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09/6/83

Preliminary Evaluation

Revision of Best Available Control Technology Determination  
and  
Permit to Construct

Lonestar Pennsuco, Inc.  
Dade County

Federal Permit Number  
PSD-FL-050

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

October -- 1983

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## NOTICE OF PROPOSED AGENCY ACTION

The Department of Environmental Regulation gives notice of its intent to recommend the permit set to construct that was issued to Lonestar Florida Pennsuco, Inc. of Hialeah, Dade County, Florida be revised. The revisions involve changes to the Best Available Control Technology determination and the permit to construct kilns 1, 2, and 3. These revisions will allow sulfur dioxide emissions from the three kilns to increase by 2,016 tons per year. Emissions of other criteria pollutants will not change.

The increased sulfur dioxide emissions from the kilns will not cause an ambient air violation or exceed the allowable sulfur dioxide increment consumption or violate any federal, state or county regulation. The impact of the revised sulfur dioxide emissions, in  $\mu\text{g}/\text{m}^3$ /percent of allowable increase, is listed below

annual -0.63/3.2; 24 hour - 4.90/5.4; 3 hour-18.0/5.5

A person who is substantially affected by the Department's proposed permitting decision may request a hearing in accordance with Section 120.57, Florida Statutes, and Rules 17-1 and 28-5, Florida Administrative Code. The request for hearing must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Twin Towers Office Building, Tallahassee, Florida 32301, within 14 days of publication of

this notice. Failure to file a request for hearing within this time period shall constitute a waiver of any right such person may have to request a hearing under Section 120.57, Florida Statutes.

The Technical Evaluation and Preliminary Determination for the proposed project is available for public inspection during normal business hours at the following locations:

Department of Environmental Regulation  
Bureau of Air Quality Management  
2600 Blair Stone Road  
Tallahassee, Florida 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

Any person may send written comments on the proposed action to Mr. Clair Fancy at the Department's Tallahassee address. All comments mailed within 30 days of the publication of this notice will be considered in the Department's final evaluation of this revision.

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 in 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 conversion of existing kilns No.'s 1, 2, and 3 from gas or oil to coal fuel 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 determination (BACT) on which the emission standards were based limited the sulfur dioxide emissions from the existing electrostatic precipitators serving the three kilns to the quantities listed below.

<u>Kiln No.</u>	<u>Maximum Sulfur Dioxide Emission Standards</u>
1	1.42 lb/ton dry feed or 56.7 lbs/hr, 248.4 TPY
2	1.42 lb/ton dry fed 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 estimates a sulfur dioxide 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 fuel and actual test data shows the sulfur dioxide removal is less than 90 percent. The applicant has studied the latest test data and now believe the systems will obtain only 75 to 85 percent sulfur dioxide removal.

The Company is now requesting that the sulfur dioxide emission limits for the three kilns, while they are burning coal containing two percent sulfur, be set at the values shown below.

<u>Kilns</u>	<u>Sulfur Dioxide Emission Limit</u>
1	100 lbs/hr
2	100 lbs/hr
3	400 lbs/hr

Model results of the proposed SO<sub>2</sub> emissions from the three kilns shows no violation of the SO<sub>2</sub> increment or ambient air quality standards.

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

#### IV. Rule Applicability

Although the plant is a major source, the original application for permit to burn coal in the three kilns was not subject to PSD review for sulfur dioxide because the change in sulfur dioxide emissions were estimated to be less than the significant level defined in 40 CFR 52.21(b)(23)(i). The emission standards now being requested will result in a significant net emission increase of sulfur dioxide emissions from the three kilns.

The applicant has requested that the permitted emissions for sulfur dioxide be increased. No change to the permitted emissions of the other criteria pollutants was requested or is being considered by this agency. The regulations applican<sup>ble</sup> to an increase in sulfur dioxide emissions are discussed below.

This change is subject to preconstruction review under federal prevention of significant deterioration (PSD) regulations, Section 52.21 of Title 40 of the Code of Federal Regulations (40 CFR 52.21) as amended in the Federal Register of August 7, 1980 (45 FR 52676). Specifically, the cement kilns constitutes major stationary sources (40 CFR 52.21(b)(1)) located in an area designated in 40 CFR 81.310 as attainment for sulfur dioxide. Use of coal as fuel causes a significant net emission increase in sulfur dioxide, thereby rendering the change a major modification (40 CFR 52.21(b)(2)) subject to PSD review (40 CFRE 52.21(i)).



Full PSD review is required for increase in sulfur dioxide emissions. The review consist of revising the original best available control technology (BACT) determination, It also requires an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the impact of the proposed project on soils, vegetation, visibility and the air quality impacts resulting from associated commerical, residential and industrial growth.

The sulfur dioxide standard in federal permit PSD-FL-050 will be revised if the technical review gives assurance that the air pollution regulations will not be violated at the higher emission rates requested by the source.

## V. Engineering Evaluation

The 77.7 percent SO<sub>2</sub> removal efficiency for this system that the applicant's requested revision of the BACT SO<sub>2</sub> 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<sub>2</sub>. The baghouse is believed to be more efficient in removing SO<sub>2</sub> than the electrostatic precipitators used by Lonestar. The Company has submitted a limited number of test results on kiln 3 that show the average SO<sub>2</sub> 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<sub>2</sub> 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 add approximately \$0.30 per pound to the cost of their product. The Bureau is in agreement that FGD is not feasible for this plant at this time.

Using fuel with a lower sulfur content is the only feasible way of reducing sulfur dioxide emissions from this plant. However, the original SO<sub>2</sub> 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<sub>2</sub> BACT standards will be exceeded at maximum permitted, production when using coal containing two percent sulfur (Company plan) and feed containing 0.088 percent sulfur (highest estimated sulfur content of feed). Coal with a lower sulfur content is available which will allow the Company to meet their proposed SO<sub>2</sub> standards.

Calculations using the maximum feed and coal inputs to the kiln listed in the original application for 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 shows the kilns would have to burn coal with no more than 0.75 percent sulfur for kilns 1 and 2 and 1.0 percent for kiln 3 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 would have approved the sulfur dioxide emission limits for the kilns now being requested by the Company if they has requested those limits in the application for permit to construct.

V. Ambient Air Quality Emission

Cleve Holladay

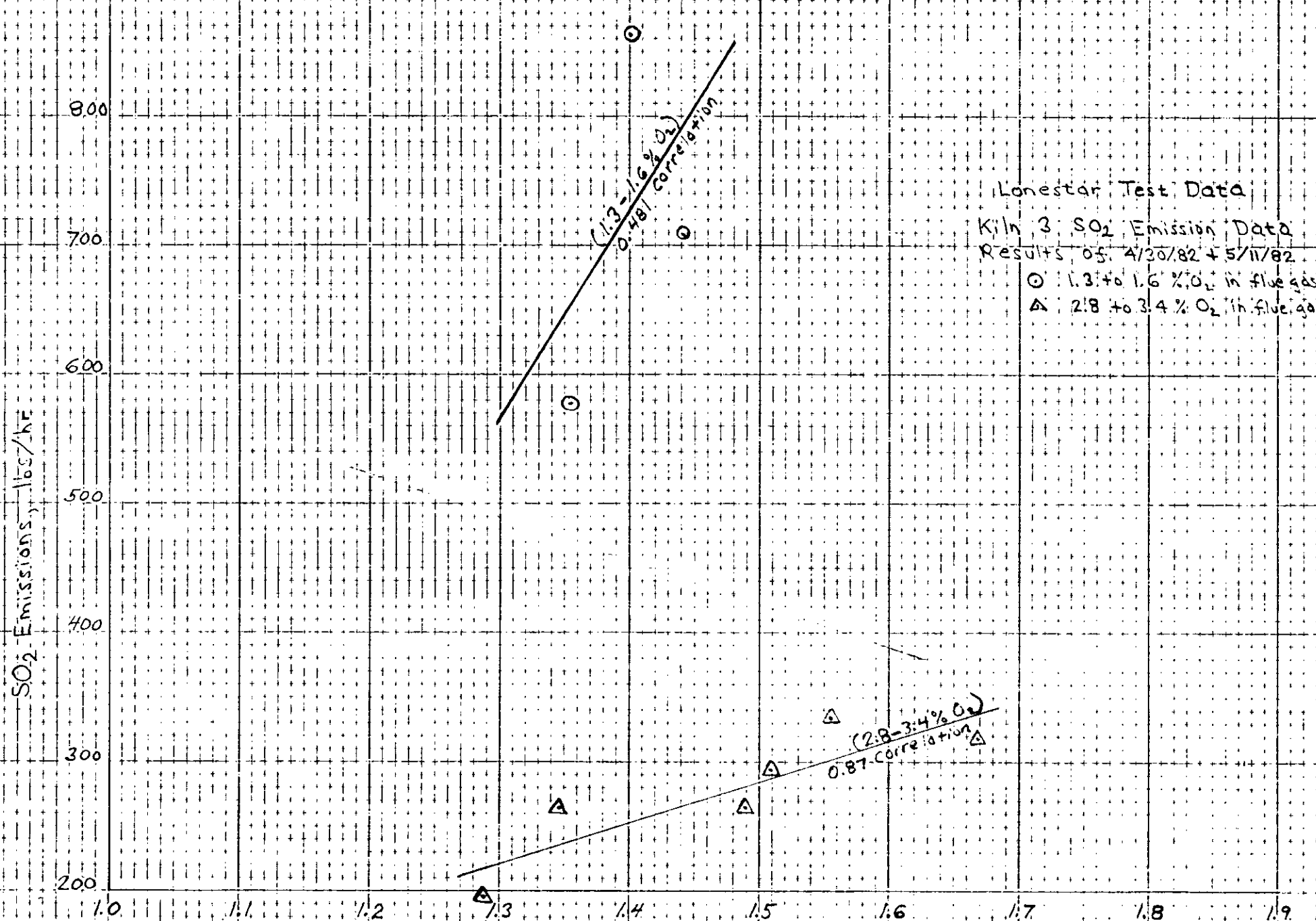


Figure I

Sulfur Dioxide Emissions From Kiln 3

Run	Feed Rate (TPH)	% S in Feed	Coal Rate TPH	% S in Coal	Potential SO <sub>2</sub> Emiss. lbs/hr	Measured SO <sub>2</sub> Emiss. lbs/hr	Measured SO <sub>2</sub> Removal %
1	138.28	0.068	16.5	1.400	1300	863.60*	33.6
2	138.28	0.068	16.5	1.470	1326	709.10*	46.5
3	138.28	0.088	16.5	1.552	1511	332.83	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<sub>2</sub> in Flue gas <1.6%

Table 1

Sulfur Dioxide Emissions From Kiln 3

Run	Feed Rate (TPH)	% S in Feed	Coal Rate TPH	% S in Coal	Potential SO <sub>2</sub> Emiss. lbs/hr	Measured SO <sub>2</sub> Emiss. lbs/hr	Measured SO <sub>2</sub> Removal %
1	138.28	0.068	16.5	1.400	1300	863.60*	33.6
2	138.28	0.068	16.5	1.400	1326	709.10*	46.5
3	138.28	0.088	16.5	1.552	1511	332.03	78.0

## VII. Conclusion

Based on the data available, the Department has concluded that the original BACT for SO<sub>2</sub> was too restrictive. The SO<sub>2</sub> emission standards of 400 lbs/hr for kiln 3 and 100 lbs/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<sub>2</sub> in the ambient air concentration. Higher SO<sub>2</sub> emissions from the existing plant could increase the SO<sub>2</sub> concentration in the ambient air near the plant above that allowed by Dade County regulations.

The proposed SO<sub>2</sub> 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 sulfur dioxide removal efficiency of the system. Low sulfur coal, 0.75 percent sulfur, may have to be burned to meet these standards. A controlled test series on all three kilns is needed resolve what maximum (and average) percent sulfur in the coal ~~that~~ can be used in the kilns without exceeding the emission standards.



VIII. Revised BACT

Maximum Allowable Sulfur Dioxide Emissions

<u>Kilns</u>	<u>Max.lbs/ton clinker</u>	<u>Max.lbs/hr</u>	<u>Max. TPY</u>
1	4.0	100	438
2	4.0	100	438
3	4.6	400	1752

Maximum sulfur content of the coal shall not exceed the percentages determined by actual tests on each kiln necessary to consistently meet, at maximum permitted production, the sulfur dioxide emission standards listed above, or 1.75 percent monthly average/2.0 percent any one sample, whichever limit is most restrictive.

Compliance test for sulfur dioxide shall be by method 6 as described in 40 CFR 60, Appendix A.

In establishing the maximum sulfur content of the coal that can be used in each kiln, the Company shall conduct a test series on the kilns, while they are operating near maximum production, consisting of:

A minimum of three separate compliance tests, each test at least 168 hours after the preceding test, and using fuel with a constant ( $\pm$  0.25 percent) sulfur content. All test results for coal of this sulfur content must be below the BACT standards.

If test results show the SO<sub>2</sub> emissions from a kiln do not meet the BACT standard, then the Company shall reduce the sulfur content of the coal burned in this kiln by at least 0.25 percent (average) and repeat the test series until the emission consistently comply with the revised BACT standards. For each test the Company shall provide: a test report giving, as a minimum, the data listed in Chapter 17-2.700(7), FAC.

In addition, for each test sample the Company shall measure or estimate and report:

- feed rate (TPH)
- sulfur content of feed
- coal rate (TPH)
- sulfur content of coal
- oxygen content of flue gas

IX. Permit Condition Revision

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

Original Conditions

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.

## Revised Conditions

4. Emissions of sulfur dioxide from #1 and #2 kilns shall not exceed 100.0 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 emissions of sulfur dioxide shall not exceed 4.0 pounds per ton of clinker produced.
5. Emissions of sulfur dioxide from #3 kiln shall not exceed 400.0 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 #1, #2, and #3 shall have a sulfur content of less than 1.75 percent (average), and 2.0 percent maximum or the sulfur content, determined by the stack test program described in the revised BACT, that consistently meets the revised sulfur dioxide emission standards, which ever sulfur content is most restrictive.



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

Steve Smallwood  
from  
Anthony J. Clemente

October 20, 1983  
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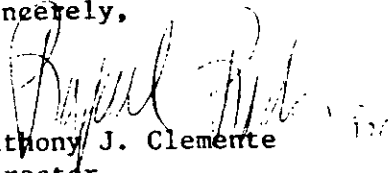
and 2 would be more than twice that from kiln 3. Now, Lonestar claims that kiln 3 will emit four (4) times more sulfur dioxide than the emissions from each of the smaller kilns.

- 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