trace	0.02	0.05	0.08
Btu per gallon	137,000	141,000	146,000	148,000	150,000

TABLE 9-2
No. 2 Fuel Oil Typical Specifications

* Technical information from Humble Oil & Refining Company.

Ref: EPA 450/2-80-063

AMERADA HESS CORPORATION

PREMIUM DIESEL SPECIFICATIONS

	ASTM	CUMMINS	BUCKEYE PIPELINE	COLONIAL PIPELINE	HESS PREMIUM DIESEL (Typical)
API GRAVITY @ 60° F. (MIN)	–	30 – 42	30	30	~~34 – 36~~
FLASH PT, PM ° F. (MIN)	125	–	130	130	150
VISCOSITY, SSU @ 100° F.	31.6 – 39.5	30.1 – 44.9	32.6 – 37.9	32.6 – 37.9	36.3
POUR PT, ° F.	–	–	(1)	(1)	–5 (4)
SULFUR, wt %	.05	.05	.05	.05	0.03
CLOUD PT, ° F.	(3)	(6)	(2)	(2)	+18 (4)
ASH, wt % (MAX)	0.01	–	0.01	0.01	0.001
CETANE INDEX (MIN)	40 (5)	40 (7)	42	42	47 – 50
COLOR, ASTM (MAX)	–	–	2.5	2.5	1.0
DISTILLATION:					
90% RECOV, ° F. (MAX)	540 – 640	680	540 – 640	540 – 640	630
END POINT, ° F. (MAX)	–	725	690	690	680
CCR, 10% BTMS (MAX)	0.35	0.35	0.35	0.35	0.10
WATER & SED, % vol. (MAX)	0.05	0.10	0.05	< 0.05	.01

HESS PREMIUM DIESEL CONTAINS A MULTI-PURPOSE ADDITIVE WITH SUPER DETERGENCY

(1) SEPTEMBER – MARCH = 0 MAX, APRIL – AUGUST = + 10 MAX.
(2) SEPTEMBER – MARCH = + 15 MAX, APRIL - AUGUST = +20 MAX.
(3) CLOUD PT MAY BE 11° F. ABOVE 10TH PERCENTILE MINIMUM AMBIENT TEMPERATURE.
(4) WINTERIZED TO MEET CLIMATIC CONDITIONS.
(5) INDEX MAY BE USED AS AN APPROXIMATION. LOW AMBIENT TEMPERATURE OR HIGH ALTITUDE MAY REQUIRE HIGHER CETANE.
(6) CLOUD PT. SHOULD BE 10° F. BELOW LOWEST EXPECTED AMBIENT TEMPERATURE.
(7) REFLECTS CETANE NUMBER. 45 MINIMUM IF AMBIENT TEMPERATURE IS BELOW 32° F.

NEW HESS PREMIUM DIESEL WITH SUPER DETERGENCY

September 1993

TABLE 9-3
NO. 2 Fuel Oil Comparative Specifications

ANALYSES OF VARIOUS TIRES

TIRE TYPE	SOURCE	ENERGY CONTENT (BTU/LB)	COMPONENTS, PERCENT BY WEIGHT						
			MOISTURE	ASH	SULFUR	CARBON	HYDROGEN	NITROGEN	OXYGEN
FIBERGLASS	POPE, 1991	13,974	0.00	11.70	1.29	75.80	6.62	0.20	4.39
STEEL-BELTED	POPE, 1991	11,478	0.00	25.20	0.91	64.20	5.00	0.10	4.40
NYLON	POPE, 1991	14,908	0.00	7.20	1.51	78.90	6.97	< 0.10	5.42
POLYESTER	POPE, 1991	14,752	0.00	6.50	1.20	83.50	7.08	< 0.10	1.72
KEVLAR-BELTED	POPE, 1991	16,870	0.00	2.50	1.49	86.50	7.35	< 0.10	2.11
UNSPECIFIED TIRE	HALEY, 1984	16,146	0.00	1.50	1.80	89.20	7.30	0.20	NR
UNSPECIFIED TIRE	RYAN, 1989	15,550	0.50	5.70	1.20	83.20	7.10	0.30	2.50

TABLE 9-4
TYPICAL TIRE ANALYSES

NR - NOT REPORTED

SOURCE: "Air Emissions Associated With The Combustion of Scrap Tires For Energy Recovery" Malcolm Pirnie, Inc. May 1991

APPENDIX D

ATTACHMENT 15-1: BACT ANALYSIS FOR NOx

NOx BACT ANALYSIS

STEP 1 - IDENTIFY ALL CONTROL TECHNOLOGIES

NOx control approaches applicable to the cement industry may be grouped in two categories:

I. Combustion control approaches where the emphasis is on reducing NOx formation:

-Fuel denitrification
-Fuel reburning per Energy and Environmental Research Corporation
-Process control
-Low NOx burners
-External flue gas recirculation
-Secondary combustion of fuel

II. Post combustion control approaches which control the NOx formed in the combustion process:

-Selective catalytic reduction (SCR)
-Selective non-catalytic reduction (SNCR)

STEP 2 - ELIMINATE TECHNICALLY INFEASIBLE OPTIONS

Fuel denitrification: Seemingly, fuel denitrification of coal and heavy oils could be used to control nitrogen oxide emissions, but current technology is limited.
(Page 4.50, *Handbook of Environmental Engineering,* McGraw-Hill, 1990)

Fuel reburning per Energy and Environmental Research Corporation: This technology is not considered available for cement kilns. This technology would require bench scale and pilot scale testing before use in a cement kiln.
(Telephone conversation with Michael Booth, EER, April 24, 1995)

External flue gas recirculation: The concept of external flue gas recirculation for NOx reduction has not been demonstrated in cement kilns.
(United States Environmental Protection Agency, *Alternative Control Techniques Document - NOx Emissions from Cement Manufacturing*, EPA-453/R-94-004, 3/1994)

STEP 3 - RANK REMAINING CONTROL TECHNOLOGIES BY CONTROL EFFECTIVENESS

The remaining control technologies are:

-Process control
-Low NOx burners

-Secondary combustion of fuel
-Selective catalytic reduction (SCR)
-Selective non-catalytic reduction (SNCR)

Process Control: The use of the monitoring and feedback control approach is considered as BACT, and will be used at this plant.

Secondary Combustion of Fuel: Secondary combustion of fuel is inherently present in all precalciner kilns and preheater kilns with riser duct firing and such kilns produce less NOx emissions compared to long dry kilns. The plant has a precalciner, and will therefore utilize secondary combustion of fuel as a NOx control technique.

The remaining control technologies to be ranked by control effectiveness are:

-Low NOx burners
-Selective catalytic reduction (SCR)
-Selective non-catalytic reduction (SNCR)

These control technologies are evaluated in Table 15-1.

STEP 4 - EVALUATE MOST EFFECTIVE CONTROLS AND DOCUMENT RESULTS

Selective Catalytic Reduction: This control technology involves adverse economic, environmental, and energy impacts; thus, it is rejected as BACT.

Economic Impacts: The use of SCR would result in an average cost effectiveness of $4043 per ton of NOx removed. A review of recent BACT determinations for NOx from cement plants showed no add-on controls. Hence the costs for NOx removal using SCR or any add-on controls are disproportionately high when compared to the costs of controls for NOx emissions from other cement plants in recent BACT determinations.

Environmental Impacts: The use of SCR would require the handling and storage of ammonia or similar materials at the facility, with an attendant risk of environmental degradation. The SCR system also would increase ammonia emissions from the stack, due to "ammonia slip". Additionally, any spent catalyst would present a hazardous waste or solid waste problem.

Energy Impacts: Because of problems related to catalyst fouling, a SCR system would need to be installed downstream of the particulate control device. Since the SCR process requires the gas temperature to be about 750 to 930 ^{o}F, the gas stream would need to be reheated causing an additional energy cost. With an energy recuperative type process heater with an energy recovery of 60 percent the energy requirement for the flue gas reheating would be approximately 10 percent of that consumed in the cement manufacturing.

Selective Non-Catalytic Reduction: This control technology involves adverse economic and environmental impacts; thus, it is rejected as BACT.

Economic Impacts: The use of SNCR would result in an average cost effectiveness of $1216 per ton of NOx removed. A review of recent BACT determinations for NOx from cement plants showed no add-on controls. Hence, the costs for NOx removal using SNCR or any add-on controls are disproportionately high when compared to the costs of controls for NOx emissions from other cement plants in recent BACT determinations.

Environmental Impacts: The use of SNCR would require the handling and storage of ammonia or similar materials at the facility, with an attendant risk of environmental degradation. The SNCR system also would increase ammonia emissions from the stack, due to "ammonia slip".

Low NOx Burners: This control technology involves adverse economic impacts and questionable environmental and energy impacts; thus, it is rejected as BACT.

Economic Impacts: The use of low NOx burners would result in an average cost effectiveness of $1050 per ton of NOx removed. A review of recent BACT determinations for NOx from cement plants showed no add-on controls. Hence, the costs for NOx removal using low NOx burners or any add-on controls are disproportionately high when compared to the costs of controls for NOx emissions from other cement plants in recent BACT determinations.

Environmental Impacts: The effectiveness of a low NOx burner was tested in a cement kiln in the United States in 1984. The results of these tests were not considered to be conclusive in evaluating the NOx reduction potential of a low NOx burner. Further, it is unclear as to the effects on CO and VOC emissions as a result of the use of a low NOx burner.

Energy Impacts: No data are available to determine the energy impacts of the low NOx burner technology.

STEP 5 - SELECT BACT

BACT for NOx control for the plant is proposed as process control and secondary combustion of fuel.

Process Control: The use of the monitoring and feedback control approach is considered as BACT, and will be used at this plant.

Secondary Combustion of Fuel: Secondary combustion of fuel is inherently present in all precalciner kilns and such kilns produce less NOx emissions than wet process kilns, long

dry kilns, or suspension preheater kilns without precalciners. The plant has a precalciner, and will therefore utilize secondary combustion of fuel as a NOx control technique.

TABLE 15-1
SUMMARY OF TOP-DOWN
BACT ANALYSIS
FOR NOx

Florida Rock Industries, Inc.
Newberry Cement Plant
Alachua County, Florida

CONTROL ALTERNATIVE			EMISSIONS			ECONOMIC IMPACTS			ENVIRONMENTAL IMPACTS		ENERGY IMPACTS
	Range Of Control[A]	Assumed Efficiency	Emissions		Emissions Reduction[B]	Total Annualized Cost[C]	Average Cost Effectiveness[D]	Incremental Cost Effectiveness[E]	Toxics Impact[F]	Adverse Environmental Impacts[G]	Incremental Increase Over Baseline[H]
Description	(%)	(%)	(lb/hr)	(tpy)	(tpy)	(10^6 $/yr)	($/Ton)	($/Ton)	(Yes/No)	(Yes/No)	(MMBtu/yr)
Selective Catalytic Reduction	80-90	80	88.2	328	1311	5.3	4043	5739	Yes	Yes	318864
Selective Non-Catalytic Reduction	30-70	30	309	1147	492	0.598	1216	1550	Yes	Yes	Negligible
Low Nox Burners	20-30	20	353	1311	328	0.344	1050	1050	No	Possible	0
Baseline	0	0	441	1639	0	0	0	0	No	No	0

A: Control efficiency data from United States Environmental Protection Agency, *Alternative Control Techniques Document - NOx Emissions from Cement Manufacturing*, Table 2-2.

B: Emissions reduction from baseline level.

C: Total annualized cost data from United States Environmental Protection Agency, *Alternative Control Techniques Document - NOx Emissions from Cement Manufacturing*, Table 2-3 and 2-4.

D: Average cost effectiveness is total annualized cost for the control option divided by the emissions reductions resulting from the option.

E: The incremental cost effectiveness is the difference in annualized cost for the control option and the next most effective control option divided by the difference in emissions reduction resulting from the respective alternatives.

F:Toxics impact means there is a toxics impact consideration for the control alternative.

G: Adverse environmental impact means there is an adverse environmental impact consideration with the control alternative.

H: Energy impacts are the difference in total project energy requirements with the control alternative and the baseline expressed in MMBtu/yr.

County will reconsider cement plant after panel's vote

Gainesville Sun 7-8-95

By J. LAWS
Special to The Sun.

Alachua County commissioners are unsure what impact an advisory panel's vote to recommend a review of the county's approval of a cement plant near Newberry will have on the final outcome.

County Commissioner Bobby Summers said the commission will review Thursday's unanimous recommendation by the county's Environmental Protection Advisory Committee, but he said he doubts it will keep the plant from opening.

"If they meet the state's emissions criteria, and they are permitted, then they will be licensed to operate," Summers said.

The 14-0 vote followed an accusation by Dave Newport, an advisory-committee member, that Florida Rock Industries Inc. "duped" the county commission into approving the plant.

Newport said the state permit application for the proposed plant showed higher emissions than Florida Rock representatives told county commissioners during earlier public hearings.

Fred Cohrs, vice president of Florida Rock Industries Inc., said he was not aware of any set of numbers other than those submitted to the state Department of Environmental Protection.

But Cohrs said the county commission had pressed for preliminary numbers, so a private consultant for Florida Rock gave them some numbers "right off the top of his head."

"I don't know what numbers they are referring to," Cohrs said. "Certain estimates were made during county commission meetings, but we had not presented any official numbers."

County Commission Chairman Charles Chestnut said that as long as the state Department of Environmental Protection approves Florida Rock's application, the plant will continue to move toward opening. But he said he plans to review the recommendation of the committee and work from there.

If any differences have a significant impact, Chestnut said, "Then I think we have to consider whether to reconsider the application."

7/11

Fla. Rock
Newberry
File

Main
File

Fla. Rock - Studds

KOOGLER & ASSOCIATES
ENVIRONMENTAL SERVICES
4014 NW THIRTEENTH STREET
GAINESVILLE, FLORIDA 32609
904/377-5822 ▪ FAX 377-7158

KA 187-94-02

March 17, 1995

Mr. A. A. Linero
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Subject: Application for Air
Construction Permit
Florida Rock Industries
Newberry Cement Plant
Newberry, Alachua County, Florida

Dear Mr. Linero:

Enclosed are seven signed copies of the permit application and a check for $7,500 (permit application fee) for the subject plant.

If you have any questions concerning this application, please do not hesitate to contact me.

Very truly yours,

KOOGLER & ASSOCIATES

John B. Koogler, Ph.D., P.E.

JBK:SCC:wa
Enc.

c: Mr. Fred Cohrs, Florida Rock
J. Huron
C. Holladay

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: **RULE** **BACT: 62-212.400**		
2. Future Effective Date of Allowable Emissions: **N/A**		
3. Requested Allowable Emissions and Units: **0.54 lb/ton clinker**		
4. Equivalent Allowable Emissions:	**51.75** lb/hour	**192.4** tons/year
5. Method of Compliance: **EPA Method 6 or appropriate alternative**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): 0.54 lb/ton clinker X 95.83 tph clinker = **51.75 lb/hr** 0.54 lb/ton clinker X 712,500 tpy clinker X 1 ton/2000 lb = **192.4 tpy**		

B.

1. Basis for Allowable Emissions Code: **N/A**		
2. Future Effective Date of Allowable Emissions: **N/A**		
3. Requested Allowable Emissions and Units: **N/A**		
4. Equivalent Allowable Emissions: **N/A**	lb/hr	tons/year
5. Method of Compliance: **N/A**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): **N/A**		

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: **RULE** **BACT: 62-212.400**		
2. Future Effective Date of Allowable Emissions: **N/A**		
3. Requested Allowable Emissions and Units: **4.6 lb/ton clinker**		
4. Equivalent Allowable Emissions:	**440.82** lb/hour	**1638.8** tons/year
5. Method of Compliance: **Method 7 or appropriate alternative**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): 4.6 lb/ton clinker X 95.83 tph clinker = **440.82 lb/hr** 4.6 lb/ton clinker X 712,500 tpy clinker X 1 ton/2000 lb = **1638.8 tpy**		

B.

1. Basis for Allowable Emissions Code: **N/A**		
2. Future Effective Date of Allowable Emissions: **N/A**		
3. Requested Allowable Emissions and Units: **N/A**		
4. Equivalent Allowable Emissions: **N/A**	lb/hr	tons/year
5. Method of Compliance: **N/A**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): **N/A**		

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: **RULE** **BACT: 62-212.400**		
2. Future Effective Date of Allowable Emissions: **N/A**		
3. Requested Allowable Emissions and Units: **3.7 lb/ton clinker**		
4. Equivalent Allowable Emissions:	**354.57** lb/hour	**1318.1** tons/year
5. Method of Compliance: **Method 10 or appropriate alternative**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): 3.7 lb/ton clinker X 95.83 tph clinker = **354.57 lb/hr** 3.7 lb/ton clinker X 712,500 tpy clinker X 1 ton/2000 lb = **1318.1 tpy**		

B.

1. Basis for Allowable Emissions Code: **N/A**		
2. Future Effective Date of Allowable Emissions: **N/A**		
3. Requested Allowable Emissions and Units: **N/A**		
4. Equivalent Allowable Emissions: **N/A**	lb/hr	tons/year
5. Method of Compliance: **N/A**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): **N/A**		

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: **RULE** **BACT: 62-212.400**		
2. Future Effective Date of Allowable Emissions: **N/A**		
3. Requested Allowable Emissions and Units: **6.60 X 10^{-7} lb/ton clinker**		
4. Equivalent Allowable Emissions:	**0.0001** lb/hour	**0.0002** tons/year **0.5** pounds/year
5. Method of Compliance: **Clinker production records: Use total clinker produced multiplied by emission factor (6.60 X 10^{-7} lb/ton clinker) from AP-42, Fifth Edition.**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): 6.60 X 10^{-7} lb/ton clinker X 95.83 tph clinker = **0.0001 lb/hr** 6.60 X 10^{-7} lb/ton clinker X 712,500 tpy clinker X 1 ton/2000 lb = **0.0002 tpy** 6.60 X 10^{-7} lb/ton clinker X 712,500 tpy clinker = **0.5 lb/yr**		

B.

1. Basis for Allowable Emissions Code: **N/A**		
2. Future Effective Date of Allowable Emissions: **N/A**		
3. Requested Allowable Emissions and Units: **N/A**		
4. Equivalent Allowable Emissions: **N/A**	lb/hr	tons/year
5. Method of Compliance: **N/A**		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode): **N/A**		

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 8 of 11

1. Pollutant Emitted: **PB, H110, Lead**
2. Total Percent Efficiency of Control: **99.9 %**
3. Primary Control Device Code: **010**
4. Secondary Control Device Code: **N/A**
5. Potential Emissions: **0.07** lb/hour **0.3** tons/year **506** pounds/year
6. Synthetically Limited? [ ] Yes [**X**] No
7. Range of Estimated Fugitive/Other Emissions: **N/A** [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year
8. Emission Factor: **0.00071 lb/ton clinker** Reference: **AP-42, Fifth Edition, Section 11.6: Portland Cement Manufacturing** **Table 11.6-9: Summary of Noncriteria Pollutant Emission Factors**
9. Emissions Method Code: [ ] 1 [ ] 2 [**X**] 3 [ ] 4 [ ] 5
10. Calculation of Emissions: 0.00071 lb/ton clinker X 95.83 tph clinker = **0.07 lb/hr** 0.00071 lb/ton clinker X 712,500 tpy clinker X 1 ton/2000 lb = **0.3 tpy** 0.00071 lb/ton clinker X 712,500 tpy clinker = **506 lb/yr**
11. Pollutant Potential/Estimated Emissions Comment: **N/A**

E. POLLUTANT INFORMATION

For the emissions unit addressed in this Emissions Unit Information Section, a separate set of pollutant information must be completed for each pollutant required to be reported. See instructions for further details on this subsection of the Application for Air Permit.

Pollutant Potential/Estimated Emissions: Pollutant 9 of 11

1. Pollutant Emitted: **HCL, H106, Hydrogen Chloride**
2. Total Percent Efficiency of Control: **N/A** %
3. Primary Control Device Code: **N/A**
4. Secondary Control Device Code: **N/A**
5. Potential Emissions: **4.7** lb/hour **17.5** tons/year
6. Synthetically Limited? [ ] Yes [**X**] No
7. Range of Estimated Fugitive/Other Emissions: **N/A** [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year
8. Emission Factor: **0.049 lb/ton clinker** Reference: **AP-42, Fifth Edition, Section 11.6: Portland Cement Manufacturing** **Table 11.6-9: Summary of Noncriteria Pollutant Emission Factors**
9. Emissions Method Code: [ ] 1 [ ] 2 [**X**] 3 [ ] 4 [ ] 5
10. Calculation of Emissions: 0.049 lb/ton clinker X 95.83 tph clinker = **4.70 lb/hr** 0.049 lb/ton clinker X 712,500 tpy clinker X 1 ton/2000 lb = **17.5 tpy**
11. Pollutant Potential/Estimated Emissions Comment: **N/A**