STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

August 6, 1984

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Scott Quaas
Environmental Specialist
Lonestar Florida Pennsuco, Inc.
Post Office Box 122035 - PVS
Hialeah, Florida 33012

Dear Mr. Quaas:

RE: Preliminary Determination - Lonestar Florida Pennsuco, Inc.
PSD-FL-050, Request for Revision

The Florida Department of Environmental Regulation, under the authority delegated by the U.S. Environmental Protection Agency, Region IV, has reviewed your application to modify the referenced source under the provisions of the Prevention of Significant Deterioration Regulations (40 CFR 52.21) and has made a preliminary determination of approval with conditions. Please find enclosed one copy of the Preliminary Determination and proposed federal permit.

You are requested to publish (at your own expense) the attached Public Notice. The notice must appear, one time only, in the legal advertising section of a newspaper of general circulation in Dade County. A copy of the Preliminary Determination and your application will be open to public review and comment for a period of 30 days. The public can also request a public hearing to review and discuss specific issues. At the end of this period, the Department will evaluate the comments received and make a final determination and recommendation to EPA regarding the proposed modification.

Should you have questions regarding this information, please contact Mr. Bill Thomas at (904)488-1344.

Sincerely,

C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality
Management

CHF/pa

Attachments

cc: Mr. Anthony Clemente, Dade County Environmental Resources Management
Mr. Roy Duke, DER Southeast Florida District
Ms. Barbara D. Brown, National Park Service

Technical Evaluation and Preliminary

Lonestar Pennsuco, Inc.
Dade County

Revision of Best Available Control Technology Determination
and
Permit to Construct

Federal Permit Number
PSD-FL-050

Florida Department of Environmental Regulation
Bureau of Air Quality Management
Central Air Permitting

August 6, 1984

Table of Contents

Public Notice

PSD-FL-050 (Revised)

Federal construction permit No. PSD-FL-050 authorized Lonestar Pennsuco, Inc. of Hialeah, Dade County, Florida to convert three Portland cement kilns to coal fuel. Operational data from the first kiln converted to coal showed the permitted sulfur dioxide limits for the kilns cannot be met. The Company has requested that the allowable sulfur dioxide emissions from the three kilns associated with the conversion to coal be increased to 2,300 tons per year. Emissions of other criteria pollutants will not change significantly.

By authority of the United States Environmental Protection Agency, the Florida Department of Environmental Regulation (FDER) has reviewed the proposed modification to the sulfur dioxide emission standard under federal prevention of significant deterioration (PSD) regulations (40 CFR 52.21). The FDER has made a preliminary determination that the modification can be approved provided certain conditions are met. A summary of the basis for this determination and the data submitted by Lonestar Florida Pennsuco, Inc. to support its request is available for public review at the following regulatory agency offices:

Department of Environmental Regulation

Bureau of Air Quality Management

Koger Properties, Inc.

Montgomery Building

Suite 101

Apalachee Parkway

Tallahassee, Fl. 32301

Department of Environmental Regulation

Southeast Florida District

3301 Gun Club Road

West Palm Beach, Florida 33402

Metropolitan Dade County

Environmental Resources Management

909 Southeast First Avenue

Brickell Plaza Building-Room 402

Miami, Florida 33131

The maximum percentage of allowable PSD sulfur dioxide increment consumed by the proposed modification is as follows:

Percent Class I Increment Consumed

	Annual	24-hour	3-hour
Sulfur Dioxide	20	60	56

Percent Class II Increment Consumed

	Annual	24-hour	3-hour
Sulfur Dioxide	13	15	10

Any person may submit written comments to FDER regarding the proposed modification. All comments postmarked not later than 30 days from the date of this notice will be considered by FDER in making a final determination regarding approval of this modification. These comments will be made available for public review at the above locations. Furthermore, a public hearing can be requested by any person. Such requests should be submitted within 15 days of the date this notice is published. Letters should be addressed to:

Mr. C. H. Fancy P.E.
Deputy Bureau Chief
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

I. Applicant

Lonestar Florida Pennsuco, Inc.
Cement and Aggregate Division
Post Office Box 122035
Palm Village Station
Hialeah, Florida 33012

II. Location

The sources affected by the proposed revision are located at the applicant's existing Portland cement plant at 11000 Northwest 121 Street, Hialeah, Dade County, Florida. The UTM coordinates are Zone 17, 562.75 km E and 2861.65 km N.

III. Background

The applicant received federal permit No. PSD-FL-050 in 1980 which authorized the fuel conversion of existing kilns Nos. 1, 2, and 3 from gas or oil to coal containing up to two percent sulfur. Burning coal instead of oil or gas in the kilns will increase the sulfur dioxide emissions from the kilns. The Best Available Control Technology (BACT) determination on which the emission standards were based limited the sulfur dioxide (SO_2) emissions from the existing electrostatic precipitators serving the three kilns to the quantities listed below.

Kiln No.	Maximum Sulfur Dioxide Emission Standards
1	1.42 lb/ton dry feed or 56.7 lbs/hr, 248.4 TPY
2	1.42 lb/ton dry feed or 56.7 lbs/hr, 248.4 TPY
3	0.19 lb/ton dry feed or 26.3 lbs/hr, 115.1 TPY

These standards were the emission limits requested by the applicant. The applicant had estimated a SO_2 removal efficiency of over 90 percent for the system. This removal efficiency was based on test data collected on the systems by a limited number of flue gas tests while the kilns were burning high sulfur fuel oil.

Kiln No. 3 has been converted to coal and actual stack test data shows that SO_2 removal is less than 90 percent. The applicant has studied the latest test data and now believes the systems will obtain only 75 to 85 percent SO_2 removal.

The Company is now requesting a revised BACT determination which would set SO_2 emission limits for the three kilns, while they are burning coal containing two percent sulfur, at the values shown below.

Kilns	Sulfur Dioxide Emission Limit
1	125 lb/hr
2	125 lb/hr
3	400 lb/hr

The company also agrees to operate only 2 kilns at any one time with coal as fuel. The third kiln will be fired with natural gas if it is operated while the other two are operating. Thus, the maximum SO_2 emissions from the three kilns will be 525 lb/hr or 2,300 tons per year.

Model results of the proposed SO_2 emissions from the three kilns shows no violation of the SO_2 increments or ambient air quality standards.

Although other criteria pollutants were regulated by the construction permit, SO_2 is the only pollutant that the Company has addressed in its request for a revision to the BACT determination and the permit.

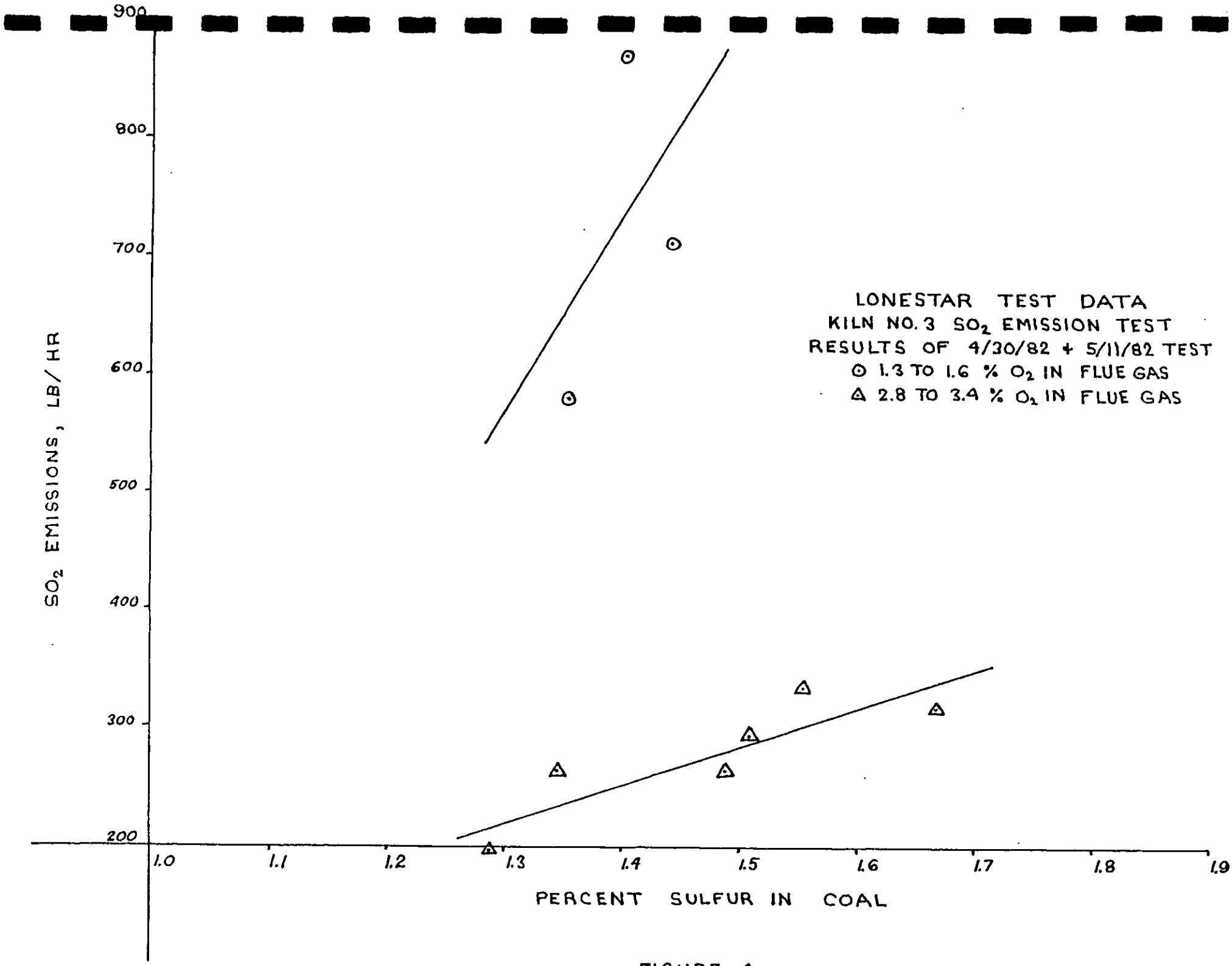
LONESTAR TEST DATA
KILN NO. 3 SO_2 EMISSION TEST
RESULTS OF 4/30/82 + 5/11/82 TEST
⊙ 1.3 TO 1.6 % O_2 IN FLUE GAS
△ 2.8 TO 3.4 % O_2 IN FLUE GAS
SO_2 EMISSIONS, LB/HR
900
800
700
600
500
400
300
200
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
PERCENT SULFUR IN COAL

FIGURE 1

Table 1

Sulfur Dioxide Emissions From Kiln 3

Run	Feed Rate (TPH)	% S in Feed	Coal Rate TPH	% S in Coal	Potential SO_2 Emiss. lb/hr	Measured SO_2 Emiss. lb/hr	Measured SO_2 Removal %
1	138.28	0.068	16.5	1.400	1300	863.60*	33.6
2	138.38	0.068	16.5	1.440	1326	709.10*	46.5
3	138.38	0.088	16.5	1.552	1511	332.30	78.0
1	127.59	0.044	13.9	1.668	1152	318.52	72.4
2	127.59	0.044	13.5	1.508	1039	294.72	71.6
3	127.59	0.044	14.4	1.488	1082	265.46	75.5
4	127.59	0.048	14.4	1.288	987	197.09	80.0
5	127.59	0.040	14.4	1.344	978	264.91	72.9
6	127.59	0.040	15.5	1.356	1045	578.92*	44.6

* O_2 in flue gas=1.6%

IV. Rule Applicability

The original application for a permit to burn coal in the three kilns was subject to Prevention of Significant Deterioration (PSD) review for sulfur dioxide in accordance with the provisions of Title 40, Code of Federal Regulations, Part 52.21 (40 CFR 52.21) promulgated on June 19, 1978, because the original application proposed an increase in sulfur dioxide emissions of greater than 100 tons per year (562 tons per year). This PSD review required a BACT determination and an air quality review and growth analysis. However, the applicant demonstrated that the predicted air quality impacts upon the annual, 24-hour, and 3-hour National Ambient Air Quality Standards (NAAQS) and the PSD Class II increments were below the significance levels as published in 43 FR 26398, June 19, 1978; therefore, a detailed air quality review and growth analysis was not required for the original application.

The applicant is now requesting a revised BACT determination which would increase the sulfur dioxide emission limits for the three kilns. This change in limits results in predicted air quality impacts upon the NAAQS and PSD Class II increments which are greater than the significance levels mentioned above; thus, a detailed air quality review and growth analysis under the June 19, 1978 PSD regulations is required for this change.

V. Engineering Evaluation

The 77.7 percent SO_2 removal efficiency for this system that the applicant's requested revision of the BACT SO_2 emission limits is based on, is greater than EPA implies can be achieved in the AP-42 Manual, Compilation of Air Pollutant Emission Factors. A cement kiln with a baghouse control device is estimated to remove 75 percent of the SO_2. The baghouse is believed to be more efficient in facilitating SO_2 removal than the electrostatic precipitators used by Lonestar. The Company has submitted a limited number of test results on kiln No. 3 that shows the average SO_2 removal efficiency, when the percent oxygen in the flue gas was above 2.8 percent, is 75 percent. No data has been provided that gives assurance that the existing system can consistently achieve a removal efficiency above this. Based on the data available, the department believes the system should achieve 75 percent SO_2 removal.

Flue gas desulfurization equipment (FGD) may be able to meet the standards set in the original BACT determination. However, the applicant stated that FGD on this type of source is unproven and, if used, would cause a financial hardship. The Department is in agreement that FGD is not feasible for this plant at this time.

Using fuels with a lower sulfur content is the only feasible way of reducing sulfur dioxide emissions from this plant. However, the original SO_2 standards initially selected as BACT cannot be met with low sulfur coal alone. Also, if the removal efficiency of the system is only 75 percent, the proposed SO_2 BACT standards will be exceeded at maximum permitted production when using coal containing two percent sulfur (Company's plan) and raw material containing 0.088 percent sulfur (highest estimated sulfur content of the raw material). Coal with a lower sulfur content is available which will allow the Company to meet their proposed SO_2 standards.

Calculations using the maximum raw material and coal inputs to the kilns listed in the original application for a permit to construct, the maximum sulfur content in the feed from Lonestar's June 13, 1983 letter, and a sulfur removal of 75 percent by the system show the kilns would have to burn coal with one percent sulfur to meet the sulfur dioxide emission standards now being requested (See Table I and Figure 1). This is low sulfur fuel. As these emissions cause no ambient air violations, the Department finds these standards acceptable.

VI. Air Quality Impact Analysis

As noted in Section IV., the revision in SO_2 emission limits will result in air quality impacts greater than significance levels, thus requiring a detailed air quality impact analysis for SO_2.

The air quality impact analyses required for SO_2 includes:

- An analysis of existing air quality;
- A PSD increment analysis;
- An Ambient Air Quality Standards (AAQS) analysis;
- An analysis of impacts on soils, vegetation, and visibility, and growth-related air quality impacts.

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

Based on these required analyses, the department has reasonable assurance that the proposed revision, as described in this permit and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or ambient air quality standard. A discussion of the modeling methodology and required analyses follows:

1. Modeling Methodology

The EPA-approved Industrial Source Complex (ISC) dispersion model was used in the air quality impact analysis. This model was used to predict annual, 24-hour, 4-hour, 3-hour, and 1-hour average concentrations resulting from the Lonestar sources and all other existing sources in the vicinity of Lonestar.

The maximum short-term impacts were refined with a 0.1 kilometer spacing between receptors for only the days on which worst-case meteorological conditions occurred. Emissions from interacting sources were included in these runs.

The surface meteorological data used in the model were National Weather Service data collected at Miami, Florida during the period 1970-1974. Upper air meteorological data used in the model were collected during the same time period at Miami, Florida. Final stack parameters and emission rates used in modeling and analyzing the proposed revision are contained in Tables 2 and 3.

2. Analysis of Existing Air Quality

In order to evaluate existing air quality in the area of a proposed project, the department may require a period of continuous preconstruction monitoring for any pollutant subject to federal PSD review. Since the original PSD permit application for the Lonestar coal conversion project was complete before June 8, 1981, and this application is for a revision to the original

permit, the department is not requiring any preconstruction SO_2 monitoring. This is in accordance with the 1978 ambient monitoring guidelines in effect at the time of the original permit application.

Since the Lonestar plant is located in a remote area with respect to SO_2 emissions from non-specified sources, a background of 0 ug/m^3 for SO_2 is assumed. The department also assumed this background since all sources of SO_2 which would interact with emissions from Lonestar are accounted for in the modeling. The department assumed no contribution to the background value from natural and distant non-specified sources because of the prevailing subtropical easterly winds and the lack of space heating requirements in the area. This background was used for all averaging times and is consistent with EPA monitoring guidelines applicable to projects submitting complete applications prior to June 8, 1981.

3. PSD Increment Analysis

The Lonestar plant is located in an area where the Class II PSD increments apply. However, the Everglades National Park is located about 30 kilometers from the plant so an analysis of Class I impacts was also performed.

Lonestar and Dade County Resource Recovery were determined to be the only significant increment consuming sources in the

area. Modeling results shown in Table 4 predict that the proposed revision, in combination with Dade County Resource Recovery, will not cause a violation of any Class I or Class II PSD increment. The highest, second highest short-term predicted concentrations are given in the table since five years of meteorological data were used in the modeling.

4. Ambient Air Quality Standards Analysis

As shown in Table 5, modeling results predict that maximum ground-level concentrations of SO_2 as a result of the proposed revision will be below all national (NAAQS), state (FAAQS) and local (Dade County AAQS) ambient air quality standards. The highest, second highest predicted value is given in the table for the three-hour averaging time since five years of meteorological data were used in the modeling and since this value is exclusively compared to NAAQS and FAAQS. However, the highest predicted values are given for the one-hour, four-hour and 24-hour averaging times since these values are compared with the Dade County AAQS, which require the use of the highest predicted value for comparison.

5. Analysis of Impact on Soils, Vegetation and Visibility and Growth-Related Air Quality Impacts

The maximum impact of the proposed increase in SO_2 emissions, as demonstrated through the air quality analysis, will

be below the national secondary air quality standards established to protect public welfare related values. Therefore, no adverse effects on soils, vegetation and visibility are expected.

There will be no increase in the number of employees at the site due to the revision. No secondary residential, commercial or industrial growth which will adversely affect air quality in the area is expected.

Table 2

Stack Parameters for Lonestar's Original Coal Conversion Project

	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature (K)	Emission Rate SO_2 (g/s)
Kiln #1	61.0	2.1	16.9	472	7.14
Kiln #2	61.0	2.1	15.5	455	7.14
Kiln #3	61.0	4.33	10.8	472	3.31

Table 3

Stack Parameters for Lonestar's Proposed Revision to Coal Conversion Project

	Stack Height (m)	Stack Diameter (m)	Exit Velocity (m/s)	Exit Temperature (K)	Emission Rate SO_2 (g/s)
Kiln #1	61.0	2.1	11.86	465	1.13
Kiln #2	61.0	2.1	10.55	447	15.8
Kiln #3	61.0	4.33	9.98	455	50.4

Table 4

Maximum SO_2 Increment Consumption (ug/m^3)

	Averaging Time		
	3-hours	24-hours	Annual
Maximum Predicted Increment Consumption in Class I area	14*	3*	0.4*
Allowable Class I Increment	25.0	5.0	2.0
Maximum Predicted Increment Consumption in Class II area	53	14	2.5

Table 5

Comparison of Predicted SO_2 Impacts (ug/m^3) with Ambient Air Quality Standards

	Averaging Time				
	1-hour	3-hour	4-hour	24-hour	Annual
Maximum Predicted Impact*	128	54	54	16	2.5
NAAQS	___	1300	___	365	80
FAAQS		1300		260	60
Dade County AAQS	286	___	57.2	28.6	8.6

* Includes 0 ug/m^3 background concentration for all averaging times

VII. Conclusion

Based on the data available, the Department has concluded that the original BACT determination for SO_2 was too restrictive. The SO_2 emission standards of 400 lb/hr for kiln 3 and 125 lb/hr each for kilns 1 and 2 are reasonable. These emissions will not cause an ambient air quality violation or exceed any allowable increase of SO_2 in the ambient air if only two kilns are fired with coal at any one time. Higher SO_2 emissions from the existing plant could increase the SO_2 concentration in the ambient air near the plant above that allowed by Dade County regulations.

The proposed SO_2 emission standards can be achieved by controlling the percent sulfur in the coal. The maximum percent sulfur that can be allowed in the coal is a function of the sulfur dioxide removal efficiency of the system. Low sulfur coal, one percent sulfur, may have to be burned to meet these standards. A controlled test series on all three kilns is needed to resolve what is the maximum percent sulfur in the coal that can be used in the kilns without exceeding the emission standards.

VIII. Revised BACT:

Best Available Control Technology (BACT) Determination

Lonestar Florida Pennsuco, Inc.

Dade County

The applicant has requested a revision of a previous BACT determination for sulfur dioxide emission limits for the three cement kilns located at their facility in Hialeah, Florida. Federal permit PSD-FL-050, issued in 1980, specified that SO_2 emissions from kiln No.1 and No.2 shall not exceed 56.7 pounds per hour per kiln and 26.3 pounds per hour from kiln No.3. The SO_2 emission limits were based on tests using 2.38% sulfur content fuel oil.

Kiln No. 3 was converted from oil/gas fired to coal fired and the emissions measured. The No. 3 kiln test results indicate a lower absorption of SO_2 by the products in the kiln, and consequently more SO_2 is being emitted to the atmosphere than originally proposed based on the tests using oil as fuel. Based upon the new data, the applicant has requested a revision of the SO_2 emission limits for the No. 3 kiln and No. 1 and No. 2 kiln, both of which will also be converted to coal-fired units as originally proposed.

The requested change would result in an increase of 68 lb/hr from kilns 1 and 2 and 374 lb/hr from kiln 3 above the original limits determined as BACT.

BACT Determination Requested by the applicant:

The following fuel operating mix for the three kilns would be:

A.	Kiln 1-coal (125)	Kiln 2-gas(9)	Kiln 3-coal(400)
B.	Kiln 1-gas(9)	Kiln 2-coal(125)	Kiln 3-coal(400)
C.	Kiln 1-coal(125)	Kiln 2-coal(125)	Kiln 3-DOWN

* figure in parenthesis is pounds SO_2 emissions per hour.

Kiln operations per any of the three scenarios will not cause violation of the Federal, State, or Dade County ambient air quality standards.

Date of receipt of a BACT application:

June 4, 1984

Date of Publication in the Florida Administrative Weekly:

June 22, 1984

Review Group Members:

The determination was based upon comments received from the New Source Review Section, Air Modeling Section, the Dade County Department of Environmental Resources Management, and the Southeast District Office.

BACT Determined by DER:

Pollutant	Emission Limit
Kiln No.1	125 lb SO_2/hr
Kiln No.2	125 lb SO_2/hr
Kiln No.3	400 lb SO_2/hr

The SO_2 emission limits determined as BACT do not result in a violation of Federal or State ambient air quality standards, but, do violate the Dade County standards. The department, therefore, has incorporated the proposed three operating scenarios as BACT to prevent violation of the Dade County standards.

Matrix	Matrix	Matrix
Kiln 1 fire coal	Kiln 1 fire gas	Kiln 1 fire coal
Kiln 2 fire gas	Kiln 2 fire coal	Kiln 2 fire coal
Kiln 3 fire coal	Kiln 3 fire coal	Kiln 3 down

Compliance with the SO_2 emission limit will be in accordance with 40 CFR 60, Appendix A; Methods 1, 2, 3, 4 and 6.

Proof of compliance with the operating matrix provision will be the kiln operating log. The day, time and type of fuel fired will be recorded for each kiln. The time period Number 3 kiln is down will also be recorded in the operating log. Each log will be kept a minimum of two years.

BACT Determination Rationale:

The cement kilns were originally fired with natural gas and residual oil. The applicant had submitted test data while firing residual oil containing 2.38 percent sulfur to determine kiln product absorption of SO_2. The data indicated that 91.3% of the potential SO_2 was absorbed by the aggregate processed in kilns 1 and 2 and 98.7% in kiln 3. A BACT determination was made based upon the applicant's data.

A construction permit was issued that authorized the use of coal in all three kilns. Kiln No. 3 was converted to fire coal and the exhaust gases were tested for SO_2 content. The data indicated the absorption of SO_2 in the kiln product was 75 to 80 percent, not the reduction originally anticipated. The coal fired in the kiln during the test contained two percent sulfur.

AP-42, Section 8.6-1 indicates the overall control inherent in the process is approximately 75 percent or greater of the available sulfur in ore and fuel if a baghouse that allows SO_2 to come in contact with the cement dust used. The existing sources use electrostatic precipitators for the control of particulate emissions; therefore, the department believes the maximum absorption would be 75 percent. The amount of SO_2 emissions will vary according to the alkali and sulfur content of the raw materials and fuel.

The SO_2 emission limits determined as BACT are obtainable by firing low sulfur coal. The economics of firing two percent sulfur coal is evident. The applicant has the option of burning a lower sulfur coal or installing additional SO_2 controls to meet the SO_2 limits determined as BACT.

The three operating scenarios proposed by the applicant to protect the Dade County AAQS are acceptable. The application of production process techniques is a recognized method to achieve the required level of emission control.

Details of the Analysis May be Obtained by Contacting:

Edward Palagyi, BACT Coordinator
Department of Environmental Regulation
Bureau of Air Quality Management
2600 Blair Stone Road
Tallahassee, Florida 32301

IX. Permit Condition Revision

Permit Conditions 4, 5, and 6 are revised as follows:

Original Conditions:

4. Emissions of sulfur dioxide from Nos. 1 and 2 kilns shall not exceed 56.7 pounds per hour from each kiln at the maximum operating rate of 25 tons per hour of clinker produced per kiln. At lesser operating rates the emissions of sulfur dioxide shall not exceed 2.27 pounds per ton of clinker produced.

5. Emissions of sulfur dioxide from No. 3 kiln shall not exceed 26.3 pounds per hour at the maximum operating rate of 87.5 tons per hour of clinker produced. At lesser operating rates the emissions of sulfur dioxide shall not exceed 0.30 pounds per ton of clinker produced.

6. The coal used to fuel kilns Nos. 1, 2, and 3 shall have a sulfur content of 2 percent or less.

Revised Conditions:

4. Emissions of sulfur dioxide from Nos. 1 and 2 kilns shall not exceed 125.0 pounds per hour from each kiln at the maximum operating rate of 25 tons per hour of clinker produced per kiln. At lesser operating rates, the

emission of sulfur dioxide shall not exceed 5.0 pounds per ton of clinker produced.

5. Emissions of sulfur dioxide from No. 3 kiln shall not exceed 400 pounds per hour at the maximum operating rate of 87.5 tons per hour of clinker produced. At lesser operating rates the emissions of sulfur dioxide shall not exceed 4.6 pounds per ton of clinker produced.

6. The coal used to fuel kilns Nos. 1, 2, and 3 shall have a sulfur contect of less than 1.75 percent (monthly average) and 2.0 percent maximum; or the sulfur content, as determined by the stack test program described in the BACT determination, that consistently meets the revised sulfur dioxide emission standards; whichever sulfur content is most restrictive.

New Condition:

13. Only two kilns will be operated with coal as fuel at the same time.

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

June 4, 1984

Mr. Scott Quaas
Lonestar Florida Pennsuco Inc.
P.O. Box 122035-PVS
Hialeah, Florida 33012

RE: Request for Revision of Coal Conversion Permit
PSD-FL-050

Dear Mr. Quaas:

With regard to your letter concerning the status of your April 26, 1984 request for revision of coal conversion permit PSD-FL-050, we are in the process of preparing the preliminary determination which we plan to issue during June, 1984. If we need further clarification of any issues while preparing the preliminary determination, we will call you. If you have any further questions, please contact Cleve Holladay or Willard Hanks at 904-488-1344.

Sincerely,

C.H. Fancy, P.E.
Deputy Bureau Chief
Bureau of Air Quality Management

CHF/cgh/agh
cc: Roy Duke, DER Southeast District
Anthony Clemente, Dade County DERM
Bill Voshell, USEPA

LONESTAR FLORIDA PENNSUCO, INC.

Cement & Aggregate Plant
11000 N. W. 121 Way
Medley, Florida 33178
P. O. Box 122035 - PVS
Hialeah, Florida 33012
(305) 823-8800

May 22, 1984

DER
MAY 29 1984
BAQM

Mr. Clair Fancy, Deputy Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

Re: PSD-FL-050

Dear Mr. Fancy:

With regard to my recent SO_2 emission limitation revision request, could you please advise me of the status of your review and/or whether additional information is needed. As this matter has been under review for over one (1) year we are anxious to bring it to a final conclusion.

Please contact me as soon as possible.

Sincerely,

Scott Quaas
Environmental Specialist

LONESTAR FLORIDA PENNSUCO, INC.

Cement & Aggregate Plant
11000 N. W. 121 Way
Medley, Florida 33178
P. O. Box 122035 - PVS
Hialeah, Florida 33012
(305) 823-8800

April 26, 1984

DEP
APR 30 1984
BAQM

Mr. C. H. Fancy
Deputy Chief
Bureau of Air Quality Management
Fla. Dept. of Environmental Regulation
2600 Blair Stone Rd.
Tallahassee, Florida 32301-8241

Re: Request for Revision of Coal Conversion Permit #PSD-FL-050

Dear Mr. Fancy:

The attached letter was sent to EPA requesting our SO_2 emission limiting standards be changed to reflect lower total emissions from our three kilns. These changes were necessitated by your interpretation of the Dade County short-term SO_2 standard and the comparison of modeling concentrations to that standard as outlined in your December 28, 1983 letter.

As your office has been given the responsibility for performing the review and preparing the determination on our PSD revision request, Lonestar also requests that our pending permit extension application for the coal conversion of Kiln Nos. 1, 2, & 3 (File No. AC-13-54054) be issued to reflect that determination.

Should you need any additional information, please do not hesitate to call.

Sincerely,

Scott Quaas
Environmental Specialist

SQ/mp

LONESTAR FLORIDA PENNSUCO, INC.

Cement & Aggregate Plant
11000 N. W. 121 Way
Medley, Florida 33178
P. O. Box 122035 - PVS
Hialeah, Florida 33012
(305) 823-8800

March 23, 1984

Mr. James Wilburn, Chief
Air Management Branch
Environmental Protection Agency - Region IV
345 Courtland Street
Atlanta, Georgia 30365

Re: Request for Revision of Coal Conversion Permit #PSD-FL-050

Dear Mr. Wilburn,

In our revision submittal dated November 19, 1982, Lonestar requested a change to the SO_2 emission limiting standards in the above PSD permit as follows:

Kiln 1	100 lbs/hr
Kiln 2	100 lbs/hr
Kiln 3	400 lbs/hr

You advised me on December 17, 1982 that the Florida Department of Environmental Regulation (FDER) would be responsible for performing the technical review and preparing a determination. Subsequently, Lonestar has submitted additional information to both the state and county regulatory agencies, as requested by those agencies, to clarify remaining issues. Additionally, it was our understanding that the State intended to approve our revision request.

However, in a letter dated December 28, 1983, the FDER advised Lonestar of a change in their interpretation of the Dade County short-term SO_2 standard and the comparison of modeling concentrations to that short-term standard.

The FDER indicated they must compare the predicted highest concentrations at each receptor site to Dade County standards not the second-highest concentrations as used in state and federal regulations. When the modeling submitted by Lonestar was re-evaluated, a violation of the 4-hour Dade County SO_2 standard was predicted.

In view of this recent interpretation, Lonestar has completed a revised air modeling evaluation of three emission scenarios to determine maximum predicted concentrations when the kilns are burning either coal or natural gas. The fuels burned and associated maximum SO_2 emissions for each of the kilns are as follows:

Emission Scenarios	Maximum SO_2 emissions (lbs/hr), and fuel burned		
	Kiln 1	Kiln 2	Kiln 3
1	125 (coal)	9 (natural gas)	400 (coal)
2	9 (natural gas)	125 (coal)	400 (coal)
3	125 (coal)	125 (coal)	off - line

Attached is a summary of maximum SO_2 concentrations predicted for each scenario due to Lonestar and other nearby sources. The supportive computer model printouts will be forwarded under seperate cover. As the air dispersion modeling results depict, Lonestar may operate Kiln 1, Kiln 2 and Kiln 3 under any of the three emission scenarios modeled and will comply, as before, with Federal and State Ambient Air Quality Standards (AAQS), and also comply with the Dade County AAQS as currently interpreted.

Lonestar respectively requests that our emission limiting standards be revised to reflect the emissions outlined in the above three scenarios. As this matter has been under review for one year, we believe an expeditious conclusion of our permit revision request is now warranted.

Re: Request for Revision of Coal Conversion Permit #PSD-FL-050

Should you need any further information from me, please don't hesitate to call.

Sincerely,

Scott Quaas
Environmental Specialist

SQ:elvy

cc: S. Smallwood - DER, Tallahassee
A. Clemente - Dade County DERM
R. Duke - DER, West Palm Beach
B. Voshell - EPA
C. D. Coppinger
R. F. Scully
A. Townsend

file

Summary of Maximum Sulfur Dioxide Concentrations
Due to Lonestar and Other Nearby Sources

Scenario	SO_2 Concentrations (ug/m^3)* for Averaging Periods of: Annual	24-hour Highest	24-hour Highest, Second Highest	4-Hour Highest	3-hour Highest	3-hour Highest, Second Highest	1-hour Highest
1-Kiln #1 and Kiln #3 on coal, Kiln #2 on gas							
Total-All Sources	2.4	15.7	13.4	52.7		52.3	127.2
Lonestar contribution	---	14.3	13.4	52.4		52.0	127.2
2-Kiln #2 and Kiln #3 on coal, Kiln #1 on gas							
Total-All Sources	2.5	16.2	14.0	54.2		53.5	128.0
Lonestar contribution	---	14.7	14.0	53.9		53.2	128.0
3-Kiln #1 and Kiln #2 on coal, Kiln #3 off-line							
Total-All Sources	2.2	15.4	13.2	50.4		46.2	101.6
Lonestar contribution	---	15.4	12.4	50.4		45.8	100.4
Dade County AAQS	8.6	28.6	NA	57.2		NA	286
Florida AAQS	60	NA	260	NA		1300	NA

Note: NA = Not Applicable

*Highest 1-,-4, and 24-hour concentrations are compared to Dade County AAQS, which are not to be exceeded. Highest, second-highest 3- and 24-hour concentrations are compared to Florida AAQS, which are not to be exceeded more than once per year.

Source: ESE, 1984

LONESTAR FLORIDA PENNSUCO, INC.

Cement & Aggregate Plant
11000 N. W. 121 Way
Medley, Florida 33178
P. O. Box 122035 - PVS
Hialeah, Florida 33012
(305) 823-8800

March 23, 1984

DER

Mr. James Wilburn, Chief
Air Management Branch
Environmental Protection Agency - Region IV
345 Courtland Street
Atlanta, Georgia 30365

Re: Request for Revision of Coal Conversion Permit #PSD-FL-050

Dear Mr. Wilburn,

In our revision submittal dated November 19, 1982, Lonestar requested a change to the SO_2 emission limiting standards in the above PSD permit as follows:

Kiln 1	100 lbs/hr
Kiln 2	100 lbs/hr
Kiln 3	400 lbs/hr

You advised me on December 17, 1982 that the Florida Department of Environmental Regulation (FDER) would be responsible for performing the technical review and preparing a determination. Subsequently, Lonestar has submitted additional information to both the state and county regulatory agencies, as requested by those agencies, to clarify remaining issues. Additionally, it was our understanding that the State intended to approve our revision request.

However, in a letter dated December 28, 1983, the FDER advised Lonestar of a change in their interpretation of the Dade County short-term SO_2 standard and the comparison of modeling concentrations to that short-term standard.

The FDER indicated they must compare the predicted highest concentrations at each receptor site to Dade County standards not the second-highest concentrations as used in state and federal regulations. When the modeling submitted by Lonestar was re-evaluated, a violation of the 4-hour Dade County SO_2 standard was predicted.

In view of this recent interpretation, Lonestar has completed a revised air modeling evaluation of three emission scenarios to determine maximum predicted concentrations when the kilns are burning either coal or natural gas. The fuels burned and associated maximum SO_2 emissions for each of the kilns are as follows:

Emission Scenarios	Maximum SO_2 emissions (lbs/hr), and fuel burned		
	Kiln 1	Kiln 2	Kiln 3
1	125 (coal)	9 (natural gas)	400 (coal)
2	9 (natural gas)	125 (coal)	400 (coal)
3	125 (coal)	125 (coal)	off - line

Attached is a summary of maximum SO_2 concentrations predicted for each scenario due to Lonestar and other nearby sources. The supportive computer model printouts will be forwarded under seperate cover. As the air dispersion modeling results depict, Lonestar may operate Kiln 1, Kiln 2 and Kiln 3 under any of the three emission scenarios modeled and will comply, as before, with Federal and State Ambient Air Quality Standards (AAQS), and also comply with the Dade County AAQS as currently interpreted.

Lonestar respectively requests that our emission limiting standards be revised to reflect the emissions outlined in the above three scenarios. As this matter has been under review for one year, we believe an expeditious conclusion of our permit revision request is now warranted.

Re: Request for Revision of Coal Conversion Permit #PSD-FL-050

Should you need any further information from me, please don't hesitate to call.

Sincerely,

Scott Quaas
Environmental Specialist

SQ:elvy

cc: S. Smallwood - DER, Tallahassee
A. Clemente - Dade County DERM
R. Duke - DER, West Palm Beach
B. Voshell - EPA
C. D. Coppinger
R. F. Scully
A. Townsend

file

Summary of Maximum Sulfur Dioxide Concentrations
Due to Lonestar and Other Nearby Sources

Scenario	SO_2 Concentrations (ug/m^3)* for Averaging Periods of : Annual	24-hour Highest	24-hour Highest, Second Highest	4-Hour Highest	3-hour Highest	3-hour Highest, Second Highest	1-hour Highest
1-Kiln #1 and Kiln #3 on coal, Kiln #2 on gas							
Total-All Sources	2.4	15.7	13.4	52.7	52.3		127.2
Lonestar contribution	---	14.3	13.4	52.4	52.0		127.2
2-Kiln #2 and Kiln #3 on coal, Kiln #1 on gas							
Total-All Sources	2.5	16.2	14.0	54.2	53.5		128.0
Lonestar contribution	---	14.7	14.0	53.9	53.2		128.0
3-Kiln #1 and Kiln #2 on coal, Kiln #3 off-line							
Total-All Sources	2.2	15.4	13.2	50.4	46.2		101.6
Lonestar contribution	---	15.4	12.4	50.4	45.8		100.4
Dade County AAQS	8.6	28.6	NA	57.2	NA		286
Florida AAQS	60	NA	260	NA	1300		NA

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*Highest 1-,-4, and 24-hour concentrations are compared to Dade County AAQS, which are not to be exceeded. Highest, second-highest 3- and 24-hour concentrations are compared to Florida AAQS, which are not to be exceeded more than once per year.

Source: ESE, 1984

CH

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

December 28, 1983

Mr. Scott Quaas
Environmental Specialist
Lonestar Florida Pennsuco, Inc.
Post Office Box 122035 - PVS
Hialeah, Florida 33012

Re: Request for Revision of Coal Conversion Permit # AC 13-27742 and PSD-FL-050

Dear Mr. Quaas:

We stated our intention to revise both the federal and state permits on your coal conversion project in a letter to EPA concerning our Air Enforcement Action Plans. However, we have recently discovered a problem which may preclude the Department from issuing the state permit. This problem is based on our understanding that DERM considers the first annual exceedance of a Dade County short-term SO_2 standard to be a violation.

If our understanding of the DERM rules is correct, we have to compare modeled SO_2 concentrations to Dade County short-term standards differently than we compare them to state and national standards. In other words, we must compare the predicted highest concentrations at each receptor site to Dade County standards, not the predicted second-highest concentrations as used in state and federal regulations. When we reevaluated Lonestar's modeling using this method, we found that the revised SO_2 emissions from Lonestar alone, exclusive of emissions from other sources or of any background SO_2 level, are predicted to violate the 4-hour Dade County SO_2 standard (a value of 64.8 ug/m^3 compared to the Dade County standard of 57.2 ug/m^3). Since the Department must enforce the Dade County standards when issuing a state permit, we now believe the Department can't issue a state permit for the requested emission limits. However, since the Dade County ambient standards are not part of the approved SIP, EPA does not recognize them as enforceable, and consequently they are not to be considered in whether we approve or disapprove Lonestar's request for a modification to their federal permit. Therefore, we will, if all federal requirements are complied with, recommend to EPA that the federal permit be modified.

In view of this problem, we responded to the comments contained in DERM's October 20, 1983, letter to Steve Smallwood as follows:

1. Comment #1 on ambient monitoring: Since the requested emission limits result in predicted violations of the 4-hour Dade County standard and since any change in emission limits Lonestar subsequently proposes because of this problem will still likely approach the 4-hour standard, we are prepared to require Lonestar to locate an SO_2 monitor near the plant.
2. Comments #2 and #3 on explaining and documenting the SO_2 emissions in the kilns: We have discussed these comments with you and understand that you have discussed them with DERM and that they have agreed to your answers. Please provide us with any answers to these comments you have provided to DERM, as we would like to resolve these comments with them before taking any final action on your permits.

If you have any questions concerning this matter please feel free to call Cleve Holladay at 904/488-1344.

Sincerely,

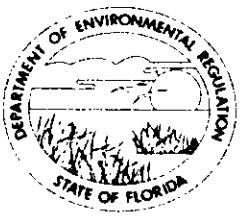
C. H. Fancy, P.E.
Deputy Chief
Bureau of Air Quality Management

CHF/CH/s
cc: Anthony Clemente
Dade County DERM
Roy Duke, DER
Bill Voshell, USEPA

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

December 23, 1983

Mr. Anthony J. Clemente, Director
Department of Environmental Resources Management
909 Southeast 1st Avenue
Brickell Plaza Building - Room 402
Miami, Florida 33131

Re: Lonestar Florida Pennsuco, Inc., Request for Revision of Coal Conversion Permit # AC 13-27742 and PSD-FL-050

Dear Mr. Clemente:

This is in response to your October 20, 1983, letter to me which stated your reasons for disagreeing with our intention to approve the relaxation of Lonestar's sulfur dioxide emission limits on its coal conversion permits.

When I stated our intention to revise both the federal and state permits in my August 30, 1983, letter to EPA concerning our Air Enforcement Action Plans, I was unaware of a problem we have recently discovered which may preclude the Department from issuing the state permit. This problem is based on our understanding that DERM considers the first annual exceedance of a Dade County short-term SO_2 standard to be a violation.

If our understanding of the DERM rules is correct, we have to compare modeled SO_2 concentrations to Dade County short-term standards differently than we compare them to state and national standards. In other words, we must compare the predicted highest concentrations at each receptor site to Dade County standards, not the predicted second-highest concentrations as used in state and federal regulations. When we reevaluated Lonestar's modeling using this method, we found that the revised SO_2 emissions from Lonestar alone, exlcusive of emissions from other sources or of any background SO_2 level, are predicted to violate the 4-hour Dade County SO_2 standard (a value of 64.8 ug/m^3 compared to the Dade County standard of 57.2 ug/m^3). Since the Department must enforce the Dade County standards when issuing a state permit, we now believe the Department can't issue a state permit for the requested emission limits. However, since the Dade County ambient standards are not part of the approved SIP, EPA does not recognize them as enforceable, and consequently they are not to be

considered in whether we approve or disapprove Lonestar's request for a modification to their federal permit. Therefore, we will, if all federal requirements are complied with, recommend to EPA that the federal permit be modified.

In view of this problem, our response to the comments in your October 20, 1983, letter are as follows:

1. Comment #1 on ambient monitoring: Since the requested emission limits result in predicted violations of the 4-hour Dade County standard and since any change in emission limits Lonestar subsequently proposes because of this problem will still likely approach the 4-hour standard, we are prepared to require Lonestar to locate an SO_2 monitor near the plant.

2. Comments #2 and #3 on documenting the SO_2 emissions in the kilns: we have discussed these comments with Lonestar staff and understand that they have discussed them with DERM and that you have agreed to their answers. However, if this is not the case, we will require these comments be satisfactorily resolved before further permitting of Lonestar's kilns is considered.

We will wait for your response to this letter before taking any further action on these permits.

Sincerely,

Steve Smallwood, P.E.
Chief
Bureau of Air Quality Management

SS/LG/s

cc: Scott Quaas
Bill Voshell
Roy Duke

bc: N. Wright
B. Blommel
C. Fancy

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

November 17, 1983

Mr. Anthony J. Clemente, Director
Environmental Resources Management
909 Southeast, 1st Avenue
Brickell Plaza Building - Room 402
Miami, Florida 33131

Re: Lonestar Florida Pennsuco, Inc., Request for Revision of Coal Conversion Permit # AC 13-27742 and PSD-Fl-050

Dear Mr. Clemente:

The Bureau is preparing a response to your October 20, 1983, letter to me which stated your reasons for disagreeing with our intention to approve the relaxation of Lonestar's sulfur dioxide emission limits on their coal conversion permits. I expect to send the Bureau's response within the next week to ten days. We will not take final action on the permit until we have resolved the questions you raised.

Sincerely,

Steve Smallwood, P.E.
Bureau Chief
Bureau of Air Quality Management

SS/CH/s

METROPOLITAN **DADE** COUNTY, FLORIDA

ENVIRONMENTAL RESOURCES MANAGEMENT
909 S E. FIRST AVENUE
BRICKELL PLAZA BUILDING—RM. 402
MIAMI, FLORIDA 33131
(305) 579-2760

October 20, 1983

Steve Smallwood, P.E., Chief
Bureau of Air Quality Management
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

RE: Lonestar Florida Pennsuco, Inc.
Request for Revision of Coal
Conversion Permit #AC 13-27742
(File #AC 13-54054)

Dear Mr. Smallwood:

This letter is in response to your memorandum of September 8, 1983, which indicates that you intend to approve the referenced request by Lonestar for relaxation of the sulfur dioxide emission limits contained in their coal conversion permit. As indicated to you and Lonestar in previous correspondence, we are not satisfied with the information presented in the request and therefore disagree with your intent to approve same for the following reasons:

A. DERM does not feel that certain important questions raised by us in three (3) separate letters to your Department, to date, have been adequately addressed in your review of Lonestar's request.

B. We do not consider your Bureau's interpretation of the Dade County Pollution Control Ordinance, in this instance, that a source is not subject to any further requirements of that ordinance if it only "contributes to" but does not, by itself, "cause" a violation of the standards contained therein, as being reasonable or compatible with the intent of the Ordinance or any similar regulation. Under your interpretation, just about any source proposed in Dade County would only "contribute to" and, therefore, be approvable with few if any controls. We have consulted with our County Attorney's Office and they supported our view in this matter.

In view of the above, we hereby request that your agency reconsider said approval until Lonestar satisfactorily responds to the following:

1. Commit to carrying out an extensive ambient monitoring program to verify the actual levels of sulfur dioxide in the area, and also to determine the direct impact of the higher levels of sulfur dioxide from kiln 3.

2. Explain the drastic turnaround in the projected levels of sulfur dioxide from kiln 3 as compared with kilns 1 and 2. Lonestar had previously maintained that sulfur dioxide emissions from kilns 1

and 2 would be more than twice that from kiln 3. Now, Lonestar claims that kiln 3 will emit four (4) times more sulfur dioxide than the emissions from each of the smaller kilns.

3. Provide documented evidence to support the increase in sulfur dioxide absorption rates from 55 percent in July, 1981 to between 75 percent and 80 percent as is currently being claimed.

This Department does not think it is unreasonable to ask that these issues relating to the use of coal fuel be satisfactorily resolved before further permitting of Lonestar's kilns can be considered. Instead, DERM feels that it is essential to ensure that these new and substantially higher emissions of sulfur dioxide will not adversely affect the air quality in the surrounding areas, nor exacerbate any existing violations that might be caused by other sources. We therefore urge you to reconsider your current position, and look forward to your cooperation in this matter.

Copies of our earlier correspondence are attached for your information.

Sincerely,

Anthony J. Clemente
Director
Environmental Resources Management

AJC/RR/HPW/ag

Attachments

CC: Bill Voshell
Roy Duke
Al Townsend
Scott Quaas

METROPOLITAN DADE COUNTY, FLORIDA

ENVIRONMENTAL RESOURCES MANAGEMENT
909 S.E. FIRST AVENUE
BRICKELL PLAZA BUILDING — RM. 402
MIAMI, FLORIDA 33131
(305) 579-2760

July 22, 1983

Steve Smallwood
Chief, Bureau of Air Quality Management
Florida Department of Environmental
Regulation
Twin Towers Building
2600 Blairstone Road
Tallahassee, Florida 32301

RE: Request by Lonestar Florida
Pennsuco, Inc. for revision
of SO_2 standards contained
in EPA permit #PSD 050 and
FDER Permit #AC 13-27742
(File No.AC 13-54054)

Dear Mr. Smallwood:

The Department of Environmental Resources Management has reviewed the response by Lonestar dated 6/13/83 to FDER's request for additional information regarding the referenced revision of their coal conversion permit, and offers the following comments for your consideration:

1. DERM feels that an ambient monitoring program for SO_2 in the predicted high impact areas is necessary to ensure that the Dade County AAQS is not exceeded, and also to protect nearby Class I areas.

2. Lonestar contends in their letter that the current sulfur absorption rate in kiln #3 is 75-80 percent, whereas the compliance stack test of July 15, 1981 showed an absorption rate of only 55%. Documentation of how this higher figure was calculated must be provided along with the results of the 15 test runs Lonestar says were performed between April, 1982 and March, 1983, including the excess oxygen level during each run.

3. The requested SO_2 emission level of 100#/hr. for kilns 1 and 2 still has not been justified by Lonestar. A detailed analysis of how this requested emission level was arrived at is necessary to alleviate those concerns contained in our letter of January 31, 1983 to Clair Fancy of your office.

4. In Attachment 3 of their June 13 letter to your Department, Lonestar erringly stated that Dade County's short term AAQS for SO_2 can be

exceeded once annually at each receptor site. However, the first exceedance of the Dade County 24-hour AAQS, as contained in Sec. 24-17(1)(b) of the Dade County Code, is considered a violation and must be addressed.

DERM hereby requests that review of Lonestar's request for revision of the above mentioned SO_2 emission standards be completed as expeditiously as possible, as kiln #3 has been operated without a valid operating permit since May 31, 1982 with SO_2 emissions far in excess of previously permitted levels. This Department has to date deferred enforcement action against Lonestar in consideration of their revision request, and in fact has had to refund the local annual operating permit fee for 1982-1983 as no operating permit was issued due to their non-compliance status.

We trust that the above concerns will be adequately addressed by Lonestar prior to any decision by you regarding the SO_2 emission standards revision request. If you have any questions pertaining to the above, please do not hesitate to call.

Yours sincerely,

Rafael Rodon, P.E., Chief
Environmental Planning Division

RR/HPW/ag

CC: Bill Voshell, E.P.A.
Roy Duke, D.E.R.
A. Townsend, Lonestar
Scott Quaas, Lonestar

METROPOLITAN DADE COUNTY, FLORIDA

ENVIRONMENTAL RESOURCES MANAGEMENT
909 S.E. FIRST AVENUE
BRICKELL PLAZA BUILDING — RM. 402
MIAMI, FLORIDA 33131
(305) 579-2760

April 23, 1982

Roy M. Duke, P.E.
Subdistrict Manager
Florida Department of Environmental Regulation
Post Office Box 3858
West Palm Beach, Florida 33402

RE: LONESTAR FLORIDA PENNSUCO INC.,
REQUEST FOR EXTENSION OF DER
CONSTRUCTION PERMIT # AC13-27742

Dear Mr. Duke:

This Department has reviewed the referenced request by Lonestar for a three year extension of their coal conversion construction permit and recommends that said request be denied for kilns #1 and #2, and that a conditional permit extension be granted for kiln #3.

As you are aware, Lonestar kiln #3 is the only kiln at the subject facility that has been converted to coal fuel thus far, with a subsequent stack test on July 15, 1981 showing the sulfur dioxide emissions from that kiln to be 505.79 lbs/hr. DERM believes that this violation of the 26.3 lbs/hr permitted level for sulfur dioxide for kiln #3 as contained in EPA Permit #PSD-FL-050 and DERM Permit #AC13-27742 can result in violation of the Dade County Ambient Standards for that pollutant. DERM is therefore requiring that Lonestar conduct an ambient monitoring program to determine actual levels of sulfur dioxide, and Lonestar's contribution in the areas of greater impact.

Furthermore, the high level of sulfur dioxide emissions from kiln #3 indicates that assumptions regarding sulfur absorption rates in the kilns on which the original coal conversion applications were based are erroneous. Consequently, this Department feels that Lonestar must provide revised projections of pollutant emissions, especially for sulfur dioxide, that would result from conversion of kilns 1 and 2 to coal fuel, before any further permitting actions can be considered for these kilns to convert to coal.

DERM hereby proposes that extension of the above-mentioned permit be granted for kiln #3 only, with the attached condition that the existing violation be resolved with all the regulatory agencies concerned within eighteen months of the granting of such extension.

Your cooperation in protecting Dade County's ambient air quality is greatly appreciated. If you have any questions on any of the above, please do not hesitate to call.

Yours sincerely,

Rafael Rodon, P.E.
Acting Chief
Environmental Planning Division
Environmental Resources Management

RR:HPW:toc

cc: Ed Cahill
Bill Brant
Joe Stilwell
Al Townsend, Lonestar
Tommie Gibbs, EPA

METROPOLITAN DADE COUNTY, FLORIDA

ENVIRONMENTAL RESOURCES MANAGEMENT
909 S.E. FIRST AVENUE
BRICKELL PLAZA BUILDING — RM 402
MIAMI, FLORIDA 33131
(305) 579-2761

January 31, 1983

Mr. Clair Fancy, P.E.
Deputy Chief, B.A.Q.M.
Florida Dept. of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32301

Re: Lonestar Florida Pennsuco Inc.;
Request for revision of SO_2 Standards
contained in EPA Permit # PSD 050 and
FDER Permit # AC13 - 54054

Dear Mr. Fancy:

The Department of Environmental Resources Management has completed review of the referenced request by Lonestar to the Environmental Protection Agency and the Florida Department of Environmental Regulation for revision of the sulfur dioxide emission limits contained in the abovementioned permits, and we have several concerns for your consideration during the review of the proposed revision.

As indicated previously in our letter dated April 23, 1982 to Mr. Roy Duke at your District office in West Palm Beach, DERM proposes that Lonestar be directed to conduct a thorough ambient monitoring program to determine the actual levels of SO_2 in predicted high impact areas, before kilns #1 and #2 are allowed to be converted to coal fuel. It is our position that such a measure is required due to inconsistencies in previous models, and also because the Dade County AAQS might be exceeded if new emission limits are granted to Lonestar. Furthermore, ambient monitoring would serve to ensure that the Class 1 increment is not exceeded in the Everglades National Park.

With regards to Lonestar's current request for revision of the SO_2 emission limits, please be advised of the following concerns by DERM:

1. The original application by Lonestar for the coal conversion of their kilns projected SO_2 emissions of 56.7 lbs/hr. each from kilns 1 and 2, and 26.3 lbs/hr/ from kiln #3. As you can see, this is greater than twice the amount of SO_2 from each of kilns 1 and 2 than from kiln 3. Yet the current request by Lonestar is for 100 lbs/hr. from each of kilns 1 and 2, and 400 lbs/hr. from kiln 3. Lonestar should justify such a significant change in the projected emission limitations.

2. The BACT analysis, attached to the current request, includes a section describing operating variables that affect SO_2 emissions (page 2, 2nd paragraph). It is stated in this section that the use of excess oxygen greater than 1.5 percent can cause operational problems. Then, in the separate attachment 'STACK TEST RESULTS - SO_2', it is documented that for all the stack tests where SO_2 emissions were lower than the requested limit of 400 lbs/hr. for kiln #3, the percent oxygen ranged from 2.9% to 3.4%. Other results, with the percent oxygen between 1.3% and 1.6%, all showed SO_2 emissions well in excess of 400 lbs/hr. Based on the above, it is reasonable to assume that the requested emission limit for SO_2 of 400 lbs/hr. from kiln 3 is unrealistic.

Finally, this Department does not feel that the possibility of alternate or add on controls for sulfur dioxide has been adequately addressed, in that no direct controls for SO_2 emissions have been assessed.

We trust that the above comments will assist you in your review. If you should have any questions, please do not hesitate to call at (305) 579-2760 or (Sun-com 448-2760).

Sincerely,

Rafael Rodon, P.E.
Chief
Environmental Planning Division

RR:HPW:vpc

cc: Bill Voshell
Roy Duke
Al Townsend
Scott Quaas

LONESTAR FLORIDA PENNSUCO, INC.

Cement & Aggregate Plant
11000 N. W. 121 Way
Medley, Florida 33178
P. O. Box 122035 - PVS
Hialeah, Florida 33012
(305) 823-8800

August 30, 1983

DER
SEP 02 1983
BAQM

Mr. Steve Smallwood, Chief
Bureau of Air Quality Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301-3841

Re: PSD-FL-050; Request for SO_2 Emission Limitation Revision

Dear Mr. Smallwood:

Lonestar is in receipt of a July 22, 1983 letter addressed to you from the Metro-Dade County Department of Environmental Resources Management (DERM). This is to respond to those comments and to clarify the issues raised in their letter.

1. The ambient modeling evaluations submitted with Lonestar's revision request utilized EPA and DER approved Industrial Source Complex Short-Term (ISCST) model. It analyzed annual, 24-hour, 4-hour, 3-hour, and 1-hour impacts due to Lonestar and nearby significant sources on PSD increments, and Florida and Dade County AAQS. The dispersion modeling evaluation showed the operation of Kiln 1, 2, and 3 utilizing coal, and emitting 100, 100, & 400 lbs/hr. SO_2 respectively, will not exceed Federal, State and Dade County ambient air quality standards, will not impact significantly predicted violations in the vicinity of Alton Box, nor will the operations impact on the nearby Class I area exceed the allowable PSD increments. In a May 13, 1980 letter from DERM to the Florida Department of Environmental Regulation regarding this project, it was stated, "Since Alton Box Board is depicted to exceed the four-hour standard individually and Lonestar's emissions are apparently insignificant ($< 5ug/m^3$) at the interaction receptor location, it is felt the applicant's proposed modification should not be denied on the basis of sulfur dioxide

emissions. It is recommended that Alton Box Board demonstrate SO_2 emissions reduction prior to the renewal of its permit." Those comments by DERM are directly applicable to this revision request as shown by the modeling evaluations submitted with our request.

2. Stack test results for Kiln 3 and SO_2 absorption calculations using those results were submitted in our original request for revision dated November 19, 1982. The calculations show 77.7 percent absorption with 372 lbs/hr. SO_2 emitted. Excess oxygen levels during the test runs are indicated in the results. Our June 13, 1983 supplemental information letter further describes the relationship between oxygen levels and other kiln variables on SO_2 emissions. The results of all but six of the fifteen test runs, referred to in DERM's letter were submitted in our original request. The additional test runs were performed in-house and while these tests do support Lonestar's conclusions, the only information used from the tests in any calculations submitted was the sulfur contents of the raw feed material.

3. The estimates of SO_2 emission levels for Kilns 1 and 2 at 100 lbs/hr. were based upon the best available data as there are no existing equivalent facilities to make precise assumptions. Calculations using 2 percent S coal, 0.15 percent SO_3 in the feed material and absorption of 80 percent show emissions would be 98.6 lbs/hr.

4. In attachment 3 of our June 13, 1982 supplemental information letter to your office, we quoted from the Dade County 1981 Ambient Air Quality Data Report regarding exceedences and violations which DERM now points out in their July 22nd letter as being in error. In any case, whether the highest or second highest 24-hour concentration at each receptor is considered, the ambient dispersion model evaluation submitted in Lonestar's original revision request and the supplemental evaluation of predicated violations in the vicinity of Alton Box show that Lonestar does not exceed any Federal, State, or Dade County AAQS. Again DERM's earlier comments referred to in No. 1 above would apply.

I am hopeful this resolves those concerns raised in DERM's July 22nd letter and agree that the review of our revision request be completed as

expeditiously as possible. We stand ready to meet with you and your staff to resolve any questions you may have on this important project, and look forward to continuing to work closely with the Department.

Sincerely,

Scott Quaas
Environmental Specialist

SQ:lyn
cc: Rafael Rodon - DERM
Tom Tittle - DER, W. Palm Beach
Richard DuBose - EPA

307.2

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241

BOB GRAHAM
GOVERNOR

VICTORIA J. TSCHINKEL
SECRETARY

August 30, 1983

Mr. James T. Wilburn, Chief
Air Management Branch
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, Northeast
Atlanta, Georgia 30365

Dear Mr. Wilburn:

Your letter of July 8, 1983, which we received July 14 requested additional information on our Air Enforcement Action Plans. On August 3, I sent you information on the 24 cases discussed in your letter. The following is a more detailed response to each case:

1. Orlando Utilities Commission (OUC) Indian River - Unit 2

There are several issues related to the Indian River Power Plant. They include: the acceptablity of the current test port location; the acceptability of the previously used test methodology; the status of the company's request for department approval of an alternate standard and procedure for demonstrating compliance with the applicable emission standards for this plant; and, the compliance status of the unit with respect to tests conducted during this calendar year.

The current port location at Unit 2 is upstream of the air preheater. There is essentially no ductwork between the air preheater and the stack, which Unit 2 shares with Unit 1. The existing Unit 2 port locations meet the upstream downstream flow disturbance criteria but the stack temperature at that location is in the range of 650° - 800°F.

Historically, OUC has used a particulate emission testing methodology similar to EPA Method 17. DER rules allow the use of EPA Method 5, or EPA Method 17 provided particulate is collected at a temperature of 375°F or less. The unit is an older oil-fired unit that is not subject to NSPS.

11. Visual Graphics

This facility was inspected by Bill Voshell of EPA on July 19, 1983. He informed Rick Vail, of BAQM, that the facility had eliminated the source of VOCs and planned to cease all operation by the end of the year. The facility is now in compliance; DER does not plan to take enforcement action.

12. General Motors

Data was submitted on July 7, 1983 to EPA verifying that the source was no longer under RACT regulations. The plant modified both of their paint spray booths to reduce emissions to lower than 3 lbs/hr and 15 lbs/day. They are now in compliance. Any efforts to increase emissions will require modification of GM's operating permit. EPA has also discussed with DER the eventual submittal of a SIP revision to include the permit condition.

13. Lonestar Pennsuco

Lonestar Pennsuco submitted its request for a revision to it's federal PSD permit, PSD-FL-050, on February 28, 1983. This revision would increase SO_2 emissions from each of their three kilns. Lonestar submitted air quality dispersion modeling in February 1983 and in June 1983. This modeling shows that no state or federal ambient air quality standards are predicted to be violated, but it does show predicted violations of the 24-hour (28.6 ug/m^3) and 4-hour (57.2 ug/m^3) Dade County SO_2 standards in the vicinity of Alton Box Board Company. Alton Box Board is located about seven kilometers to the southeast of Lonestar. Alton Box Board is predicted to violate these standards several times a year, operating alone. The Dade County ordinance treats even one exceedance of the standards as a violation (Dade County Code 24-17). Lonestar's proposed modification will increase the impacts of some of the violations and will contribute to several additional violations which are predicted to occur downwind of Alton Box Board in the direction of interaction with Lonestar. However, Lonestar's contributions to these predicted violations are small compared to impacts from Alton Box Board.

Since the Department has determined that it must enforce the Dade County pollution standards when issuing a state permit, [Section 403.182(6), Florida Statutes], the Bureau orginally believed that Lonestar's predicted contributions to predicted violations would prevent the Department from being able to issue a state permit with the SO_2 emission limits being requested by Lonestar. However, the Dade County pollution

ordinance states that no source may "cause" an emission of SO_2 which would exceed their standards. There is no mention of the word "contribute" in their ordinance. Lonestar's modeling clearly shows that Lonestar does not cause any violations, when operating alone. Therefore, the Bureau, after consulting with the Department's Office of General Counsel, believes that the Department now may issue both the federal and state permits with the SO_2 emission limits requested by Lonestar. The Bureau will be issuing a preliminary determination for the federal permit modification around September 15, 1983.

The Action Plans for the following sources were identified as acceptable upon submittal of stack test certifying compliance. A copy of stack test reports will be submitted to you as soon as they are submitted to us.

1) Yorke Doliner

2) Marion Paving

3) Sloan Construction

4) V.E. Whitehurst - A stack test showing compliance was submitted to you on 7-7-83. The plant is now in compliance.

5) Alad Construction is now in compliance. The stack test report showing compliance is enclosed (see attachment III).

I believe this provides the information you requested. If you need additional information, let me know. If you think we should pursue a different course of action on any of these, let's discuss it.

Sincerely,

Steve Smallwood, P.E.
Chief
Bureau of Air Quality Management

SS/dt

Attachments

Enclosure

cc: Jesse Baskerville, EPA
Bill Blommel
Bill Buzick
Tom Devine
Clair Fancy
Marti Hall
Andrew Hodges, EPA
Marshall Mott-Smith
Howard Rhodes
Winston Smith, EPA
Walt Starnes
Dan Thompson
Bill Voshell, EPA
Nancy Wright
District Managers
Local Program Directors

LONESTAR FLORIDA PENNSUCO, INC.

Cement & Aggregate Plant
11000 N. W. 121 Way
Medley, Florida 33178
P. O. Box 122035 - PVS
Hialeah, Florida 33012
(305) 823-8800

June 14, 1983

DER

JUN 16 1983

BAQM

Mr. Clair Fancy
Bureau of Air Quality Management
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

Re: PSD-FL-050, Request for Emission Limitation Revision

Dear Mr. Fancy,

Please find enclosed the supportive computer model printouts referenced in our June 13th letter regarding the above federal permit.

Sincerely,

Scott Quaas
Environmental Specialist

SQ/ep

CC: R. DuBose - EPA, Region (with enclosure)

EVALUATION OF PREDICTED VIOLATIONS OF THE DADE COUNTY AAQS
DOWNWIND OF ALTON BOX

In response to the Florida Department of Environmental Regulation (DER) letter of April 7, 1983, an investigation of predicted violations of the Dade County Ambient Air Quality Standard (AAQS) for sulfur dioxide (SO_2) in the vicinity of Alton Box has been completed. Based upon a conversation with Mr. Larry George of the DER on June 3, 1983, only the 24-hour averaging time was evaluated. The 4-hour Dade County AAQS was also predicted to be violated in the vicinity of Alton Box, but since Lonestar maximum 4-hour impacts near Alton Box are low (less than 17 ug/m^3 based upon previous modeling), and no air quality impact significance level has been established for the 4-hour average, no further analysis was required.

The analysis consisted of executing the Industrial Source Complex Short-Term (ISCST) model for five years of Miami Airport meteorological data (1970-1974), with Lonestar SO_2 emissions at 100 pounds per hour (lb/hr) for Kilns #1 and #2, and 400 lb/hr for Kiln #3. Stack parameters for Lonestar and other sources, and SO_2 emissions for other sources were the same as contained in the November 19, 1982 submittal to the U.S. EPA. The receptor grid used in the vicinity of Alton Box for the evaluation differed somewhat from the previous modeling. Based upon the relative location of Alton Box and Lonestar, a radial direction of 120.5° from north aligns the two plants. As a result, radial directions in the model were set at 117.5°, 119.0°, 120.5°, 122.0° and 123.5°. The 1.5° angular spacing results in a receptor spacing of about 200 m at a downwind distance of 7.4 km. The two plants are located 7.267 km apart, and therefore downwind distances (from Lonestar) of 7.4, 7.6, 7.8, 8.0 and 8.2 km were input to the model. All other model inputs were the same as for the modeling in your November 19 submittal.

From the ISCST model output, all 24-hour periods (days) on which the Dade County 24-hour SO_2 AAQS of 28.6 ug/m^3 was exceeded were identified. These days and associated predicted concentrations due to all sources are shown in Table 1. Dade County's short-term AAQS can be exceeded once per year at each receptor location (Dade County, Florida, 1981 Ambient Air Quality Data Report, pg. 7). Thus, the highest 24-hour concentration at each receptor is not considered in determining if a violation of the standard has occurred. Therefore, Lonestar's contribution to total concentrations are not shown in Table 1 for the highest predicted concentration at each receptor. Lonestar's contribution is shown for all other values exceeding the AAQS.

Review of Table 1 shows that Lonestar's maximum contribution to any predicted violation of the 24-hour Dade County AAQS near Alton Box is 2.0 ug/m^3. This value is well below the 24-hour SO_2 significance level of 5.0 ug/m^3, and therefore Lonestar does not contribute significantly to any of these predicted violations. Supportive computer model printouts are included with this submittal.

Table 1. Concentrations (ug/m^3) Predicted to Exceed the 24-Hour Dade County Standard in the Vicinity of Alton Box

Year	Day	Receptor Location [Distance (km), Range (Deg)]															
		7.4, 119		7.4, 122		7.4, 123.5		7.6, 119		7.6, 120.5		7.6, 122		7.6, 123.5		7.8, 120.5		7.8, 122	
		AS	LC	AS	LC	AS	LC	AS	LC	AS	LC	AS	LC	AS	LC	AS	LC	AS	LC
1970	4			33.8	*														
	51			31.6	0.3														
	37			31.3	0.2														
	320			29.6	0.0									40.2	0.3				
	36											29.3	0.0	43.3	*				
	35											32.6	*						
	328											31.9	0.2						
	9											31.5	2.0						
1971	317													31.4	*				
	40											38.7	*						
	79											29.1	1.4						
	269					28.8	*												
	16			41.9	*														
	15									36.0	*						33.6	*	
1972	174	54.5	*																
	173	54.3	0.0																
	144	32.7	0.0																
	176	28.8	0.0																
	352											33.3	*						
	77									29.4	*								
	327																	29.2	*
1973	298			35.7	*														
	297			31.5	1.0														
	50					41.2	*												
	41							31.7	*										
	355									28.9	*								
1974	89	39.2	*																
	279			37.4	*														
	313			32.9	0.0														
	317			29.3	0.0														
	330			28.9	0.0														
	344			28.9	0.0														
	40											36.3	*						
	57											32.9	0.9						

Source: Environmental Science and Engineering, Inc., 1983.

AS = Total concentration due to all sources.
LC = Lonestar's contribution to total concentration.
* = No contribution given for highest predicted concentration at each receptor.

LONESTAR FLORIDA/PENNSUCO, INC.

Cement and Aggregate Division
Post Office Box 122035
Palm Village Station
Hialeah, Florida 33012
(305) 823-8800

November 19, 1982

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Thomas W. Devine, Director
Air & Waste Management Division
Environmental Protection Agency - Region IV
345 Courtland Street
Atlanta, GA 30365

RE: PSD-FL-050; Lonestar Florida/Pennsuco, Inc.; Kilns 1, 2 and 3; Request for Revision of Sulfur Dioxide Emission Limitations

Dear Mr. Devine:

In accordance with my letter to you dated November 2, 1982, the following items are enclosed to assist your office in revising the above referenced permit:

1) A revised air quality modeling analysis addressing significant changes which would influence the model predictions and which shows compliance with applicable ambient air quality standards.

2) A revised BACT analysis showing that alternate controls for SO_2 emissions are unwarranted. Retrofitting the three existing kilns with additional or alternative control devices would have only minimal effect on emissions, would have an insignificant effect on reducing ambient air impacts, and would prohibit the company from implementing the complete conversion of its kilns to coal. The analysis also contains an explanation of operating variables in a Portland cement kiln and the resulting effect on SO_2 emissions.

3) A summary of recent stack tests including SO_2 absorption calculations with resulting emission estimates for kiln 3.

Based upon these materials Lonestar respectfully requests a revision to the SO_2 emission limiting standards in the above PSD permit as follows:

Kiln 1	100 lbs/hr.
Kiln 2	100 lbs/hr.
Kiln 3	400 lbs/hr.

We look forward to answering any questions you may have and meeting with you at an early date to discuss this request.

Sincerely,

SCOTT QUAAS
Environmental/Specialist

cc: S. Smallwood-DER

As the feed material is calcinated and reaches the point of insipient fusion (clinker formation), potassium and sodium oxides are volatized and combined with available sulfur oxides to form alkaline salts in a gas reaction. These salts are very fine particles that are caught in the pollution control equipment downstream of the kiln. The return of all the dust to the kiln (insulflation) is performed as Lonestar's kiln #3. The insulflated sulfates are eventually retained with the clinker as were the sulfates in the feed material and sulfur oxides from the fuel.

The overall effect of excess oxygen in the kiln is that less than 0.5 percent will enhance SO_2 emissions and excess oxygen in the range of 0.5-1.5 percent will significantly reduce emissions. The use of excess oxygen greater than 1.5 percent can cause operational problems (too hot of a backend kiln temperature, improper clinker burning zone, kiln dusting) as well as wasting fuel by heating the excess air. The use of too little excess oxygen causes incomplete combustion and very unstable operating conditions. When an electrostatic precipitator (ESP) is used, the carbon monoxide generated can cause explosive conditions in the ESP.

Other variables for the emission of SO_2 are sulfur content of fuel, chemistry of kiln feed and kiln dust, NO_x formation and unstable kiln conditions. These factors can be significant as to

SO_2 generation, but for the specific long term operating conditions at Lonestar's kilns they are not considered as important for this analysis as is excess oxygen content.

Control Technology Available

The two types of particulate control equipment typically used to meet New Source Performance Standards (NSPS) and Best Available Control Technology (BACT) review criteria are electrostatic precipitators (ESP) and baghouses. Historically, there has been very little success in using baghouses on wet process kilns due to condensation, temperature and maintenance problems. Baghouses are usually multicompartmental with thousands of fiberglass bags for filtering the dust from the kiln gases. The collection is done on the dust cake which forms on the dirty side of the bags. When a kiln is started or stopped, there is potential for the filter cake temperature to fall below the dew point unless heated by a separate heat source. If condensation does occur (the usual moisture content of the exhaust gases is 30 percent) this cake will harden and permanently blind the bag. Another major problem with baghouses has been the inability to sustain the high operational temperatures without gas conditioning equipment (dilution air). During unstable kiln conditions this can become a problem to adequately cool or heat the bags to prevent excursions of their temperature limits or cooling below the dew point.

Another operational problem with baghouses has been maintaining the thousands of bags. The fiberglass fibers will fatigue with time or fail due to condensation or temperature and can develop pin hole leaks that will necessitate patching or bag replacement. Therefore, a routine maintenance program is a necessity to monitor the conditions of the bags and maintain the reliability of the system.

ESP's, such as those presently installed at Lonestar's kilns, do not have condensation, temperature, or maintenance problems. They do not require any auxiliary heating and can take relatively large fluctuations in gas temperatures without problem. An ESP is designed to have extensive internal maintenance during annual kiln shutdowns and not on a daily basis. It has multi-stages that the gases must travel through (not just a thin filter cake) for collection of the kiln dust. These stages are individually controlled as to voltage, amperage and cleaning cycle. Operational problems in one stage can be compensated for by externally adjusting the other stages. ESP's do not have the daily maintenance problems associated with baghouses.

With regard to SO_2 emissions, approximately 75 percent of the SO_2 is absorbed by the proper burning of the kiln and is incorporated in the clinker. EPA has stated that due to the gases having to pass through the filter cake an additional 50 percent removal of the remaining 25 percent (that is,

approximately 12 percent) of the SO_2 may be achieved. This was developed through review of limited testing data on several kilns in the early 1970's; however, no actual tests comparing both control devices under the same operating kiln conditions have been performed.

Furthermore, the reasonableness of that 50 percent additional removal is questionable. In a baghouse system, the gases quickly move from the inlet manifold to a compartment and through a filter cake (approximately 1/4 inch thick) and back to the clean air plenum. The residence time in the collector is much less than in a precipitator. The additional residence time in an electrostatic precipitator (ESP) allows for longer reaction time with the dust particles for good absorption.

Environmental Impacts

The ambient air quality impacts due to conversion of Lonestar's kilns are addressed in the accompanying dispersion modeling evaluation. The predicated impacts reflect SO_2 emissions using ESP's. Lonestar's maximum annual and highest, second-highest short-term predicted SO_2 impacts with ESP control are shown below in terms of percentages of the AAQS and PSD increments consumed:

Percentage of Air Quality Standards

Consumed by Lonestar Kilns 1, 2 and 3

Averaging Time	Class I Increments	Class II Increments	Florida AAQS	Dade County AAQS
Annual	15%	11%	5%	N/A
24-Hour	58%	18%	6%	59%
4-Hour	N/A	N/A	N/A	97%
3-Hour	56%	12%	5%	N/A
1-Hour	N/A	N/A	N/A	37%

N/A - Not applicable

Retrofitting all three kilns with baghouses, and adopting the undocumented assumption of 50% additional removal of the SO_2, would reduce the percentages by one half. With existing ESP control, however, Lonestar's impacts are predicted to be less than 20 percent of Class II increments and Florida AAQS. Therefore, reducing these impacts by 50 percent would not produce significant air quality benefits. In the case of Class I PSD increments and Dade County AAQS (the most stringent standards), Lonestar's impacts do not exceed 60 percent of those standards, except for the 4-hour Dade County AAQS. Therefore, even if a 50% reduction is assumed to be achievable, the ultimate benefit to the environment of such a reduction is not significant.

The impacts presented in this analysis represent the combination of maximum Lonestar production capacity and worst case meteorological conditions. For the majority of time, actual impacts due to Lonestar are expected to be far below these predicted levels.

ECONOMIC ANALYSIS

An economic analysis was performed for retrofitting baghouses on kilns 1, 2 and 3. The analysis was performed using procedures described in the August 1978 through November 1978 issues of the Journal of the Air Pollution Control Association (Volume 28, Nos. 8-11) in a series of articles entitled "Capital and Operating Costs of Selected Air Pollution Control System."

Purchased Equipment Costs:

	K 1	K 2	K 3
Flow rate, ACFM	82,000*	82,000*	311,400
Air/Cloth Ratio	2:1	2:1	2:1
Total Net Cloth Area (ft^2)	41,000	41,000	156,000
Total Gross Cloth Area (ft^2)	46,000	46,000	164,000
Insulated, suction baghouse	243,000	243,000	815,500
Bag Filters $	96,000	96,000	342,000
Fans & Motors $	13,000	13,000	41,000
1977 $	352,000	352,000	1,198,500
X 1.6 = 1981 $	563,200	563,200	1,917,500
Gas Conditioner	25,000	25,000	50,000
Total 1981 $	588,200	588,200	1,967,500

* Average of Kilns 1 and 2

Installation Costs:

Item	Cost Factor
Foundations & Supports	0.04
Erection & Handling 0.50 x 2	1.0 (retrofit)
Electrical	0.08
Piping	0.01
Insulation	0.07
Painting	0.02
Engineering/Supervision	0.10
Construction & Field Expense	0.20
Construction Fee	0.10
Start-up	0.01
Performance Test	0.01
Contingencies	0.03
Total	1.67

Total Installation Costs:

K1-	588,200
K2-	588,200
K3-	1,967,500
	$ 3,143,900 x 1.67 = $5,250,313

Total Costs:

Total equipment and installation costs are estimated at:

$3,143,900 + $5,250,313 = $8,394,213

This does not include operating or maintenance costs.

Cost Benefit Analysis

Although no test data is presented to support the claim of an additional 50 percent SO_2 removal through the baghouse, for purposes of this analysis the 50 percent removal was assumed. Kilns 1, 2 and 3 are proposed to emit a total of 600 lb/hr of SO_2. Based upon maximum capacity and year-round operation, a reduction of 50 percent in emissions would equal 1,314 tons per year of SO_2. The total cost of installing baghouses on kilns 1, 2 and 3 is estimated above at $8,400,000. This cost is extremely high and does not include the substantially higher maintenance/operation costs of a baghouse. Considering that the existing ESP system is already removing up to 80 percent of the potential SO_2 emissions from the kiln system, the additional costs a baghouse system would impose upon Lonestar are not warranted.

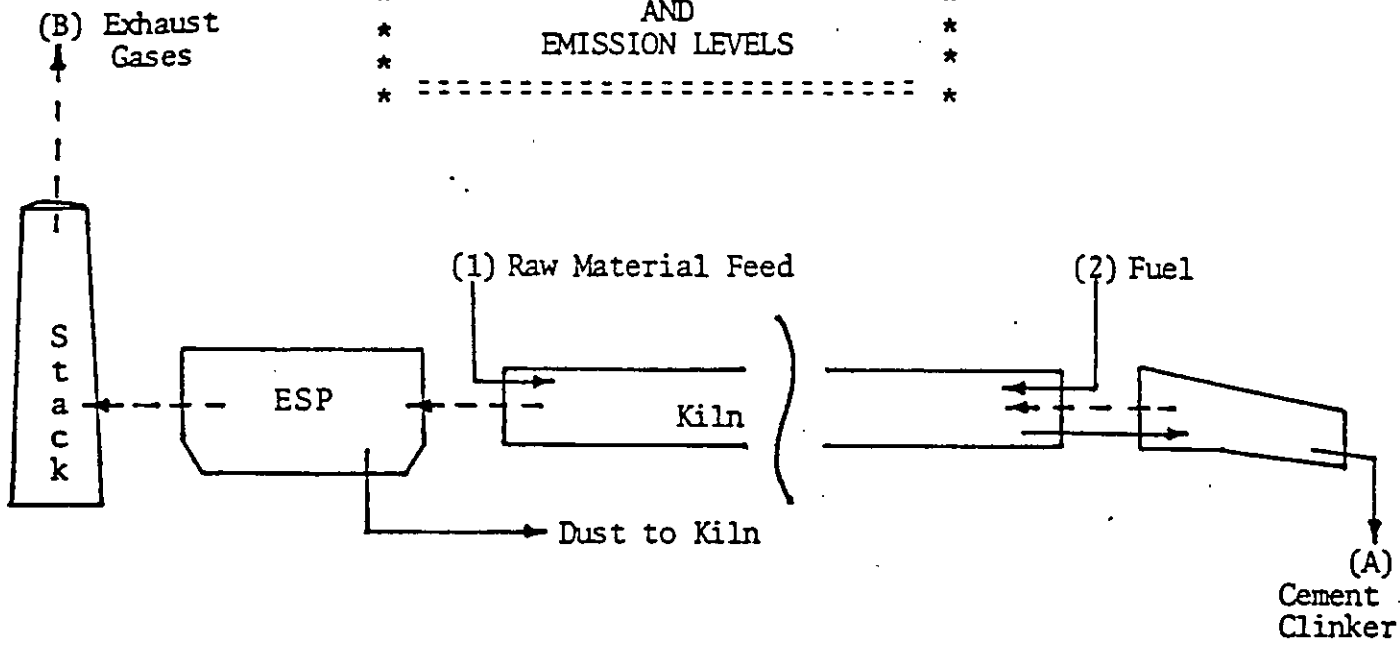
Summary

The question of SO_2 emission control in a wet process cement kiln is not one of control equipment (which one has better control) but concerns the maintaining of sufficient excess oxygen to drive the SO_2 into the clinker material. At Lonestar's facilities the oxygen is maintained in this range (above 0.5 percent) not only for SO_2 control but to provide for complete combustion of the

coal and economic benefits. Additionally, SO_2 emissions will be controlled by utilizing coal having a sulfur content of 2 percent or less.

Alternative controls for SO_2 emissions were rejected since retrofitting the three existing kilns with additional or alternative control devices would have only a minimal effect on emissions and would have an insignificant effect on reducing ambient air impacts. The costs of retrofitting would prohibit the company from implementing the complete conversion of its kilns to coal.

LONESTAR FLORIDA/PENNSUCO
CALCULATED SULFUR BALANCE AND EMISSION LEVELS



Kiln #3

Sulfur Input Into System - Calculated as Equivalent SO_2

(1) Raw Materials Feed: 141.75 TPH (283,500#/hr.) @ 0.13% SO_3

#/hr. SO_2 = (141.75)(2000#/ton)(.0013# SO_3/#feed)(64# SO_2/80#SO_3)

#/hr. SO_2 = 294.8

(2) Fuel: 17.18 TPH (34,360 #/hr.) coal @ 2% S

#/hr. SO_2 = (17.18)(2000#/ton)(.02#S/#fuel)(64# SO_2/32#S)

#/hr. SO_2 = 1374.4

Total SO_2 Input = 1669.2#/hr.

Sulfur Out - Calculated as Equivalent SO_2

(A) Cement Clinker: 87.8 TPH @ 0.92% SO_3

#/hr. SO_2 = (87.8)(2000#/ton)(.0092#SO_3/#clinker)(64#SO_2/80#SO_3)

#/hr. SO_2 = 1297.1

(B) Gaseous Emissions should be equivalent to difference between Sulfur Input & Cement Clinker Sulfur Out

#/hr. SO_2 = 372.1#

Percent Sulfur Absorbed in Kiln System

1669.2 - 372.1/1669.2 = 77.7%

Potential Emissions = 372.2 #/hr. x 8760 ÷ 2000 = 1630.4 TPY

STACK TEST RESULTS - SO_2

Date: 4/30/82

Run No.	Kiln Feed	Feed SO_3%	Coal (tph)	Coal SO_3%	Clinker SO_3%	Dust SO_3%	Tested SO_2	% O_2	DSCFM	Stack Temp. °F
1	138.28	.17	16.5	3.5	.19	4.93	863.6	1.4	153911	356.8
2	138.28	.17	16.5	3.6	.19	5.40	709.1	1.3	147463	364.6
3	138.28	.22	16.5	3.88	.19	4.97	332.3	2.9	145883	362.8
Date: 5/11/82										
1	127.59	.11	13.9	4.17	.82	4.79	318.52	3.4	155886	343.1
2	127.59	.11	13.5	3.77	1.27	4.55	294.72	2.9	149023	343.9
3	127.59	.11	14.4	3.72	.84	4.35	265.46	2.8	149124	346.2
4	127.59	.12	14.4	3.22	.86	4.35	197.09	3.1	153814	343.3
5	127.59	.10	14.4	3.36	1.03	4.52	264.91	2.9	151523	344.3
6	127.59	.10	15.5	3.39	.72	4.33	578.92	1.6	148903	352.3

DISPERSION MODELING EVALUATION

Introduction

ESE has completed a dispersion modeling evaluation of Lonestar's sulfur dioxide (SO2) impacts with Kilns 1, 2 and 3 all burning coal. K1 and K2 were modeled emitting a maximum of 100 lbs/hr each when burning coal, and K3 was modeled emitting a maximum of 400 lbs/hr. The purpose of this evaluation was to determine compliance with PSD Class I and Class II allowable increments, and with Federal, State and Dade County Ambient Air Quality Standards (AAQS) when all three kilns are fired with coal. Presented below is a summary of the methodology and results of the modeling evaluation.

Methodology

The methodology used in the evaluation was the same as that presented in the December 17, 1981 modeling evaluation performed for K3 only on coal, except that default values for the wind profile exponents were used. The U.S. Environmental Protection Agency (EPA) and Florida Department of Environmental Regulation (DER) approved Industrial Source Complex Short-Term (ISCST) model was used to estimate annual, 24-hour and 3-hour SO2 impacts due to Lonestar and nearby significant sources. To evaluate compliance with Dade County AAQS, 4-hour and 1-hour concentrations were also examined. A 5-year meteorological data base (1970-1974) from Miami International Airport was used in conjunction with the ISCST.

For Class I Prevention of Significant Deterioration (PSD) impacts, 33 discrete receptors were placed on the boundary of the Class I area (Everglades National Park). For short term averaging times, highest, second-highest concentrations at each receptor were utilized.

Class II PSD increment consumption and maximum impact concentrations were determined by executing the ISCST with a radial receptor grid placed around the Lonestar plant. Receptors ranged from 0.4 km to 2.8 km with a 0.4 km radial grid spacing. Lonestar and Resource Recovery were determined to be the only significant increment consuming sources in the area, as presented in previous Lonestar modeling reports. Highest, second-highest concentrations were utilized for short-term averaging times.

Lonestar's interaction with other sources were also examined in three additional 5-year ISCST model executions, i.e., receptors were placed downwind of Alton Box, Resource Recovery, and South Florida Materials (formerly Houdaille) in the directions aligning Lonestar with these sources. Since the modeling for receptors around Lonestar showed that Lonestar by itself will comply with all ambient air quality standards, the purpose of this modeling was to determine if Lonestar would cause or contribute to non-compliance of AAQS in the vicinity of these other sources. A 0.2 km receptor spacing was utilized in these model runs.

Highest, second-highest predicted short-term concentrations were refined with the ISCST for cases where standards were predicted to be approached or exceeded. Based on the modeling results, refinements were performed for only the 4-hour averaging time since the Dade County 4-hour AAQS was being approached. A 0.1 km receptor spacing was utilized to refine the concentrations.

Stack parameters used in the modeling are shown in Table 1. The changes since the December 17, 1981 modeling are shown in parentheses, and consist of the SO2 emission rates for Kilns 1, 2 and 3, and stack parameters for South Florida Materials. Updated parameters for South Florida Materials were provided by Scott Quass of your staff, who researched the permit file of the DER's West Palm Beach office.

Results

Table 2 presents the maximum air quality impacts on PSD Class I and Class II increments, and Florida and Dade County AAQS. The dispersion modeling analysis predicted that Class I and Class II area impacts will not exceed the allowable PSD increments, and no Florida AAQS will be exceeded due to Kilns 1, 2 and 3 burning coal. The increment consumption values shown in Table 2 are conservative since they reflect Lonestar's entire emissions as being increment consuming; only emissions above those due to natural gas firing in K1, K2 and K3 are increment consuming.

Lonestar also complies with all Dade County AAQS. There is a predicted violation of Dade County AAQS which occurs downwind of Alton Box in the direction of interaction with Lonestar. As shown by the "Lonestar only" impacts, Lonestar's potential maximum individual impact is relatively small and well below the Dade County AAQS. Upon further investigation, it was shown that Lonestar does not contribute significantly to the predicted Alton Box violations. These results are based upon Alton Box emitting 14.4 lbs/hr for each hour of the day (346 lbs/day). Updated information provided by Alton Box showed they burned up to 40 gal/hr of up to 3.0% sulfur fuel oil for 16 hrs/day. This fuel usage would result in only 307 lbs/day being emitted; therefore, Alton Box's maximum impacts may be overestimated by about 10 percent.

Conclusion

In conclusion, the dispersion modeling evaluation shows that the operation of Kilns 1, 2 and 3 at Lonestar on coal, emitting 100, 100 and 400 lbs/hr SO_2, respectively, is in compliance with Federal, State and Dade County ambient air quality standards and PSD increments. Lonestar's contributions to predicted violations in the vicinity of Alton Box are shown to be insignificant.

Table 1. Stack Parameters Used in Lonestar Modeling Evaluation

Source	SO2 Emission Rate (g/sec)	Stack Height (m)	Stack Diameter (m)	Stack Gas Velocity (m/sec)	Stack Temp. (°K)
Kiln #1	12.60(2.26)	61.0	2.1	11.86	465.0
Kiln #2	12.60(1.03)	61.0	2.1	10.55	447.0
Kiln #3	50.40(63.70)	61.0	4.33	9.98	454.8
Alton Box	1.81	9.1	0.50	10.00	491.0
South Fla. Mat. (Houdaille)	2.38	11.60 (12.2)	1.08 (1.07)	21.30 (30.10)	363.0 (397.0)
Resource Recovery	14.00	45.7	2.70	14.00	489.0

Note: Numbers in parentheses indicate value used in previous modeling, if different from that used in present study.

Table 2. Summary of Lonestar Modeling Results, K3 Burning Coal

Scenario	Maximum Concentrations (ug/m^3) Annual	24-hour	4-hour	3-hour	1-hour
Class I Increment Consumption*					
Lonestar Only	0.3	2.9	NA	13.9	NA
Lonestar & Resource Recovery	0.4	3.0	NA	13.9	NA
Allowable Class I Increments	2.0	5.0	NA	25.0	NA
Class II Increment Consumption*					
Lonestar Only	2.2	16.8	NA	63.3	NA
Lonestar & Resource Recovery	2.4	16.8	NA	63.3	NA
Allowable Class II Increments	20	91	NA	512	NA
Total Air Quality Impacts					
Receptors in Vicinity of Lonestar	3.0	16.8	56.3	63.6	107.2
Receptors in Vicinity of South Florida Materials (Houdaille)**	2.1	19.5	53.3	58.6	95.5
Receptors in Vicinity of Resource Recovery**	1.2	11.2	29.2	34.5	56.9
Receptors in Vicinity of Alton Box**					
All Sources	6.8	32.9	99.8	108.2	155.1
Lonestar Only	0.4	5.7	16.6	20.7	34.0
Dade County AAQS	NA	28.6	57.2	NA	286.0
Florida AAQS	60	260	NA	1300	NA

Note: NA = Not Applicable

*Values shown assume that all Lonestar emissions consume increments, therefore, numbers are conservative.

**Receptors were placed downwind of indicated source in direction which aligned Lonestar with the respective source.

Scott Quaas

LONESTAR FLORIDA PENNSUCO, INC.

6451 N. Federal Highway
Fort Lauderdale, Florida 33308
Post Office Box 6097
Fort Lauderdale, Florida 33310
(305) 491-0900

November 19, 1982

Mr. Thomas W. Devine, Director
Air & Waste Management Division
Environmental Protection Agency - Region IV
345 Courtland Street
Atlanta, GA 30365

Dear Mr. Devine:

Re: PSD-FL-050; Lonestar Florida Pennsuco, Inc.;
Kilns 1, 2 and 3; Request for Revision of Sulfur
Dioxide Emission Limitations

Please find enclosed the support documentation for the modeling analysis which accompanied our November 19, 1982 letter on the referenced subject.

Sincerely yours,

Albert W. Townsend
Manager
Real Estate & Environmental Affairs

Encl.
AWT/jh
cc: S. Smallwood-DER

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

4AW-AM

DEC 17 1982

Mr. Scott Quaas, Environmental/Specialist
Lonestar Florida/Pennsuco, Inc.
Cement and Aggregate Division
Post Office Box 122035
Palm Village Station
Hialeah, Florida 33012

Dear Mr. Quaas:

This is in response to your November 19, 1982, submittal to Mr. Thomas W. Devine concerning the sulfur dioxide (SO_2) emission limitations on Lonestar's Kilns 1,2, and 3 and a request for revising these limitations from those appearing in your present PSD permit (PSD-FL-050).

Since the State of Florida has been granted partial delegation of authority regarding PSD reviews, we have forwarded a copy of this submittal to them. Florida will be responsible for performing the technical review and preparing a preliminary determination. Following this determination, Florida will initiate a public notice and 30-day comment period. EPA will also be afforded an opportunity to review and comment on this determination. A final determination on your permit revision request will be made after the conclusion of the public comment period.

If you have any questions or comments concerning this matter, please contact Mr. Richard S. DuBose, Chief, Air Engineering Section at (404) 881-7654.

Sincerely yours,

James T. Wilburn, Chief
Air Management Branch
Air and Waste Management Division

cc: Mr. Clair Fancy, Deputy Bureau Chief
FL Dept. of Environmental Regulation

Mr. Anthony J. Clemente, P.E., Acting Director
Metropolitan Dade County Dept. of Environmental Resources

Mr. Warren G. Strahm, Subdistrict Manager
FL Dept. of Environmental Regulation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30308

MAY 30 1980

REF: 4AH-AF

Mr. Steve Smallwood, Chief
Bureau of Air Quality Management
Division of Environmental Programs
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301

Dear Mr. Smallwood:

Enclosed for your review and comment are the Public Notice and Preliminary PSD Determination for the Lonestar Florida/Pennsuco proposed kiln fuel conversion and addition of coal handling system in Dade County, Florida. The public notice will appear in a local newspaper, the Miami Herald, in the near future.

Please let my office know if you have comments or questions regarding this determination. You may contact Mr. Kent Williams of my staff at 404/881-4552 or Mr. Jeffrey L. Shumaker of TRW Inc. at 919/541-9100. TRW Inc. is under contract to EPA, and TRW personnel are acting as authorized representatives of the Agency in providing aid to the Region IV PSD review program.

Sincerely yours,

Tommie A. Gibbs

Tommie A. Gibbs, Chief
Air Facilities Branch

TAG:JLS:jbt

Enclosure

PUBLIC NOTICE
PSD-FL-050

A modification to an existing air pollution source is proposed for construction by Lonestar Florida/Pennsuco near the city of Hialeah in Dade County, Florida. Three existing oil or gas fired Portland Cement kilns will be converted to coal firing. In addition, a coal handling facility will be constructed.

The proposed construction has been reviewed by the U.S. Environmental Protection Agency (EPA) under Federal Prevention of Significant Deterioration (PSD) Regulations (40 CFR 52.21), and EPA has made a Preliminary Determination that the construction can be approved provided certain conditions are met. A summary of the basis for this determination and the application for a permit submitted by Lonestar are available for public review in the Dade County Environmental Resources Management Office in the Brickwell Plaza Building, Suite 402, 909 Southeast 1st Avenue, Miami, Florida.

The maximum allowable emissions increase of the various pollutants emitted by this kiln are as follows (in tons per year).

TSP	NO_x	SO_2	CO	HC
33.3	0	562	Negl.	Negl.

Consistent with the exemptions stated in paragraph (k) of 40 CFR 52.21, the TSP increment consumed by the source was not determined. In addition, the SO_2 increment consumption was not calculated because the net impact resulting from the net emissions increase of ambient air quality was shown to be insignificant. Due to the small expected impact on Class I area, which is less than the significance levels defined by EPA (1 ug/m^3 annual and 5 ug/m^3 24-hour), a detailed Class I area impact analysis is not required.

Finally, any person may submit written comments to EPA regarding the proposed modification. All comments, postmarked not later than 30 days from the date of this notice, will be considered by EPA in making a Final Determination regarding approval for construction of this source. These comments will be made available for public review at the above location. Furthermore, a public hearing can be requested by any person. Such requests should be submitted within 15 days of the date of this notice. Letters should be addressed to:

Mr. Tommie A. Gibbs, Chief
Air Facilities Branch
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30308

PSD-FL-050

Preliminary Determination Summary

I. Applicant

Lonestar Florida/Pennsuco, Inc.
Cement and Aggregate Division
P. O. Box 122035
Palm Village Station
Hialeah, Florida 33012

II. Location

The proposed modification is located at the applicant's existing Portland Cement Plant at 11000 N.W. 121 Street, Hialeah (Dade County), Florida. The UTM coordinates are: Zone 17-562.75 km East and 2861.65 km North.

III. Project Description

The applicant proposes to convert fuel used in kilns #1, #2, and #3 from the permitted gas or oil firing to coal firing. Each kiln has one emission point. The coal to be fired will have a maximum sulfur content of 2 percent.

Further, the applicant proposes to construct a coal handling system with four (4) emission points. Each of these points are to be controlled by baghouse dust collectors.

A summary of new and modified facilities is shown in Table 1.

IV. Source Impact Analysis

Table 2 summarizes the total potential to emit (uncontrolled) from the proposed modification. The proposed modification has the potential to emit greater than 100 tons per year of particulates (TSP) and sulfur dioxide (SO_2). Therefore, in accordance with the provisions of Title 40, Code of Federal Regulations, Part 52.21 (40 CFR 52.21) promulgated June 19, 1978, a Prevention of Significant Deterioration (PSD) review is required for each of these pollutants.

TABLE 1

SUMMARY OF PROJECT

Facilities	Operating Capacity, Tons/Hour Input	Fuel	Process Weight Tons/Hour	Product Cement Clinker Tons/Hour
New Coal Handling				
Mill A	23	N/A	N/A	N/A
Mill B	15	N/A	N/A	N/A
Feedbin & Elevator	150[a]	N/A	N/A	N/A
Hopper & Weight Feeder	150[a]	N/A	N/A	N/A
Modified (After)	Feed	Coal (T/hr)		
#1 Kiln	40.5	7.5	48[c]	25
#2 Kiln	40.5	7.5	48[c]	25
#3 Kiln	141.75[b]	23		87.5
		38		137.5
Modified (Before)		Gas (MMCF/hr)		
#1 Kiln	40.5	.18	40.5[c]	25
#2 Kiln	40.5	.18	40.5[c]	25
#3 Kiln	141.75[b]	.54		87.5
		.90		137.5

[a] Intermittent capacity since average capacity equals the sum of the two mills (38 tons/hr).

[b] Basis of particulate emission standard - standards of Performance for New Stationary Sources (NSPS); 40 CFR 60 Subpart F.

[c] Basis of particulate emission standard - Florida State Implementation Plan (SIP); 17-2.05 (2) FAC.

The change in potential nitrogen oxide emissions due to the modification are not quantified. Without data to the contrary, the applicant has assumed the modification is subject to PSD review for nitrogen oxides. All other regulated pollutants are not subject to PSD review because potential emissions increase by less than 100 tons per year.

Full PSD review consists of:

1. Control Technology Review
2. Air Quality Review
   a. Impact upon Ambient Air Quality
   b. Impact upon Increment
   c. Impact upon Soils, Visibility and Vegetation
   d. Impact upon Class I Areas
3. Growth Analysis

Table 3 summarizes allowable emissions and the various categories of changes that determine the level of PSD review required under the regulations. Each type of facility and each pollutant is classified.

Line E of Table 3 shows that TSP has increased allowable emissions of less than 50 tons per year. With no limits placed upon operating time, 50 tons per year is more restrictive than the additional 100 pounds per hour or 1000 pounds per day criteria. Therefore, consistent with the provisions of 40 CFR 52.21(j) and (k), PSD review for particulates is limited to:

1. Ensuring compliance with State Implementation Plans (SIP) and Federal Regulations (40 CFR Parts 60 and 61), and
2. Impacts upon Class I areas and upon areas of known increment violation.

Table 3 shows that SO_2 increased allowable emissions of 562 tons per year requires full PSD review.

TABLE 2

APPLICABILITY SUMMARY

Facilities	Potential to Emit (Uncontrolled), Tons/Year				
	TSP	SO_2	NO_x	CO	HC
A. New	25100[a]	0	0	0	0
B. Modificed (After)	137313[b]	612[c]	(d)	Negl.	Negl.
C. Modified (Before)	137313[b]	50[e]	(d)	Negl.	Negl.
Net Increase from Modification[f]	25100	562	(d)	Negl.	Negl.
Accumulated from Previous Modification[g]	N/A	97	N/A	6.6	38
Total Increase	25100	659	(d)	6.6	38

[a] Calculated from vender guaranteed controlled emissions (5.7 lb/hr) and assumed 99.9% efficiency.

[b] Based on AP-42 Table 8.6-1 uncontrolled emissions 228 pounds of particulate per ton on cement ash in coal is absorbed in the cement product. Substantially less kiln feed ash in required for coal burning.

[c] Potential emissions is based on the proposed allowable emission rate which is based on absorption of SO_2 in the clinker of 91.3 percent in kilns #1 and #2 and 98.7 percent in kiln #3.

[d] The change in nitrogen oxides emissions are not quantified. Without data to the contrary, the applicant assumed PSD review applies. (See discussion in Section IV, A.4).

[e] Based upon test results on existing facilities.

[f] Source is subject to PSD review for specific pollutant if potential increased by 100 tons/year or more.

[g] PSD-FL-028 was not major for SO_2, HC, and CO, thus potential increases are accumulated.

TABLE 3

ALLOWABLE EMISSIONS, TONS PER YEAR

(No Limits Upon Hours Per Year)

Facilities	TSP	SO_2	NO_x
A. New or Reconstructed	25.4		
B. Modified (After)	468.2	612	<2624[a]
C. Modified (Before)	460.3	50	2624
D. Increases from Modified	7.9	562	NONE
E. Increase New and Modified (A&D)	33.3	562	NONE

[a] The applicant will determine minimum NO_x emission rates with performance tests following start-up. The proposed allowable represent the maximum allowable rate.

It should be noted that the application was reviewed under the Partial Stay of PSD Regulations, published February 5, 1980 and the proposed revisions to the PSD regulations referenced in that partial stay. It was determined that the exemption outlined in the partial stay does not apply and that the proposed modification is subject to review under existing PSD regulations (promulgated 6/19/78) because:

1. The existing source is a major source of particulates as defined in the September 5, 1979 proposed revised regulations (greater than 100 tons of allowable emissions), and the proposed modification would significantly (greater than 10 tons per year) increase allowable emissions of particulates. And further,

2. The proposed modification alone is making the source a major modification because sulfur dioxide emissions increase by greater than 100 tons per year, irrespective of the sulfur dioxide emissions from the existing source.

A. Control Technology Review

Although these facilities are exempt from a Best Available Control Technology (BACT) review for the specific pollutants (TSP) and NO_x, they are required to meet all applicable emission limits and standards of performance under the Florida State Implementation Plan (SIP) and Federal Regulations (40 CFR Parts 60 and 61). In addition, and as discussed later in this section, the modification is subject to BACT review for SO_2. Several of the facilities proposed for construction are subject to Federal New Source Performance Standards (NSPS) and/or requirements under the Florida SIP. These requirements are referenced in Table 4 which summarizes the allowable emission limits for the proposed emission limits for the proposed new and modified facilities. Only the most stringent requirement of (1) NSPS, (2) Florida SIP, (3) Florida permit, or (4) allowable limit proposed by the applicant is listed.

The limitations upon emissions of nitrogen oxides from the three kilns were proposed by the applicant and are conditions of this permit to ensure the

TABLE 4

SUMMARY OF ALLOWABLE EMISSIONS LIMITS

Facility/Pollutant	Basis for Requirement	Emissions Limits Standard	lbs/hr
23 Ton Mill			
TSP	Proposed by Applicant, Florida BACT	<.01 grains/ACF	≤ 3.1
Opacity	NSPS Subpart Y (40 CFR 60.252)	<20%	-
15 Ton Mill			
TSP	Same	≤.01 grains/ACF	≤2.1
Opacity	Same	<20%	-
Feedbin & Elevator			
TSP	Same	<.01 grains/ACF	≤0.3
Opacity	Same	<20%	-
Hopper & Weight Feeder			
TSP	Same	≤.01 grains/ACF	≤0.3
Opacity	Same	<20%	-
#1 Kiln			
TSP	Florida SIP, Operating Permit	Florida Process Weight Equation	≤32.2
SO_2	Proposed by Applicant as BACT	≤2% S in Coal, 2.27 lbs/ton[a]	≤56.7
NO_x	Proposed by Applicant	<4.73 lbs/Ton[a]	<118

TABLE 4

SUMMARY OF ALLOWABLE EMISSIONS LIMITS

(Continued)

Facility/Pollutant	Basis for Requirement	Emissions Limits Standard	lbs/hr
#2 Kiln			
TSP	Florida Permit	Florida Process Weight Equation	≤32.2
SO_2	Proposed by Applicant as BACT	≤2% S in Coal, 2.27 lbs/Ton[a]	≤56.7
NO_x	Proposed by Applicant	<4.79 lbs/Ton[a]	<118
#3 Kiln			
TSP	Florida SIP & Federal NSPS Subpart F (40 CFR 60.62)	≤0.30 lb/Ton feed[b]	≤42.5
SO_2	Proposed by Applicant as BACT	≤2% S in Coal, 0.30 lbs/Ton[a]	≤26.3
NO_x	Proposed by Applicant	<6.77 lbs/Ton[a]	≤592
Opacity	Federal NSPS Subpart F (40 CFR 60.62)	≤20%	-

[a] Pounds of pollutant per ton of clinker produced.

[b] Pounds of TSP per ton of feed (except fuel).

validity of the exemption from further PSD review (no net increase in emissions).

The three kilns emitting increased sulfur dioxide are reviewed for a determination of Best Available Control Technology (BACT). To achieve the limited emissions of Table 4 the following control technologies will be utilized:

1. Coal Handling System - Particulates

All potential particulate emissions points are controlled by baghouse type dust collectors. These are to control 99.9 percent of the particles above 0.5 microns. The exhaust gases will have a maximum concentration of 0.01 grains per actual cubic foot.

These have been proposed to the State of Florida to meet the SIP BACT requirements.

These facilities must not emit gases which exhibit 20 percent opacity or greater. These baghouses and properly ducted dust collection system should comply with this requirement.

2. Kilns - Particulates

The existing kilns will continue to utilize their existing electrostatic precipitators to maintain compliance with the emission standards specified in their operating permits in accordance with the Florida SIP. Number 3 kiln will continue to operate in compliance with the NSPS standards under which it has been certified with continued compliance verified by the State of Florida.

A small increase in allowable TSP emissions is due to the addition of the solid coal to the process weight. The allowable emissions are calculated according to the Florida SIP process weight rule. The actual emissions will probably not increase because the ash introduced with the coal (compared with gas as a fuel) is compensated by a decrease in fly ash in the cement feed materials.

3. Kilns - Sulfur Dioxide (BACT)

The three kilns are subject to a BACT review for the control of sulfur dioxide.

Sulfur dioxide potentially is derived from sulfur in the process feed materials and from sulfur in the fuel.

The majority of this potential sulfur dioxide combines with the process products (limestone). The efficiency of this absorption is a function of the size and design (mixing of gas and solids) of the kilns and also of the type of particulate control (baghouse is better than electrostatic precipitator - due to intimate contact of gas with fine particles). Since the three kilns and their particulate controls are existing these parameters will not change. The applicant presents test results using oil (2.38% sulfur) as fuel. These results show that 91.3 percent of the potential sulfur dioxide was absorbed by the products in the smaller kilns (#1 and #2), and that 98.7 percent of the potential sulfur dioxide was absorbed in the larger kiln (#3). The applicant proposes BACT be the use of low sulfur coal (maximum 2% sulfur) and a maximum of 2.27 pounds of SO_2 per ton of clinker produced from kiln #1 and #2, and 0.30 pounds of SO_2 per ton of clinker produced from kiln #3.

EPA concurs with the applicant that for the cases of existing kilns with existing particulate control technology these do constitute BACT. Further the applicant used these emission rates at full design operating rates in its air quality presentation.

4. Kilns - Nitrogen Oxides

The applicant has proposed to run tests to optimize operating conditions. The criteria to judge such optimization would be:

a. satisfactory product,
b. energy economy,
c. minimum NO_x emissions, and
d. continued negligible emissions of carbon monoxide and hydrocarbons.

The applicant further stipulates that the NO_x emissions shall be less than those from the existing gas fueled operation. These current NO_x emissions have been established by tests to be 6.77 pounds of NO_x per ton of clinker produced from Kiln #3 and 4.7 pounds per ton from Kilns #1 and #2.

The applicant has presented published[1] test data which reports emissions of nitrogen oxides are less using coal than when using gas or oil as a fuel for cement kilns. This report attributes this reduction to the characteristics of the flame. It has been described as a longer, "lazier" flame (with lower temperature in the center of the flame). The conclusion that reduced emissions of nitrogen oxides are experienced when cement kilns are converted from gas to coal fuel has also been reported in reference 2.

The coal to be used in this proposed modification will contain ~1.7 percent nitrogen (compared with ~0 percent for gas or <.5 percent for oil). Therefore, the potential for fuel derived NO_x is greater. The literature[2] confirms that less than 20 percent of the fuel nitrogen will be converted to nitrogen oxides and that the amount of conversion is a function of the same flame characteristic variables (maximum temperature, and time at high temperature) that control thermally derived NO_x (oxidation of atmospheric nitrogen). AP-42 emission factors and NSPS for large utility boilers seem to indicate the potential for increased NO_x emissions of coal firing over gas firing. Regardless of these factors that indicate nitrogen oxide emissions could increase, the EPA concurs with the applicant that operating conditions can be found which will result in reduced emissions, or at least no net increased emissions. Therefore, with testing to find allowable operating conditions required as a permit condition. No net increase in NO_x emissions will occur and no air quality impact analysis is required for NO_x consistent with paragraph (k) of 40 CFR 52.21.

B. Air Quality Review - 40 CFR 52.21 (ℓ)

The applicant has demonstrated with the modeling results summarized in Table 5 that the impact upon the annual, 24-hour and 3-hour National Ambient Air Quality Standards for SO_2 and upon the annual and 24-hour Class II increment are below the significance levels as published 43 FR 26398, June 19, 1978.

The modeling was conservatively run upon the total SO_2 emissions from the three kilns rather than only the increase (coal less gas).

The CRSTER model was used to determine maximum predicted annual concentrations and to identify worst-case 24-hour and 3-hour meteorological conditions. The CRSTER was run using five years (1970-1974) of meteorological data. The maximum short term 24-hour and 3-hour predictions were made using the PTMTP-W model.

The lack of significant impact indicated by this modeling eliminates requirements for monitoring detailed NAAQS and increment impact analyses, growth impacts and additional impact analyses upon visibility, soils, and vegetation.

C. Class I Area Impact

The proposed modification is located about 30 km from the Everglades National Park. As discussed previously maximum impacts which occur in the vicinity of the plant are insignificant. On the basis that further dilution will occur over the 30 kilometers, the impact on this Class I area is considered insignificant and detailed assessment of Class I area impacts is not required.

V. Conclusions

EPA Region IV proposes a preliminary determination of approval for construction of the new coal handling facilities and the conversion to coal as a fuel for kilns #1, #2, and #3 by Lonestar Florida/Pennsuco, Inc. as proposed in its application dated February 11, 1980 as amended by letter dated April 25, 1980.

The conditions set forth in the permit are as follows:

TABLE 5

AIR QUALITY IMPACT ANALYSIS

	SO_2, micrograms/meter^3		
	Annual	24-hour average[a]	3-hour average[a]
NAAQS	80	365	1300
Class II Increments	20	91	512
Maximum Predicted Concentration	0.63	4.90	18
Significance Level	1	5	25

[a] Not to be exceeded more than once per year.

1. The modifications and the facilities constructed shall be in accordance with the capacities and specifications stated in the application. Specifically included are the operating capacities listed in Table 1 for new and modified facilities.

2. Particulate emissions from each of the four new emitting points of the coal handling system shall not exceed 0.01 grains per actual cubic foot or the emission limits listed in Table 4.

3. Visible emissions from four emission points of the coal handling system shall be less than 20 percent opacity. Visible emissions from any fugitive sources associated with the coal handling system shall be less than 20 percent opacity. Opacity shall be measured by EPA standard method 9.

4. Emissions of sulfur dioxide from #1 and #2 kilns shall not exceed 56.7 pounds per hour from each kiln at the maximum operating rate of 25 tons per hour of clinker produced per kiln. At lesser operating rates the emissions of sulfur dioxide shall not exceed 2.27 pounds per ton of clinker produced.

5. Emissions of sulfur dioxide from #3 kiln shall not exceed 26.3 pounds per hour at the maximum operating rate of 87.5 tons per hour of clinker produced. At lesser operating rates the emissions of sulfur dioxide shall not exceed 0.30 pounds per ton of clinker produced.

6. The coal used to fuel kilns #1, #2 and #3 shall have a sulfur content of 2 percent or less.

7. Tests shall be run to optimize the operating conditions toward a minimum emissions of nitrogen oxides. The results of the test shall be analyzed and the resulting optimum operating conditions shall be described to EPA Region IV with a plan describing how continuing compliance will be maintained.

8. Emissions of nitrogen oxides from #1 and #2 kilns shall be less than 118 pounds per hour from each kiln at the maximum operating rate of 25 tons per hour of clinker produced per kiln. At lesser operating rates the emissions of nitrogen oxides shall not exceed 4.73 pounds per ton of clinker produced.

9. Emissions of nitrogen oxides from #3 kiln shall be less than 592 pounds per hour from each kiln at the maximum operating rate of 87.5 tons per hour of clinker produced. At lesser operating rates the emissions of nitrogen oxides shall not exceed 6.77 pounds per ton of clinker produced.

10. Visible emissions from #3 kiln shall be less than 20 percent opacity as measured by EPA standard method 9.

11. Compliance with all emissions limits shall be determined by performance tests. Performance tests shall be conducted in accordance with the provisions of 40 CFR 60.8 and as such shall use appropriate EPA standard methods outlined in 40 CFR 60 Appendix A. The processes shall operate within 10 percent of maximum capacity during sampling.

12. The source will comply with the requirements of the attached General Conditions.

REFERENCES

1. Hilovsky, Robert J., PE; NO_x Reductions in the Portland Cement Industry with Conversion to Coal-Firing, Presented at the 1977 EPA Emission Inventory/Factor Workshop, Raleigh, North Carolina. September 13-15, 1977.

2. EPA-450/1-78-001, January 1978, Control Techniques for Nitrogen Oxide Emissions from Stationary Sources.

Best Available Control Technology (BACT) Determination

Lonestar Florida Pennsuco, Inc.

Dade County

The applicant has requested a change in the permitted sulfur dioxide emission limits for the three coal fired cement kilns located at their facility in Hialeah, Florida. Federal permit PSD-FL-050, issued in 1984, specified that SO_2 emissions from kiln No.1 and No.2 shall not exceed 56.7 pounds per hour per kiln and 26.3 pounds per hour from kiln No.3. The SO_2 emission limits were based on tests using 2.38% sulfur content fuel oil.

The kilns were converted from oil/gas fired to coal fired and the emissions analyzed. The test results indicate a lower absorption of SO_2 by the products in the kiln, and consequently more SO_2 is being emitted to the atmosphere then originally proposed based on the tests using oil as fuel.

The amount of SO_2 emissions increase requested by the applicant exceeds the significant emission rate - Table 500-2. A BACT determination, therefore, is required for SO_2, Rule 17-2.500(5)(c).

BACT Determination Requested by the applicant:

The following fuel operating mix for the three kilns would be:

A.	Kiln 1-coal(125)#	Kiln 2-gas(9)	Kiln 3-coal(400)
B.	Kiln 1-gas(9)	Kiln 2-coal(125)	Kiln 3-coal(400)
C.	Kiln 1-coal(125)	Kiln 2-coal(125)	Kiln 3-DOWN

* figure in parenthesis is pounds SO_2 emissions per hour.

Kiln operations per any of the three scenarios will not cause violation of the Federal, State or Dade County ambient air quality standards.

Date of receipt of a BACT application:

June 4, 1984

Date of Publication in the Florida Administrative Weekly:

June 22, 1984

Review Group Members:

The determination was based upon comments received from the New Source Review Section, Air Modeling Section, the Dade County

Department of Environmental Resources Management and the Southeast District Office.

BACT Determined by DER:

Pollutants-SO_2	Emission Limit
Kiln NO.1	125 lb/hr
Kiln NO.2	125 lb/hr
Kiln NO.3	400 lb/hr

The SO_2 emission limits determined as BACT do not result in a violation of Fderal or State ambient air quality standards, but, do violate the Dade County standards. The department, therefore, has incorporated the proposed three operating scenarios as BACT.

Matrix	Matrix	Matrix
Kiln 1 fire coal	Kiln 1 fire gas	Kiln 1 fire coal
Kiln 2 fire gas	Kiln 2 fire coal	Kiln 2 fire coal
Kiln 3 fire coal	Kiln 3 fire coal	Kiln 3 down

Compliance with the SO_2 emission limit will be in accordance with 40 CFR 60, Appendix A; Methods 1, 2, 3 and 6.

Compliance with the operating matrix provision will be the kiln operating log. The day, time and type of fuel fired will be recored for each kiln. The time period Number 3 kiln is down

will also be recorded in the operating log. Each log will be kept for two years.

BACT Determination Rationale:

The kilns were originally fired with natural gas and residual oil. The fuel was switched to coal in 1980 as per the conditions of permit number PSD-FL-050. The applicant submitted test data while firing residual oil containing 2.38 percent sulfur to determine kiln product absorption of SO_2. The data indicated that 91.3% of the potential SO_2 was absorbed by the aggregate processed in kilns 1 and 2 and 98.7% in kiln 3.

After the kilns had been converted to fire coal, the exhaust gases were tested for SO_2 content. The data indicated the absorption of SO_2 in the kiln product was 75 to 80 percent, not the reduction originally anticipated. The kilns fire coal with a sulfur content of 2.0 percent.

AP-42, Section 8.6-1 indicates the overall control inherent in the process is approximately 75 percent or greater of the available sulfur in ore and fuel if a baghouse that allows SO_2 to come in contact with the cement dust is used. These existing sources use electrostatic precipitators for the control of particulate emissions, therefore, the department believes the maximum absorption would be 75 percent. The applicant's test data indicates a higher percent absorption will be obtained.

The amount of SO_2 emissions control, of course, will vary according to the alkali and sulfur content of the raw materials and fuel.

The SO_2 emissions limits determined as BACT are obtainable when firing low sulfur coal. The economics of firing two percent sulfur coal is evident. The department, therefor, has not set a limit for the sulfur content of the coal to be fired. The applicant has the option of burning a lower sulfur coal or installing additional SO_2 controls to meet the SO_2 limits determined as BACT.

The three operating scenarios proposed by the applicant, to protect the Dade County AAQS, is acceptable. The application of production process techniques are a recognized method to achieve the required level of emission control.

Details of the Analysis May be Obtained by Contacting:

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