INTEROFFICE MEMORANDUM

Date: 31-Mar-1999 02:59pm
From: Joseph Kahn TAL
KAHN_J
Dept: Air Resources Management
Tel No: 850/921-9519

To: Jeffrey E. Brown TAL (BROWN_JE)

Subject: Call from Ken Oertel

Jeff,

I just had a short phone conversation with Ken Oertel about the latest RFI letter to Suwannee American Cement Co. He said he was working on part of the response and wanted to put the letter in perspective. He asked me if the eight items related to public comments were going to be permitting criteria for this project, and I told him that we asked those questions to be responsive to the public and request a formal response from the company about those issues of public concern. He said that he is inclined to answer the question about the applicant's compliance history by reviewing the history of the applicant's other companies because Suwannee American is a new company with no compliance history. He said he represents Anderson Columbia in current litigation with the Department and wanted to know if he should only provide information about actions that were resolved. I told Ken that he should answer however he thought best, and that we would review the response with you to determine how it met the criteria of 62-4, and how it would relate to the Department's intended agency action.

That was it. Thought I would let you know ASAP.

-Joe

Department of Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

DIVISION OF RECREATION AND PARKS
BUREAU OF NATURAL AND CULTURAL RESOURCES

FAX: (850) 922-6215 SUNCOM: 292-6215
PHONE: (850) 488-8666 SUNCOM: 278-8666

URGENT - HAND DELIVER_____ **NORMAL ROUTING**_____

DATE: 3-29-99

NUMBER OF PAGES INC. COVER 3

TO: Jim Yahn

FROM: Dana Bryan 8-4667

SUBJECT: Suwannee County Commissioners

Call me at 488-8666 if you have questions.

Department of Environmental Protection

Lawton Chiles
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Virginia B. Wetherell
Secretary

December 14, 1998

The Honorable Jerry Scott
Chairman, Suwannee County
Board of County Commissioners
224 Pine Avenue
Live Oak, Florida 32060

Dear Chairman Scott:

The Division of Recreation and Parks is responsible for over 150 state parks, preserves and recreation areas that comprise the Florida Park Service. Our mission is to provide resource-based recreation while preserving, interpreting and restoring natural and cultural resources.

One of our parks is Ichetucknee Springs State Park located near Branford. The park contains numerous pristine springs which collectively form the Ichetucknee River. As you are aware, the springs and river provide an unusually popular site for swimming, tubing and canoeing in a world class natural setting. Suwannee County should be very proud of this unique state park.

It appears that a rock quarry 3.5 miles west of Ichetucknee Springs State Park has been chosen as a site to construct a cement production facility. Because of prevailing winds in the summer, we expect that smokestack discharges from the plant may be noticeable in the park, and we are concerned for the recreating public as well as about long-term environmental damage. Just as the park is concerned with the quality of the water entering the aquifer upgradient of the park, we are concerned with the quality of air upwind of the park.

The park fully understands that cement plants are needed to supply construction materials and that the proposed cement plant would provide jobs and tax revenue to the county. Our concerns are that this type of industrial development near the park may pose a threat to air, water and scenic qualities in this region and may also set a precedent for further development of sensitive areas near the park. We urge the Suwannee County Commission to give special consideration to the potential consequences of this proposal and to all industrial site plans that are proposed for the area around Ichetucknee Springs State Park.

Sincerely,

Fran P. Mainella

Fran P. Mainella, CLP
Director
Division of Recreation and Parks

FPM/mlw
cc: Torrey Johnson, Chief, Bureau of Parks District Two
Dana Bryan, Chief, Bureau of Natural & Cultural Resources
Jim Stevenson, Office of Ecosystem Management

SUWANNEE COUNTY BOARD OF COUNTY COMMISSIONERS

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Live Oak, Florida 32060

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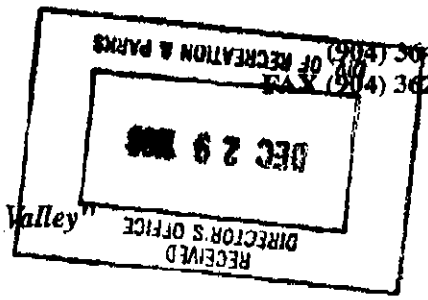

December 17, 1998

"In the Heart of the Suwannee River Valley"

Fran P. Mainella, CLP
Director, Division of Recreation & Parks
Dept. of Environmental Protection
Marjory Stoneman Dougias Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000

Dear Ms. Maincila:

In response to your letter dated December 14, 1998, which we just received today, please be advised that the Suwannee County Board of County Commissioners unanimously approved the site and development plan for a cement plant near Branford. This action was taken at the end of a very lengthy public hearing which was held beginning at 7:00 P.M. on December 15 and ended in the early morning hours of the 16th.

We understand your concerns about the plant being located in the vicinity of the Ichetucknee Springs State Park Many of the individuals who attended the public hearing expressed the same concern. It gets more difficult each year for us to balance the budget and provide required services for our citizens. We believe that an industry such as the cement plant will help to increase our tax base and provide for a better economy for our citizens. Please be assured that we did not make this decision without a lot of thought being put into it.

Sincerely yours,

Jerry Scott
Chairman, Suwannee County
Board of County Commissioners

JS/er

cc: Members, Suwannee County Commission
Robinette C. Robinson, Planning & Zoning Director

INTEROFFICE MEMORANDUM
(Draft)

Date: 29-Mar-1999 08:57am
From: Joseph Kahn TAL
Dept:
Tel No:

To: Jeffrey E. Brown TAL (BROWN_JE)

Subject: Suwannee American RFI Letter

Jeff,

Please see the attached letter we sent to the applicant on Friday afternoon requesting more information about the Suwannee American Cement application.

-Joe

Department of
Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

March 26, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Joe Anderson, III
President
Suwannee American Cement Company, Inc.
PO Box 410
Branford, Florida 32008

Re: Request for Additional Information
DEP File No. 1210465-001-AC (PSD-FL-259)
Proposed Portland Cement Plant

Dear Mr. Anderson:

On February 25, 1999 the Department received your response to the Department's requests for additional information. The application is still incomplete. In order to continue processing your application, the Department will need the additional information requested below. Should your response to any of the items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. We received additional comments from the federal land manager regarding response items 23 and 24. Please respond to the following comments.

   The recommendations of the Interagency Workgroup on Air Quality Modeling (at: http://www.epa.gov/scram001/;"Model Support"; "6th Modeling Conference"; "IWAQM") clearly state that "[i]f hourly relative humidity values are not available, assume that the relative humidity is 95%." (Appendix B, "Method", 3b). The applicant's use of an 80% RH value is not acceptable.

The Department heard significant public comment at the public meeting of March 25, 1999 regarding the following issues related to the permit application. Please respond to the following.

2. Estimate potential mercury emissions from the pyroprocessing system, and characterize the fraction of mercury that will come from the raw materials, coal, petroleum coke and tires. Please evaluate control methods for mercury emissions.
3. Consider whether combustion of tires is necessary for the proposed project. There is significant public opposition to the combustion of tires in any quantity in the pyroprocessing system.
4. Provide an estimate of emissions from truck traffic associated with operating the proposed plant. This appears to be a particular concern to the public because there is no available rail line in existence to the proposed location.
5. Regarding the MACT assessment, evaluate the applicability of meeting the dioxin emissions of the best controlled source.
6. Estimate $PM_{2.5}$ emissions from the plant and characterize the nature of these emissions, particularly as compared to the PM_{10} emissions.

7. Consider installing ambient monitors for $PM_{2.5}$ and ozone in locations appropriate for assessing the impacts of the proposed plant at the Ichetucknee Springs State Park and the area around the site.

8. What portion of the proposed plant's NOx emissions will be deposited as nitrate through dry and wet deposition within an area 25 miles radius from the site?

   Investigate pollution prevention techniques that may result in lower overall NOx emissions.

9. Describe the compliance history of the applicant with respect to violations of any Department rules at any installation.

Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. Permit applicants are advised that Rule 62-4.055(1), F.A.C. now requires applicants to respond to requests for information within 90 days. If there are any questions, please call me at 850/921-9519.

Sincerely,

Joseph Kahn, P.E.
New Source Review Section

/jk

cc: Mr. Frank Darabi, P.E.
Mr. Steve Cullen, P.E.
Mr. Gregg Worley, EPA
Mr. John Bunyak, NPS
Mr. Chris Kirts, NED
Mr. Jim Stevenson, DEP Ecosystem Mgmt.
Mr. Tom Workman, DEP Recreation & Parks
Ms. December McSherry
Mr. Svenn Lindskold
Mr. Tom Greenhalgh
Mr. Al Mueller
Mr. Dave Bruderly
Mr. Chris Bird, Alachua County DER
Mr. John Mousa, Alachua County DER
Mr. Chuck Clemons, Chairman, Alachua County Commissioners
Mr. J. Calvin Gaddy
Ms. Patrice Boyes, Esq.
Ms. Kathy Cantwell
Mr. Ralph Ashodian
Mr. Craig Pittman

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- 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. Joe Anderson, III
President
Suwannee American Cement Co., Inc.
P. O. Box 410
Branford, FL 32008

4a. Article Number

Z 333 618 090

4b. Service Type

☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

3-31-99

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US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.
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Sent to Mr. Joe Anderson, III	
Street & Number Suwannee American P.O. Box 410	
Post Office, State, & ZIP Code Branford, FL 32008	
Postage	$
Certified Fee	
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TOTAL Postage & Fees	$
Postmark or Date 1210465-001-AC PSD-FL-259 Mailed: 3-26-99	

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FAXES OF MARCH 26, 1999 LETTER

Post-it® Fax Note 7671	Date 3/26/99	# of pages ▶ 2
To STEVE CULLEN	From JOE KAHN	
Co./Dept. KFA	Co. FMCA	
Phone #	Phone #	
Fax # 352-377-7158	Fax # 850-921-9519	

Post-it® Fax Note 7671	Date 3/30/99	# of pages ▶ 2
To LINDA MCKENZIE	From JOE KAHN	
Co./Dept. OHFC	Co. DEP	
Phone #	Phone # 921-9519	
Fax # 521-0720	Fax #	

Post-it® Fax Note 7671	Date 3/30/99	# of pages ▶ 2
To KELLY MERCER	From JOE KAHN	
Co./Dept. FL. ALLIGATOR	Co. DEP	
Phone # 352-376-4458	Phone # 850/921-9519	
Fax # 352-376-4467	Fax # 850/922-6979	

Post-it® Fax Note 7671	Date 3-27-99	# of pages ▶ 13
To JACK CHISOM	From JOE KAHN	
Co./Dept.	Co.	
Phone #	Phone # 1-9519	
Fax # 488-2439	Fax #	

INTEROFFICE MEMORANDUM

Date: 26-Mar-1999 04:20pm
From: Joseph Kahn TAL
KAHN_J
Dept: Air Resources Management
Tel No: 850/921-9519

To: David Struhs TAL (STRUHS_D @ EPIC5A1 @ DER)
To: Howard Rhodes TAL (RHODES_H)
CC: Clair Fancy TAL (FANCY_C)

Subject: Request for Additional Information for Suwannee American Cement Company

Gentlemen,

Clair Fancy asked me to e-mail a copy of the attached letter to you for your information. We mailed the attached letter to the applicant this afternoon requesting additional information, in response to comments we heard from the public at last night's public meeting we held in Branford about this project. Please let me know if you have any questions about this.

-Joe Kahn

March 26, 1999

Certified Mail - Return Receipt Requested

Mr. Joe Anderson, III
President
Suwannee American Cement Company, Inc.
PO Box 410
Branford, Florida 32008

Re: Request for Additional Information
DEP File No. 1210465-001-AC (PSD-FL-259)
Proposed Portland Cement Plant

Dear Mr. Anderson:

On February 25, 1999 the Department received your response to the Department's requests for additional information. The application is still incomplete. In order to continue processing your application, the Department will need the additional information requested below. Should your response to any of the items require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

1. We received additional comments from the federal land manager regarding response items 23 and 24. Please respond to the following comments.

   The recommendations of the Interagency Workgroup on Air Quality Modeling (at: http://www.epa.gov/scram001/;"Model Support"; "6th Modeling Conference"; "IWAQM") clearly state that "[i]f hourly relative humidity values are not available, assume that the relative humidity is 95%." (Appendix B, "Method", 3b). The applicant's use of an 80% RH value is not acceptable.

The Department heard significant public comment at the public meeting of March 25, 1999 regarding the following issues related to the permit application. Please respond to the following.

2. Estimate potential mercury emissions from the pyroprocessing system, and characterize the fraction of mercury that will come from the raw materials, coal, petroleum coke and tires. Please evaluate control methods for mercury emissions.

3. Consider whether combustion of tires is necessary for the proposed project. There is significant public opposition to the combustion of tires in any quantity in the pyroprocessing system.

4. Provide an estimate of emissions from truck traffic associated with operating the proposed plant. This appears to be a particular concern to the public because there is no available rail line in existence to the proposed location.

5. Regarding the MACT assessment, evaluate the applicability of meeting the dioxin emissions of the best controlled source.

6. Estimate $PM_{2.5}$ emissions from the plant and characterize the nature of these emissions, particularly as compared to the PM_{10} emissions.

7. Consider installing ambient monitors for $PM_{2.5}$ and ozone in locations appropriate for assessing the impacts of the proposed plant at the Ichetucknee Springs State Park and the area around the site.

8. What portion of the proposed plant's NOx emissions will be deposited as nitrate through dry and wet deposition within an area 25 miles radius from the site?

   Investigate pollution prevention techniques that may result in lower overall NOx emissions.

9. Describe the compliance history of the applicant with respect to violations of any Department rules at any installation.

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Sincerely,

Joseph Kahn, P.E.
New Source Review Section

/jk

cc: Mr. Frank Darabi, P.E.
Mr. Steve Cullen, P.E.
Mr. Gregg Worley, EPA
Mr. John Bunyak, NPS
Mr. Chris Kirts, NED
Mr. Jim Stevenson, DEP Ecosystem Mgmt.
Mr. Tom Workman, DEP Recreation & Parks
Ms. December McSherry
Mr. Svenn Lindskold
Mr. Tom Greenhalgh
Mr. Al Mueller
Mr. Dave Bruderly
Mr. Chris Bird, Alachua County DER
Mr. John Mousa, Alachua County DER
Mr. Chuck Clemons, Chairman, Alachua County Commissioners
Mr. J. Calvin Gaddy
Ms. Patrice Boyes, Esq.

Ms. Kathy Cantwell
Mr. Ralph Ashodian
Mr. Craig Pittman

INTEROFFICE MEMORANDUM

Date: 26-Mar-1999 01:12pm
From: Ellen_Porter
Ellen_Porter@nps.gov@PMDF@EPIC66
Dept:
Tel No:

To: holladay_c (holladay_c@A1@DER)
To: Kahn_j (Kahn_j@A1@DER)
CC: Bud_Rolofson (Bud_Rolofson@nps.gov@PMDF@EPIC66)
CC: John_Notar (John_Notar@nps.gov@PMDF@EPIC66)

Subject: Re: regional haze analysis guidance

In our December 15, 1998 technical review document for Suwannee American Cement Co. (attached), we recommended that the applicant perform a regional haze analysis following the IWAQM Phase I recommendations:

Air Quality Related Values (AQRV) Analysis

Suwannee did not perform visibility analyses to evaluate potential impacts to regional haze at Okefenokee or Chassahowitzka wildernesses. Suwannee incorrectly concluded that because predicted impacts to the Class I increments were less than significant, no air quality related values (AQRV) analyses were required. However, increment analyses are independent of AQRV analyses; Class I increments were never intended to protect Class I AQRVs. Therefore, Suwannee should perform regional haze analyses, following the recommendations of the Interagency Workgroup on Air Quality Modeling at: http://www.epa.gov/scram001/; "Model Support"; "6th Modeling Conference"; "IWAQM".

These recommendations clearly state that "If hourly relative humidity values are not available, assume that the relative humidity is 95%." (Appendix B, "Method", 3b).

The applicant's use of an 80% RH value is not acceptable.

RFC-822-headers:
Received: from oriole.itc.nps.gov by EPIC66.DEP.STATE.FL.US (PMDF V5.1-4 #7204)
with ESMTP id <01J9AC6UPJZ4002RGC@EPIC66.DEP.STATE.FL.US>; Fri,
26 Mar 1999 12:58:17 EST
Received: from ccmail.itd.nps.gov (ccmail.itd.nps.gov [165.83.216.134])
by oriole.itc.nps.gov (8.8.7/8.8.7) with SMTP id OAA06522; Fri,
26 Mar 1999 14:08:42 -0500
Received: from ccMail by ccmail.itd.nps.gov
(IMA Internet Exchange 2.12 Enterprise) id 0017312D; Fri,
26 Mar 1999 12:46:58 -0500
Content-description: cc:Mail note part

Excerpts (D/F, Hg, HCl) to preamble of proposed rule 40 CFR 63 Subpart LLL – National Emission Standards for the Portland Cement Manufacturing [Source: Federal Register dated 3/24/98]

D. Selection of Proposed Standards for Existing and New Sources

1. Background

After the EPA has identified the specific source categories or subcategories of sources to regulate under section 112, it must develop MACT [Maximum Achievable Control Technology] standards for each category or subcategory. Section 112 establishes a minimum baseline or ``floor'' for standards. For new sources, the standards for a source category or subcategory cannot be less stringent than the emission control that is achieved in practice by the best-controlled similar source. [See section 112(d)(3)]. The standards for existing sources may be less stringent than standards for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources for categories and subcategories with 30 or more sources, or the average of the best-performing 5 sources for categories or subcategories with fewer than 30 sources.

After the floor has been determined for a new or existing source in a source category or subcategory, the Administrator must set MACT standards that are technically achievable and no less stringent than the floor. Such standards must then be met by all sources within the category or subcategory. The regulatory alternatives selected for new and existing sources may be different because of different MACT floors, and separate emission limits may be established for new and existing sources.

The EPA also may consider an alternative ``beyond the floor.'' Here, EPA considers the achievable reductions in emissions of HAPs (and possibly other pollutants that are co-controlled), cost and economic impacts, energy impacts, and other nonair environmental impacts. The objective is to achieve the maximum degree of emission reduction without unreasonable economic, energy or secondary environmental impacts.

2. MACT Floor Technology, Emission Limits, and Format

The EPA conducted separate MACT determinations for PM [particulate matter](the surrogate for HAP metals), D/F [dioxins/furans], mercury, THC [total hydrocarbon] (the surrogate for organic HAPs), and HCl [hydrogen chloride] emissions from kilns and inline kiln/raw mills; for PM emissions from clinker coolers; for PM and THC emissions from raw material dryers; and for PM emissions from materials handling facilities. For each combination of pollutant and affected source, MACT floor technologies and beyond-the-floor control options were evaluated.

Several formats are available for establishing the emission limits based on MACT. These include mass concentration (mass per unit volume), volume concentration (volume per unit volume), mass emission rate (mass per unit time), process emission rate (mass per unit of production or other process parameter), and percent reduction.

For the portland cement manufacturing source category, EPA is proposing numerical emission standards expressed as a process emission rate and opacity limits for PM emissions from kilns; as mass per volume of exhaust gas for D/F emissions from kilns; as volume per volume of exhaust gas for THC emissions from kilns and raw material dryers; as a process emission rate and opacity limit for clinker cooler PM emissions; and as an opacity limit for materials handling facilities PM emissions.

The following sections present a discussion of the rationale for selecting the MACT technologies, emission limits, and format of the standard for each affected source and associated pollutant.

Kiln and in-line kiln/raw mill D/F emissions. The EPA has identified two technologies for control of D/F emissions. One technology achieves low D/F emissions by a combination of proper kiln operation, proper combustion, proper control device operation, and a reduction in the kiln gas temperature at the inlet to the PMCD. The other technology is activated carbon injected into the kiln exhaust gas.

The discussion in this section refers to D/F emissions in units of TEQ [toxic equivalent]. Toxic equivalent refers to the international method of expressing toxicity equivalents for dioxins and furans as defined in EPA report, ``Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 Update'' (docket item II-A-8).

Dioxin/furan emissions data were obtained from testing that was conducted at NHW [non-hazardous waste] kilns, with NHW fuels at kilns that normally burn HW [hazardous waste], and under worst-case conditions at kilns that burn HW (as part of Certificate of Compliance [COC] testing). Based on the test results for both NHW and HW kilns, the predominant factor affecting D/F emissions is the temperature of gases at the inlet to the PMCD [particulate matter control device] (docket item II-A-42; docket item II-B-78; docket item II-I-81, pp. 127 to 133; docket item II-I-82, pp. 135 to 175). The highest D/F emissions (near 40 ng TEQ/dscm) occurred at the highest gas temperatures (between 500 deg. F and 700 deg. F) while the lowest emissions (near 0.02 ng TEQ/dscm) occurred at the lowest temperature (at approximately 210 deg. F). [The emission 0.02 ng TEQ/dscm is the average of the four NHW D/F test results that were measured at gas temperatures less than 230 deg. F, as shown in Table 8.]

Dioxin/furan TEQ emissions data and stack temperatures from kilns firing NHW fuels are listed in Table 8. The data are listed in order of ascending stack temperature. Fourteen NHW data points were obtained during normal kiln operation, three points were obtained as NHW baseline runs prior to HW COC testing, one data point (at the 518 deg. F stack temperature) was obtained at maximum combustion temperature, and one point was obtained under unknown test conditions. Stack temperatures are presented, since inlet PMCD temperature data are not typically recorded during stack emissions testing. It is acknowledged that stack temperatures will be lower than inlet PMCD temperatures.

Table 8. Average Dioxin/Furan Toxic Equivalent Emissions (at 7 Percent Oxygen) and Average Stack Gas Temperatures for NHW Cement Kilns and Kilns Tested Under NHW Conditions [Docket Item II-B-78]

Kiln type	APCD type	Kiln fuel	Avg Gas T (deg. F)	Avg TEQ ng/dscm	Kiln location
PH/PC	FF	Natural gas; main stack tested.	183	0.011	Capital Aggregates - San Antonio TX.
PC	FF	Coal,tires, pulp/paper mill sludge.	220 *	0.0063	Calaveras Cement - Redding CA.
PH/PC	FF	Natural gas; raw mill on	221	0.042	Ash Grove – Seattle WA (kiln/ in-line mill).
PH/PC	ESP	Not reported	226	0.00087	RMC Lonestar - Davenport CA.
PC	FF	Coal & tires	233 *	0.21	Calaveras Cement - Redding, CA.
PH/PC	FF	Natural gas; bypass stack tested.	299	0.054	Capital Aggregates – San Antonio TX.
WET	ESP	Coal	305	0.0024	Holnam--Florence CO.
WET	ESP	Coal & natural gas	315	0.072	Ash Grove – Montana City MT.
WET	ESP	Coal	346 **	0.37	Lehigh - Union Bridge MD.
WET	ESP	coal & tires	358 **	1.2	Lehigh - Union Bridge MD.
WET	ESP	Coal/coke	366	0.032	Holnam kiln #1 – Holly Hill SC.
DRY	FF	Coal, gas, tire derived fuel.	396	0.0035	Riverside--Oro Grande CA.
WET	ESP	Natural gas	397	0.020	Capital Aggregates – San Antonio TX.
DRY	FF	Coal & natural gas	403	0.0084	Riverside--Oro Grande CA.
WET	ESP	Coal	417	0.12	Lone Star--Greencastle IN.
WET	ESP	Coal/coke	418	0.04	Holnam kiln #2--Holly Hill SC.
DRY	ESP	Coal, coke, & tires	450	0.074	Lone Star--Oglesby IL.
WET	ESP	Coal	482	0.55	Continental Cement--Hannibal MO.
WET	ESP	Coal	518	1.0	Holnam - Clarksville MO.

Abbreviations:
PH/PC = preheater/precalciner.
ESP = electrostatic precipitator.
PC = precalciner.
FF = fabric filter.

Note: Entries flagged with * and ** are listed in Table 9 and discussed in the text.

The data in Table 8 show that all NHW D/F emissions were less than 0.2 ng TEQ/dscm at stack temperatures below 340 deg. F, except for one data point which is discussed below. The stack temperature of 340 deg.F corresponds to an estimated inlet PMCD temperature of approximately 400 deg. F after accounting for cooling in the ductwork. The EPA estimates that approximately 50 percent of existing PMCDs used at both wet-and dry-type NHW kilns operate with a maximum inlet PMCD temperature of approximately 400 deg. F (docket item II-B-73). Since the MACT floor is based on the technology in use by the best performing 12 percent of the affected sources, the MACT floor for existing kilns corresponds to reduction of kiln exhaust gas stream temperature at the PMCD inlet to 400 deg. F.

One demonstrated method of temperature reduction is injection of water to provide rapid cooling of kiln exhaust gases upstream of the inlet to the PMCD. Rapid cooling reduces D/F formation that occurs within the temperature window 232 deg. C (450 deg. F) to 343 deg. C (650 deg. F).

As shown in Table 8, D/F emissions from 3 of the 13 tests conducted at stack temperatures below 400 deg. F exceeded 0.2 ng TEQ/dscm. For discussion purposes, the three data points are listed in Table 9 with the corresponding stack temperature. The Calaveras kiln that emitted 0.21 ng TEQ/dscm when tested at a stack temperature of 233 deg. F emitted 97 percent less D/F at a slightly lower stack temperature and with a different mixture of fuels, demonstrating that the kiln could achieve 0.2 ng/dscm through proper kiln combustion.

Table 9 - Data from KILNS at Which Dioxin/Furan TEQ Emissions Exceeded 0.2 ng/dscm

Average stack gas temperature (°F)	Average D/F TEQ (ng/dscm at 7% O_2)	Kiln location
233	0.21	Calaveras - Redding CA.
346	0.37	Lehigh - Union Bridge MD.
358	1.2	Lehigh - Union Bridge MD.

The Lehigh kiln emitted 0.37 ng TEQ/dscm at a stack temperature of 346 deg. F during coal combustion and 1.2 ng TEQ/dscm at a stack temperature of 358 deg. F during coal and tire combustion. The EPA concluded that the high emission (of 1.2 ng TEQ/dscm) resulted from poorly controlled tire combustion/kiln operation, since (as shown in Table 8) three other NHW kilns emitted less than 0.2 ng TEQ/dscm when tested while burning tires. In the absence of detailed information on kiln and APCD operating conditions, fuel firing and combustion control, the Lehigh emission level of 0.37 ng TEQ/dscm at a stack temperature of 346 deg. F cannot be explained.

Temperature reduction to 400 deg. F, in conjunction with proper control of kiln and PMCD operation and efficient combustion will limit D/F emissions to 0.2 ng TEQ/dscm in most (if not all) cases, and the proposed D/F standard for existing kilns is set at this level. The EPA recognizes that the available emissions data show that one kiln (as illustrated by the Lehigh data in Table 9) cannot achieve 0.2 ng TEQ/dscm at an inlet temperature to the PMCD below 400 deg. F, and that parameters consistent with proper equipment operation have not been precisely specified. The proposed standards therefore provide that kilns that cannot meet the 0.2 ng TEQ/dscm limit would be required to maintain the temperature at the inlet to the PMCD at no more than 400 deg. F and to limit the D/F emissions to 0.4 ng TEQ/dscm. This limit of 0.4 ng TEQ/dscm is consistent with the emissions from the Lehigh kiln during coal combustion with an estimated PMCD inlet gas temperature of 400 deg. F.

The Agency has considered whether and how to account for emissions variability in establishing the alternative TEQ limit of 0.4 ng/dscm in conjunction with the 400 deg. F temperature limit at the PMCD. As discussed in this section, available emissions data indicate that most kilns will be able to achieve an emission level of 0.2 ng TEQ/dscm or lower when operating the PMCD at or below 400 deg. F. Even though the Lehigh kiln's emissions were 0.37 ng TEQ/dscm at 346 deg. F (when not burning tires), we believe that a TEQ limit of 0.4 ng/dscm is appropriate given the preponderance of emissions data at or below 0.2 ng TEQ/dscm. These data (given the strong indications that all units will meet the 0.4 ng

TEQ/dscm limit at temperatures of 400 deg. F or below) suggest that using a more specific approach for variability is not needed for this proposed standard. The Agency invites comments on other approaches for accommodating variability in D/F emissions for NHW cement kilns.

Thus, the proposed standard requires that the temperature at the inlet to the PMCD be maintained at a level no greater than either: (1) the higher of 400 deg. F or the temperature established during the successful Method 23 performance test plus five percent (not to exceed 25 deg. F) of the temperature measured in deg. F during the successful compliance test, if D/F emissions were determined to be no greater than 0.15 ng toxic equivalent (TEQ)/dscm (6.5×10^{-11} gr/dscf); (2) the higher of 400 deg. F or the temperature established during the successful Method 23 performance test, if D/F emissions were determined to be greater than 0.15 ng toxic equivalent (TEQ)/dscm (6.5×10^{-11} gr/dscf) but less than 0.2 ng toxic equivalent (TEQ)/dscm (8.7×10^{-11} gr/dscf);, or (3) 400 deg. F if D/F emissions were greater than 0.2 ng TEQ/dscm (8.7×10^{-11} gr/dscf) but less than or equal to 0.4 ng TEQ/dscm (1.7×10^{-10} gr/dscf).

Activated carbon injection (ACI) was investigated as a potential beyond-the-MACT-floor option for existing cement kilns. Activated carbon injection is used at one cement plant on two NHW kilns for the purpose of reducing plume opacity. The total capital cost of an ACI system is estimated to range from $680,000 to $4.9 million per kiln. The total annual costs of an ACI system are estimated to range from $426,000 to $3.3 million per kiln. These costs include the carbon injection system and an additional baghouse to collect the carbon separately from the existing primary particulate collector (docket item II-B-67). Based on these costs, and considering the level of D/F emissions achievable at the floor level of control, the Administrator has determined that this beyond-the-floor (BTF) option for D/F MACT for existing kilns may not be justified. Therefore the Agency is not proposing a BTF standard. Notwithstanding these costs and the limited emissions reductions that a BTF standard would achieve, the Agency solicits comment on whether a BTF standard would be appropriate given the Agency's and the Congress' special concern about D/F. D/F are some of the most toxic compounds known due to their bioaccumulation potential and wide range of health effects at exceedingly low doses, including carcinogenesis. Exposure via indirect pathways was in fact a chief reason that Congress singled out D/F for priority MACT control in section 112(c)(6) of the Act [see S. Rep. No. 128, 101st Cong. 1st Sess. at 154-155 (1989)]. Thus costs to reduce dioxin emissions are frequently justified by the benefits of removing this very toxic HAP. [See 61 FR at 17382, 17392, and 17403 (April 19, 1996) (The EPA proposes BTF standards for D/F emissions from hazardous waste combustion sources).] The EPA is influenced here by the fact that most sources appear to be able to achieve the 0.2 ng TEQ/dscm BTF option through the use of the floor technology alone, i.e. solely through the use of temperature control. Thus, the floor standard (which facially allows the option of 0.4 ng TEQ/dscm) in reality may be virtually equivalent to the BTF level.

Activated carbon injection was also considered as a candidate MACT for new cement kilns. Since no D/F performance data are available on the existing cement kiln ACI system installed to reduce opacity, EPA considered the performance of ACI on other potentially similar sources. Experience with ACI on municipal waste combustors (MWCs) and medical waste incinerators (MWIs) has led EPA to develop emission limits for D/F for these sources in the range of 0.26 to 2.5 ng TEQ/dscm (docket item II-J-3, docket item II-J-7). Assuming the performance level of ACI on MWIs or MWCs to be similar to that of a cement kiln, the D/F emissions levels achieved with ACI are expected to be about the same level that can be achieved with temperature reduction. Therefore, considering the level of D/F emissions achievable by PMCD inlet temperature reduction alone, the Administrator has determined that the temperature reduction plus ACI option for D/F MACT for new kilns may not be justified, and the Agency is not proposing a standard based on ACI. Notwithstanding the limited emissions reduction that such a standard would achieve, the Agency solicits comment on whether or not such a standard would be appropriate, given the Agency's and the Congress' special concern about D/F. The EPA is influenced here, similarly to the situation for existing kilns, by the fact that most new sources appear to be able to achieve a 0.2 ng TEQ/dscm emission level solely through the use of temperature control. Thus the proposed standards (which facially allow a 0.4 ng TEQ/dscm emission level where the implementation of temperature reduction may not achieve a 0.2 ng TEQ/dscm emission level) in reality may be virtually equivalent to a 0.2 ng TEQ/dscm emission level.

For the kiln and in-line kiln/raw mill D/F emission standard, a mass per volume concentration emission limit format was chosen. The specific units of the emission limit are ng of D/F TEQ/dscm, referenced to seven percent oxygen. This emission limit format has historically been used by EPA for many air emission standards. This format is consistent with the format of the OSW [Office of Solid Waste] MACT standard for HW cement kilns.[12] The concentration is corrected to seven percent oxygen to put

concentrations measured in stacks with different oxygen concentrations on a common basis. Also, the typical range of oxygen concentrations in cement kiln stack gas is from five to 10 percent oxygen; therefore, seven percent is representative.

A mass per volume concentration emission limit based on total D/F congeners rather than TEQ was also considered. However, the TEQ format was chosen in order to maintain consistency with the rule for cement kilns which burn hazardous waste.

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[12] The EPA proposed regulations for subpart EEE of 40 CFR part 63 on April 19, 1996 at 61 FR 17358.

Kiln and in-line kiln/raw mill mercury emissions. Activated carbon injection (ACI) was considered a potential control technology for mercury MACT for cement kilns, since a form of this technology has been demonstrated on medical waste incinerators and municipal waste combustors (docket item II-A-36, pp. 98 to 99 and B-7 to B-8; docket item II-A-11; docket item II-A-19; docket item II-A-23), and is being used at one cement plant on two NHW kilns to reduce the opacity (docket item II-B-35). In these applications, the activated carbon (AC) is injected into the uncontrolled exhaust gas stream ahead of the kiln PMCD.

In cement kiln applications for mercury control, the AC would need to be injected downstream from the kiln PMCD and subsequently collected in a separate PMCD, e.g., a baghouse. This is because the PM collected from the kiln exhaust, i.e., cement kiln dust (CKD), is typically recycled from the kiln PMCD back to the kiln, and in some cases may constitute as much as 50 percent of the feed material input to the kiln. If the AC is not injected downstream of the kiln PMCD, and then collected in a separate PMCD downstream of the kiln PMCD, the AC would also be recycled back to the kiln along with the adsorbed mercury. This recycling of mercury back to the cement kiln via the AC would result in the revaporization of the mercury in the kiln gas and ultimately the mercury would be emitted to the atmosphere. The two cement kiln ACI systems cannot be considered as controls for mercury for cement kilns because they do not include provisions for injecting the AC downstream of the kiln PMCD nor do they have the additional PMCD necessary to remove the injected carbon from the exhaust gas stream for disposal, but instead include the AC with the CKD [cement kiln dust] that is recycled to the kiln. Therefore there is no mercury MACT floor for new or existing kilns.

Activated carbon injection (with an additional PMCD) was investigated as a potential beyond-the-MACT-floor option for mercury for new and existing cement kilns. The total capital cost of an ACI system is estimated to range from $680,000 to $4.9 million per kiln. The total annual costs of an ACI system are estimated to range from $430,000 to $3.3 million per kiln. These costs include the carbon injection system and an additional baghouse necessary to collect the carbon separately from the CKD (docket item II-B-67). The cost-effectiveness of ACI applied to cement kilns ranges from $20,000,000 to $50,000,000 per ton of mercury.

It is noted that the Agency has proposed a mercury emissions limit for hazardous waste burning (HW) cement kilns (61 FR 17358), based on the beyond-the-MACT-floor option of ACI. However, mercury levels in hazardous waste fuels per million BTU of heat input are generally higher than mercury levels in coal that is fired in non-hazardous waste burning (NHW) cement kilns. Thus, HW cement kilns generally have higher mercury emissions than NWH cement kilns. Further, the available data indicate that existing mercury emissions from essentially all individual NHW cement kilns are lower than the beyond-the-MACT-floor emission limit that is now being considered by the Agency to be promulgated for HW cement kilns. Based on the relatively low levels of existing mercury emissions from individual NHW cement kilns, and the costs of reducing these emissions by ACI, the Administrator has determined that this beyond-the-MACT-floor option for reducing mercury from new and existing NHW kilns may not be justified. Thus, the Agency is not proposing a mercury standard for new and existing NHW cement kilns.

Notwithstanding the reasons for not proposing a mercury standard for NHW cement kilns, the Agency solicits comment on whether a BTF standard would be appropriate given the Agency's and Congress' special concern about mercury. Mercury is one of the more toxic metals known due to its bioaccumulation potential and the adverse neurological health effects at low concentrations especially to the most sensitive populations at risk (i.e. unborn children, infants and young children). In addition, as with D/F, Congress has singled out mercury in section 112(c)(6) of the Act for prioritized control. Furthermore, the amount of mercury emitted by these sources is not inconsequential, roughly 10,000 pounds annually (or about 60 pounds per kiln annually) making NHW cement kilns a significant source of mercury emissions that may warrant attention under section 112(c)(6) of the Act depending on what other opportunities for controlling mercury from other significant sources are available.

It is EPA's tentative conclusion, however, that concerns as to health risks from mercury emissions from these sources may be appropriately addressed pursuant to the timetable set out in the Act, namely through the residual risk determination process set out in section 112(f) of the Act. A more accelerated determination may be warranted, however, for other mercury-emitting sources, in particular hazardous waste combustion sources, where there are special considerations of immediately protective rules imposed by the Resource Conservation and Recovery Act. [See 61 FR at 17369-17370 (April 19, 1996).]

Kiln and in-line kiln/raw mill HCl emissions. No technologies that control HCl emissions have been identified that are currently being used by more than six percent of the cement kilns in the U.S. For this reason, there is no MACT floor for existing kilns. One technology considered as potential MACT for new kilns was an alkaline scrubber, since two kilns in the U.S. operate scrubbers to control SO_2 emissions. However, these SO_2 scrubbers are operated only intermittently (docket item II-D-196) and thus cannot be considered best controlled similar source. For this reason there is no MACT floor for new kilns.

Alkaline scrubbers were considered as a beyond-the-floor option for HCl control. Based on engineering assessment of HCl scrubbers used in MWC [municipal waste combustor] and MWI [medical waste incinerator] applications and transfer of similar technology to the cement industry and on vendor design information (docket item II-D-36), an alkaline scrubber could achieve 15 ppmv HCl outlet concentration at low inlet HCl loadings or at least 90 percent removal with an inlet HCl level of 100 ppmv or greater. Based on this estimated performance, annual emission reduction estimates range from 12 tpy of HCl and 27 tpy of SO_2 to 200 tpy of HCl and 600 tpy of SO_2 per kiln (docket item II-B-67). The total capital cost of installing an alkaline scrubber on an existing kiln is estimated to range from $980,000 to $4.6 million. The total annual cost is estimated to range from $300,000 to $1.5 million per kiln (docket item II-B-67).

Based on the costs of control and the emissions reductions that would be achieved, the Administrator has determined that beyond-the-floor controls are not warranted. Therefore, there is no proposed emission limit for HCl from new and existing NHW kilns and NHW in-line kiln/raw mills. Analyses indicate that the ambient concentrations of HCl produced by emissions from existing NHW kilns and in-line kiln/raw mills are below the health effects reference concentration for HCl (docket item II-B-71).

E. Selection of Testing and Monitoring Requirements

Testing requirements are being proposed for demonstrating compliance with all standards. Initial performance tests for all affected sources/pollutant combinations would demonstrate compliance with emission limits. These tests would be repeated every 5 years for PM from NHW kilns (including alkali bypasses), NHW in-line kiln/raw mills (including alkali bypasses), clinker coolers, raw material dryers and materials handling processes, and for D/F from kilns and in-line kiln/raw mills. Site-specific monitoring parameters would be established during the initial and subsequent performance tests for D/F from kilns and in-line kiln/raw mill systems. A PMCD inlet temperature parameter would be used to ensure continuous compliance with the D/F emission limit. The following paragraphs present the rationale for the selection of the proposed testing, test methods, and monitoring requirements for each affected source and associated pollutant.

2. Kiln D/F Emissions

The proposed standards would require the owner or operator of an affected kiln or in-line kiln/raw mill to conduct initial and periodic (every five years) performance tests using appropriate existing EPA methods in 40 CFR part 60, appendix A. Method 23 is the established method for determining D/F concentration. Each performance test would consist of three runs conducted under representative operating conditions. Each run must be at least 3 hours duration with a minimum sampling volume of 2.5 dscm. The average of the three runs would be used to determine compliance.

If the kiln is equipped with an alkali bypass, D/F emissions from the alkali bypass would also be subject to Method 23 testing requirements and the emissions from the alkali bypass would be subject to the D/F emission limit. Furthermore, in-line kiln/raw mills would be required to conduct a compliance demonstration with the raw mill in operation and a separate compliance demonstration when the raw mill is not in operation. However, if an in-line kiln/raw mill has an alkali bypass, a compliance demonstration for the alkali bypass would only be required when the raw mill is operating.

There is no CEM available for D/F emissions and no suitable surrogate pollutant that could be monitored continuously. Therefore, for D/F emissions from an affected NHW kiln or NHW in-line kiln/raw mill, the proposed standards would require continuous monitoring and recording of the kiln exhaust gas temperature at the inlet to the kiln PMCD. If the kiln is equipped with an alkali bypass the proposed standards would also require continuous monitoring and recording of the gas temperature at the inlet to the alkali bypass PMCD.

A kiln-specific maximum temperature limit would be established during the performance test. The temperature would be continually measured during the D/F performance test. The average temperature for each of the three runs would be determined, and the average of these three averages would, in some cases, be used to establish the kiln-specific temperature limit. When the D/F performance test emissions were 0.15 ng TEQ/dscm or less (corrected to seven percent oxygen), the kiln-specific maximum temperature would be the higher of 400 deg. F or the average temperature of the performance test plus five percent (not to exceed 25 deg. F) of the temperature measured in deg.F. When the D/F performance test emissions (corrected to seven percent oxygen) were greater than 0.15 ng TEQ/dscm but did not exceed 0.20 ng TEQ/dscm, the kiln-specific maximum temperature would be the higher of 400 deg. F or the average temperature of the performance test. If D/F emissions (corrected to seven percent oxygen) are greater than 0.2 ng/dscm TEQ but less than 0.4 ng/dscm TEQ during the performance test, then the kiln specific temperature limit would be set at 400 deg. F. (If D/F emissions exceed 0.4 ng/dscm, corrected to seven percent oxygen, the performance test would be unsuccessful and the kiln or in-line kiln/raw mill would not be in compliance with the standard.) The temperature would provide a direct indication of D/F emissions from the kiln or in-line kiln/raw mill and would be directly enforceable for compliance determinations.

Owners or operators of kilns and in-line kiln/raw mills equipped with alkali bypasses would establish a separate alkali bypass PMCD inlet temperature limit for the alkali bypass during the performance test. This limit would be based on the temperature at the inlet to the alkali bypass PMCD and would be established in the same manner as the kiln specific temperature limit. Owners or operators of in-line kiln/raw mills equipped with alkali bypasses would establish the temperature limit for the alkali bypass PMCD inlet during the performance test with the raw mill operating.

The proposed averaging period for inlet temperature to the PMCD is 9 hours, because the compliance test for D/F consists of 3-three hour manual tests which are averaged. Thus the inlet temperature limit is established as the average temperature level achieved over the three D/F runs in a performance test.

The Agency specifically requests comment on whether a 9-hour block average site-specific temperature limit is sufficient to ensure compliance with the D/F standard. Because EPA is concerned that D/F emissions emitted during high temperature episodes may not correspondingly be offset by low emissions during lower temperature episodes due to the non-linear relationship between dioxin formation and temperature, a 9-hour block average may not be adequate to ensure compliance with the D/F standard in some instances. The Agency addressed this concern in the proposal for HW combustion sources (cement kilns) [61 FR at 17424, (April 19, 1996)]. There, EPA proposed a site-specific ten-minute rolling average to control perturbations in temperature and a site-specific, one-hour rolling average to control average inlet PMCD temperatures. The ten-minute average was proposed to address the concern that short-term perturbations above the limit may result in D/F emissions that may not be offset by lower emissions at lower temperatures. The one-hour averaging period was proposed to limit average temperatures. Thus, in today's proposal, the Agency requests comment on whether a shorter-term block or rolling average limit (i.e., less than 9 hours) is more appropriate than the one proposed, or whether a short-term limit in conjunction with the proposed 9-hour block average is needed to properly ensure compliance with the D/F standard. The EPA further notes that it may also take these comments into account in considering what averaging time to adopt for hazardous waste combustion sources.

If carbon injection is used for D/F control, a kiln-specific (and where applicable, an alkali bypass-specific) carbon injection rate for each run would be established during the performance test. The average carbon injection rate for the three runs would be calculated. This carbon injection rate would serve as an additional monitoring limit and would be required to be maintained or exceeded for every 9-hour period of kiln operation. The carbon injection rate would provide a direct indication of D/F emissions from the kiln and would be directly enforceable for compliance determinations.

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PROJECT 624-98-01

FAX TRANSMITTAL FORM

TO: Joe Kahn
FDEP Tallahassee

FAX NO.

FROM: John Koogler

DATE: 3/19/99 SENT BY:

The text being transmitted consist s of 3 page(s) PLUS this one. If you do not receive all of the pages or if there are difficulties with this transmission, please call (352) 377-5822.

REMARKS: Joe - Comments on the Gyrotherm burner we discussed. I plan to meet with Howard Manley morning (3/22/99) and would like to talk with you about a citrus project John

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MEMORANDUM

TO: File

FROM: John Koogler

DATE: March 19, 1999

SUBJECT: Application of Gyrotherm Burner Technology to Precalciner Cement Plants

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The application of Gyrotherm burner technology to a state-of-the-art precalciner Portland cement plant has been evaluated. The Gyrotherm burner is a proprietary burner technology marketed in the U.S. by Fuel and Combustion Technology International, Inc. (Malvern, Pennsylvania, telephone 617-725-8840).

The burner uses a precessing jet to achieve the fuel/air mixing. Precession is a term used to describe the rotation of a body about an axis other than its own center line, similar to a spinning top that is leaning to one side. In the Gyrotherm burner, the jet is directed at an angle to the nozzle axis about which it precesses. The precession creates a much larger scale of mixing of fuel and air than can be achieved in a conventional burner as well as increasing the spreading of the flame.

The precessing jet is produced by natural gas fuel.

In 1996, a Gyrotherm burner was designed to burn natural gas (0-100 percent), pulverized coal (0-100 percent) and waste oil (0-10 percent) with application slated for a preheater Portland cement plant. The project was underwritten by the Gas Research Institute. In this plant, 100 percent of the fossil fuel heat input was provided at the main kiln burner (at the clinker discharge end of the kiln) and up to 20 percent of the total plant heat input could be provided by tires fed at the base of the preheater. There have been other applications of Gyrotherm burner technology to Portland cement plants with long wet or long dry kilns firing 100 percent natural gas but no applications to solid fuel fired precalciner kilns.

For the precessing jet to be effective, 10-15 percent of the fuel fired through the Gyrotherm burner must be natural gas. This natural gas fuel will create the precessing jet which makes the Gyrotherm burner unique. The remaining fuel (pulverized coal or pet coke) is fired through an annular ring surrounding the gas burner. According to Fuel and Combustion Technology, if 100 percent coal or pet coke is fired through the Gyrotherm burner, the performance would be no different from any other burner typically used on cement plant kilns. It is only when the precessing jet is created (through the introduction of natural gas supplying 10-15 percent of the heat input) that performance enhancement can be realized.

For Fuel and Combustion Technology to be able to provide any performance guarantee, a complete process audit and modeling study would have to be conducted. The modeling would include both mathematical modeling and physical modeling of a precalciner kiln system. At the present time, it was estimated by Fuel and Combustion Technology that the audit and modeling study would require approximately 10 weeks from receipt of all required information and would cost approximately $75,000. The deliverable would be a report on the expected performance of a Gyrotherm burner and a statement of expected performance. Prior to this analysis, Fuel Combustion and Technology will not commit to any performance limits.

Fuel and Combustion Technology reported that when a Gyrotherm burner was installed on a four-stage preheater plant burning a "typical fuel mix of oil, gas and tires," the NOx concentration in the stack gas was reduced from approximately 950 ppm to approximately 600 ppm during a three day test[1]. Applying the 600 ppm NOx concentration to the stack gas flow from a precalciner kiln results in an NOx emission rate in the range of 6.5 pounds per ton of clinker. With the multi-stage combustion design available through Polysius, NOx emissions in the range of 3.0 pounds per ton of clinker can be achieved while burning 100 percent coal.

If a company were to consider the Gyrotherm burner, a delay in the permitting/design/construction schedule of at least three months would be encountered to gather data and have the feasibility study prepared. The cost of compiling the data and conducting the study would be in excess of $75,000. The deliverable would be a report assessing the feasibility of a Gyrotherm burner for a specific plant. Prior to this study, no statement can be made regarding the expected performance of the Gyrotherm burner for any specific application. For any Portland cement plant burning 100 percent coal or petroleum coke at the main kiln

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[1] *Gyrotherm-Technology Boosts Cement Kiln Output, Efficiency and Cuts NOx Emissions*, R. Vidergar, D. Rapson and S. Dhanjal. IEEE Cement Industry Technical Conference. April 1997.

burner, the Gyrotherm burner will provide no improvement in performance over burners typically installed on precalciner cement plants. For the Gyrotherm burner to possibly improve performance, at least 10-15 percent natural gas will have to be burned in the main kiln burner. As addressed in our response to FDEP, the use of natural gas as fuel will result in production penalties for the plant and will increase annual fuel costs by about 30 percent.

Although the Gyrotherm burner has been demonstrated in full scale operations on other cement plants, none of the cement plants have been state-of-the-art precalciner plants. The applications cited by Fuel Combustion and Technology have been burner replacements on cement plants with long wet and/or dry kilns and one application on an existing four-stage preheater plant. At best, the Gyrotherm burner can be considered emerging technology; not available technology. Until the burner has been installed and evaluated on a precalciner cement plant or until data are available that will allow the vendor to provide expected performance guarantees without a three month, $75,000 study, the Gyrotherm burner cannot be considered a candidate for best available control technology for a precalciner cement plant.

NITRATE DEPOSITION - SUWANNEE AMERICAN 3/18/99 J. KAHN

ESTIMATE TOTAL DEPOSITION BASED ON K&A MODEL ISOPLETHS.

1. FOR 72 MI^2 AREA, 9 MI E TO W, 8 MI N TO S.

a. AVG. DEPOSITION = 0.058 g/m^2

TOTAL = $0.058 \frac{g}{m^2} \times 5711 \frac{lb}{mi^2} \times \frac{m^2}{g}$ = 331.2 lb/mi^2

LOADING = 331.2 lb/mi^2 × 72 mi^2 × $\frac{1\ ton}{2000\ lb}$ = 11.9 TONS

b. INTEGRATE AREA UNDER ISOPLETHS:

TOTAL DEPOSITION = 4.045 g/m^2-72 mi^2 OR 0.056 g/m^2

TOTAL = 0.056 × 5711 = 320.0 lb/mi^2

LOADING TONS = 320 × 72 × $\frac{1}{2000}$ = 11.5 TONS

2. ~~ABD~~ USE QUADRANT METHOD TO ESTIMATE DEPOSITION

a. FOR LOWER LEFT QUADRANT OF 6 MI E TO W, 7 MI N TO S → 42 mi^2

INTEGRATE AREA UNDER ISOPLETHS

0.01 - 8	
0.015 - 10	
0.02 - 9	1.735 g/m^2-42 mi^2 OR 0.041 g/m^2
0.025 - 1	
0.03 - 5	
0.04 - 2	
0.07 - 1	
0.10 - 2	TOTAL = 0.041 × 5711 = 234.1 lb/mi^2
0.15 - 2	
0.20 - 1	234.1 × 42 × $\frac{1}{2000}$ = 4.9 TONS PER QUADRANT
0.30 - 1	
42 mi^2	

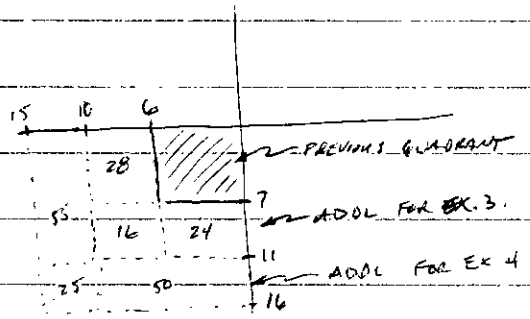
b. FOR 4 EQUAL SIZED QUADRANTS:

TOTAL AREA = 4 × 42 = 168 mi^2

LOADING TONS = 4.9 × 4 = 19.6 TONS

NITRATE DEPO. - SUWANNEE AM. 3/18/99 J KAHN

3. ADD AREA NOT SHOWN ON PLOT OF ISOPLETHS BY EXTRAPOLATION & ESTIMATE TO OBTAIN TOTAL LOADING.



ASSUME 0.005 ISOPLETH CROSSES @ COORD. 0,-11 & -10,0 (MILES)

USE AVG. DEPOSITION OF 0.0075 g/m² FOR ADDL 68 MI².

0.0075 g/m² × 5711 = 42.8 LB/MI²

ADDL LOAD = 42.8 × 68 × 1/2000 = 1.5 TONS

ADDL LOAD, 4 QUADRANTS (4 × (~~44~~ + 68) = ~~272~~ MI²) = 1.5 × 4 = 6.0 TONS

TOTAL LOAD, 4 QUADRANTS (440 MI²) = 19.6 + 6.0 = 25.6 TONS

AVG. LOADING = 25.6 TONS × 2000 LB/TON × 1/440 MI² = 116.4 LB/MI²

4. ADD AREA TO ASSUMED 0.001 ISOPLETH.

ASSUME 0.001 CROSSES @ COORD. 0,-16 & -15,0 (MILES)

FOR THIS 130 MI² AREA USE AVG. DEPOSITION OF 0.003 g/m²

ADDL LOAD = 0.003 × 5711 × 130 × 1/2000 = 1.1 TONS

ADDL LOAD, 4 QUADS (4 × 130 = 520 MI²) = 4.4 TONS

TOTAL LOAD, 4 QUADS (440 + 520 = 960 MI²) = 25.6 + 4.4 = 30 TONS

AVG. LOADING = 30 × 2000 × 1/960 = 62.5 LB/MI²

5. ADD AREA TO ASSUMED 0.0005 ISOPLETH, @ 0,-21 & -20,0 (MILES)

USE AVG. DEPO. OF 0.00075 g/m² (4.3 LB/MI²)

ADDL AREA = 180 MI² ADD LOAD = 0.00075 × 5711 × 180 × 1/2000 = 0.4 TONS

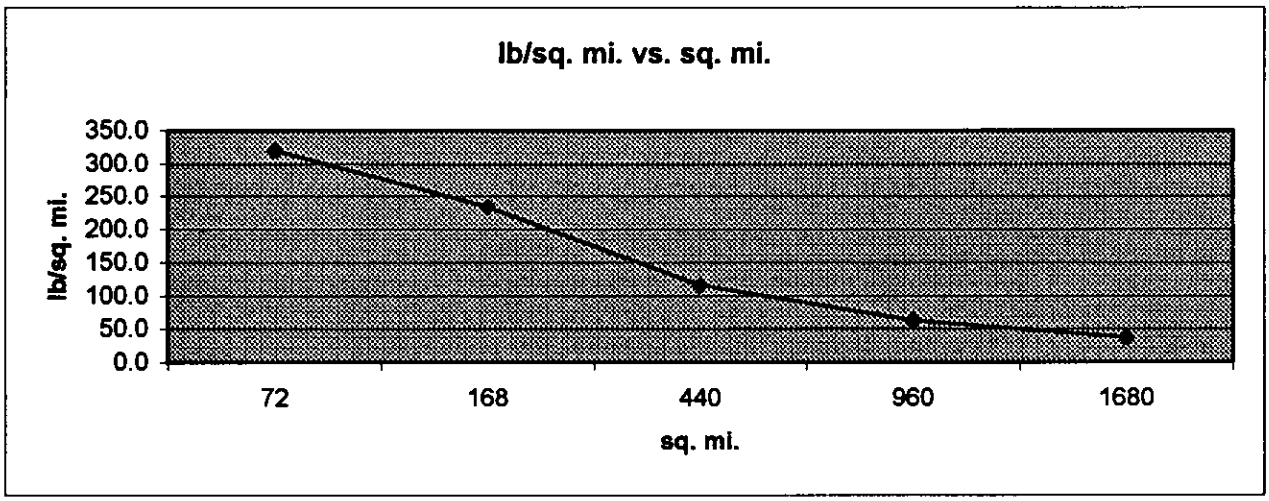
TOTAL LOAD 4 QUADS (1680 MI²) = 30 + 4(0.4) = 31.6 TONS

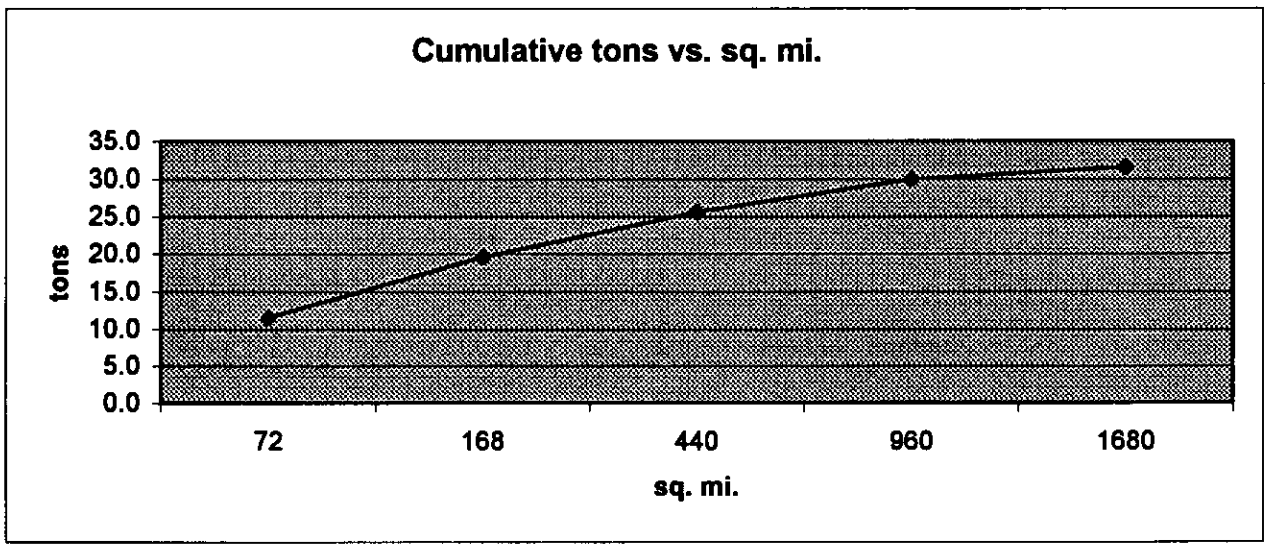
AVG. LOADING = 31.6 × 2000 × 1/1680 = 37.6 LB/MI²

3/18/99

Nitrate Deposition Estimate Summary for Suwannee American Cement
Based on integration of model results provided by Koogler & Associates
and estimation of isopleths not shown on plot by Joe Kahn.
Model based on 1st yr. req. allowable of 3.8 lb/ton. 2nd and subsequent
yrs at 2.9 lb/ton. 1st yr at 1595 tpy, 2nd at 1217 tpy.

Sq. mi.	avg. lb/sq. mi.	Cum. Tons 1st yr	marginal lb/sq. mi.	Cum. Tons 2nd yr
72	320.0	11.5		
168	234.1	19.6		15.0
440	116.4	25.6	42.8	19.5
960	62.5	30.0	17.1	22.9
1680	37.6	31.6	4.3	24.1





Cement Kiln NOx Control: Reburn and Enhance Gas Reburn

Acurex Environmental Corporation

Partners: U.S. EPA and Coen Company

ARB Funds: $192,912

Acurex Website: www.gmgw.com ← NO INFO AT WEBSITE

Cement kilns are among the largest, still relatively uncontrolled, sources of oxides of nitrogen (NOx) in California, and currently there is no acceptable method to reduce their NOx emissions. This technology has good potential to provide the needed control of NOx emissions from cement kilns. Acurex is developing enhanced gas reburn technology for use in the dusty environment of a coal-fired cement kiln. The technology is capable of a 40 percent reduction with simple gas reburn and a 70 percent reduction with enhanced gas reburn. This technology has been successfully demonstrated at a pilot scale facility that simulated process conditions of a preheater/precalcine kiln. Acurex is currently looking for a host site to demonstrate this technology in full-scale operation.

ICAT Projects

Zero-VOC Industrial Maintenance Metal Coating

AVES, Inc. and
Adhesive Coating Company

ARB Funds: $223,002

AVES Website: www.aerovironment.com/area-aves/aves.html

The emissions of volatile organic compounds (VOCs) from coatings operations are a substantial component of total VOC emissions in California. This project is an evaluation and field demonstration of a zero-VOC coating technology for use as a topcoat on parts and products. The resin formulation for the coating was adjusted to provide acceptable drying times, flexibility and hardness, and ultraviolet, chemical, and salt spray resistance. The technology was demonstrated in small-scale testing, and is being followed by full-scale demonstration at manufacturing facilities that coat metal parts and products.

ICAT Projects

Dynamically Optimized Recirculation Coupled with Fluidized Bed Adsorption to Cost-Effectively

NOTICE OF PUBLIC MEETING

The Department of Environmental Protection announces a public meeting to which all persons are invited:

DATE AND TIME: Thursday, March 25, 1999 at 6:00 p.m.

PLACE: Hatch Park Community Center, Branford, Suwannee County, Florida

PURPOSE: To receive comments regarding the Department's receipt of an application for an air construction permit subject to the requirements of the Prevention of Significant Deterioration program (PSD permit) from Suwannee American Cement Company, Inc. The applicant's address is P.O. Box 410, Branford, Florida 32008. The application is for the construction of a Portland cement plant, to be located on US Highway 27 at County Road 49, 3.7 miles east of Branford, Suwannee County.

The applicant's proposed project would produce up to 2,300 tons per day of clinker and up to 1,191,360 tons per year of Portland cement. The project includes raw material processing, dry process in-line raw mill and kiln with a preheater/precalciner, clinker cooler, clinker and cement processing, and fuel processing. Proposed fuels are coal, petroleum coke, tires and tire derived fuel and natural gas. Solid fuels will be received by truck and natural gas will

be provided by a pipeline on the proposed site. Portland cement will be shipped by truck either in bulk or as a bagged and palletized product. BACT and PSD increment consumption have not been determined yet for this project. This meeting is held, in part, to satisfy the public hearing requirements of Rule 62-210.350(2), F.A.C. The Department will formally receive oral or written comments on issues specifically related to the PSD permit application. At the meeting the Department may impose a limit on the time allowed for oral statements. Written statements are encouraged. All statements will become part of the Department's public record of this project.

The complete application and official file are available for review during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays at the Department's Bureau of Air Regulation, 111 S. Magnolia Drive, Tallahassee. Written comments may be directed to Joseph Kahn, P.E., Department of Environmental Protection, Bureau of Air Regulation, Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

A copy of the agenda may be obtained by writing to: Kim Tober, Department of Environmental Protection, Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road,

Tallahassee, Florida 32399-2400 or by calling Kim Tober at (850) 488-0114.

Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting is asked to advise the agency at least 48 hours before the meeting by contacting the Personnel Service Specialist in the Bureau of Personnel at (850) 488-2996. If you are hearing or speech impaired, please contact the agency by calling 800-955-8771 (TDD).