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

KA 521-92-01

April 21, 1992

Mr. Clair Fancy
Florida Department of
Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Air Construction Permit Application
Southdown, Inc. dba
Florida Mining and Materials
No. 2 Kiln Modification

Dear Mr. Fancy:

Enclosed are eight copies of the air construction permit application (including one copy of the computer modeling output and diskette) for modification of the nitrogen oxides emission limit of the No. 2 cement kiln at the Southdown facility in Brooksville, Hernando County, Florida. Also, enclosed is a check (permit processing fee) in the amount of $7,500.

If you have any questions, please do not hesitate to give me a call.

Very truly yours,

KOOGLER & ASSOCIATES

Pradeep A. Raval

PAR:wa
Enc.

c: Mr. Don Kelly, Florida Mining & Materials
Mr. Amarjit Gill, Southdown

$7,500 pd
4-22-92
Rcpt #180759

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

AC 27-212252
PSD-FL-188

RECEIVED
APR 22 1992
Bureau of
Air Regulation

APPLICATION TO ~~OPERATE~~/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Portland Cement Plant [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [X] Modification

COMPANY NAME: Southdown, Inc. dba Florida Mining and Materials COUNTY: Hernando

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) No. 2 Cement Kiln

SOURCE LOCATION: Street U.S. Highway 98 City NW of Brooksville

UTM: East (17) 356.0 km North 3169.2 km

Latitude 28 ° 38 ' 37 "N Longitude 82 ° 28 ' 24 "W

APPLICANT NAME AND TITLE: Mr. Don Kelly, Plant Manager

APPLICANT ADDRESS: P. O. Box 6, Brooksville, Florida 34605-0006

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Southdown, Inc. dba Florida Mining & Materials

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Furthe: I agree to maintain and operate the pollution control source and pollution contro facilities in such a manner as to comply with the provision of Chapter 403, Florid: Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferab: and I will promptly notify the department upon sale or legal transfer of the permitte establishment.

*Attach letter of authorization

Signed: Don Kelly

Don Kelly, Plant Manager
Name and Title (Please Type)

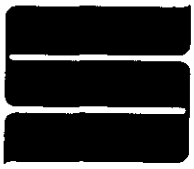
Date: 4/10/92 Telephone No. (904) 796-7241

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project hav. been ~~designed~~/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

Edgar J. Marston III
EXECUTIVE VICE PRESIDENT
AND GENERAL COUNSEL



April 9, 1992

Mr. C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Letter of Authorization

Dear Mr. Fancy:

Please be advised that Mr. Don Kelly, Plant Manager for Florida Mining and Materials' (FM&M) Brooksville facility, is hereby authorized to sign environmental permit applications and other related correspondence on behalf of Southdown, Inc.

Sincerely,

Edgar J. Marston III

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the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed _____

John B. Koogler, Ph.D., P.E.
Name (Please Type)

Koogler & Associates, Environmental Services
Company Name (Please Type)

4014 N.W. 13th Street, Gainesville, FL 32609
Mailing Address (Please Type)

Florida Registration No. 12925 Date: 4/21/92 Telephone No. (904) 377-5822

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Attached Report

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction NA Completion of Construction NA

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Existing equipment.

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Permit No. A027-194660 : Issued 5/9/91 ; Expires 4/30/96.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 49 ;

if power plant, hrs/yr ____; if seasonal, describe: 8200 hours per year

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? NO

   a. If yes, has "offset" been applied? NA

   b. If yes, has "Lowest Achievable Emission Rate" been applied? NA

   c. If yes, list non-attainment pollutants. NA

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. YES

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. YES

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? YES

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? YES

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

   a. If yes, for what pollutants? NA

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

See Attached Report

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Limestone	Particulate	0.02	208,000	See attached report.
Sand / Clay	"	0.08	8,840	"
Flyash	"	0.14	42,900	"
Mill Scale	"	1.40	260	"

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): 260,000 (130 TPH)

2. Product Weight (lbs/hr): 159,250 (79.6 TPH)

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

See Attached Report

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Fuller Reverse Air	Particulate	99.9%	> 2	Est.

E. Fuels (See Also Attached Report)

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Coal (solid)	20,640	24,000	300
Flolite (liquid)	1,779	2,069	300

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: _____ Percent Ash: _____

Density: _____ lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: _____ BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating. NA

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

Solids collected in fabric filter are recycled.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 105 ft. Stack Diameter: 14 ft.

Gas Flow Rate: 300,000 ACFM 200,000 DSCFM Gas Exit Temperature: 250 °F.

Water Vapor Content: 10 % Velocity: 32.5 FPS

SECTION IV: INCINERATOR INFORMATION NA

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr)_____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr._____

Manufacturer_____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ACFM _____ DSCFM* Velocity: _____FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify)_____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

See Attached Report

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation. $7,500.00

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

See Attached Report

. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

[ ] Yes [ ] No

Contaminant	Rate or Concentration

. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

Describe the existing control and treatment technology (if any).

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

xplain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft.

b. Diameter: ft.

c. Flow Rate: ACFM

d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1]Explain method of determining efficiency.
[2]Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

Describe the control technology selected:

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

plain method of determining efficiency.
ergy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1]Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

See Attached Report

A. Company Monitored Data

1. _____ no. sites _____ TSP _____ ( ) SO^{2}* _____ Wind spd/dir

Period of Monitoring _____/_____/_____ to _____/_____/_____
month day year month day year

Other data recorded _____

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

. Meteorological Data Used for Air Quality Modeling

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)_____

3. Upper air (mixing height) data obtained from (location)_____

4. Stability wind rose (STAR) data obtained from (location)_____

. Computer Models Used

1. _____ Modified? If yes, attach description.

2. _____ Modified? If yes, attach description.

3. _____ Modified? If yes, attach description.

4. _____ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

, Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	_____	grams/sec
SO^2	_____	grams/sec

Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

Attach all other information supportive to the PSD review.

Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

REPORT IN SUPPORT OF AN APPLICATION FOR A PSD CONSTRUCTION PERMIT REVIEW

PREPARED FOR:

SOUTHDOWN, INC. DBA
FLORIDA MINING AND MATERIALS
HERNANDO COUNTY, FLORIDA

APRIL 1992

PREPARED BY:

KOOGLER & ASSOCIATES
4014 N.W. 13TH STREET
GAINESVILLE, FLORIDA 32609
(904) 377-5822

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

LIST OF TABLES

LIST OF FIGURES

1.0 SYNOPSIS OF APPLICATION

1.1 APPLICANT

Southdown, Inc. dba
Florida Mining and Materials
Post Office Box 6
Brooksville, FL 34605

1.2 FACILITY LOCATION

Southdown, Inc. (Southdown) doing business as Florida Mining and Materials operates a portland cement manufacturing facility approximately nine miles northwest of Brooksville, off US Highway 98 in Hernando County, Florida. The UTM coordinates of the Southdown facility are Zone 17, 356.0 km East and 3169.2 km North.

1.3 PROJECT DESCRIPTION

Southdown proposes to increase the allowable emission rate of nitrogen oxides of the existing No. 2 cement kiln from 162.3 to 250.0 pounds per hour, 30-day average. The No. 2 kiln had previously been permitted with an emission limit for nitrogen oxides of 250 pounds per hour in 1988 (PSD-FL-124), based on FDER's determination of the Best Available Control Technology (BACT). The intent of this submittal is to re-establish the previous nitrogen oxides emission limit which is more representative of normal kiln operation. There will be no change in the method of operation or annual operating hours of the No. 2 kiln. As a result of the proposed increase in the allowable hourly emission rate, there will be a corresponding increase in the allowable annual emission rate of nitrogen oxides from the No. 2 kiln from 665.4 to 1025.0 tons per year.

The proposed project will result in a significant net increase (in accordance with Table 500-2 of Chapter 17-2, Florida Administrative Code, FAC) in the emission rate of nitrogen oxides. There will be no change in the emission rates of other air pollutants presently regulated by No. 2 kiln permit A027-194660 (See Table 3-1) or in the emission rate of unregulated air pollutants.

Southdown is submitting this report in support of the application to the Florida Department of Environmental Regulation for an increase in the allowable emission rate of nitrogen oxides from the existing No. 2 kiln. The report includes a description of the existing No. 2 kiln operation, a review of Best Available Control Technology, an ambient air quality analysis and an evaluation of the impact of the proposed modifications on soils, vegetation and visibility.

2.0 FACILITY DESCRIPTION

Southdown operates a portland cement manufacturing facility located off US Highway 98 in Hernando County, Florida (See Figures 2-1 and 2-2). The UTM coordinates of the facility are Zone 17, 356.0 km East and 3169.2 km North.

2.1 EXISTING FACILITY

There are two existing cement kilns at the Southdown facility. The No. 1 kiln is currently permitted under AC27-186923, while No. 2 kiln is permitted under A027-194660. The proposed increase in the allowable emission rate of nitrogen oxides of the No. 2 kiln will not affect the No. 1 kiln or any other source at the facility. A modification of the nitrogen oxides emission limit is being requested to reflect normal kiln emissions. A summary of past stack sampling data indicative of nitrogen oxides emissions above currently permitted levels is presented in Table 2-1.

The No. 2 kiln is permitted for a maximum kiln feed rate of 130 tons per hour producing about 80 tons per hour of clinker. This reflects a feed rate to the preheater of 145 tons per hour. The maximum heat input rate to the kiln is 300 MMBTU per hour. The No. 2 kiln uses coal with a sulfur content of less than one percent as the primary fuel and Flolite (re-refined oil blend) as a start up fuel and a supplemental fuel.

A baghouse is used to control the emissions of particulate matter. Add-on controls are not required or deemed necessary for any of the other pollutants emitted from the No. 2 kiln.

TABLE 2-1

NO. 2 KILN - SUMMARY OF NITROGEN OXIDES EMISSION DATA

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

STACK SAMPLING DATE	NITROGEN OXIDES EMISSIONS (1) (pounds per hour)
04/04/86 (2)	403.0
05/05/86 (2)	244.0
3-4/91 (3)	309.6 (4)
03/24/92	311.4 (5)

(1) Stack sampling data indicative of higher NOx emissions than presently permitted.

(2) Previously submitted to FDER.

(3) Data gathered using NOx CEM from March to April 1991.

(4) Maximum daily average over 30-day period, based on CEM data.

(5) Highest 1-hour run.

FIGURE 2-1

AREA LOCATION MAP

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

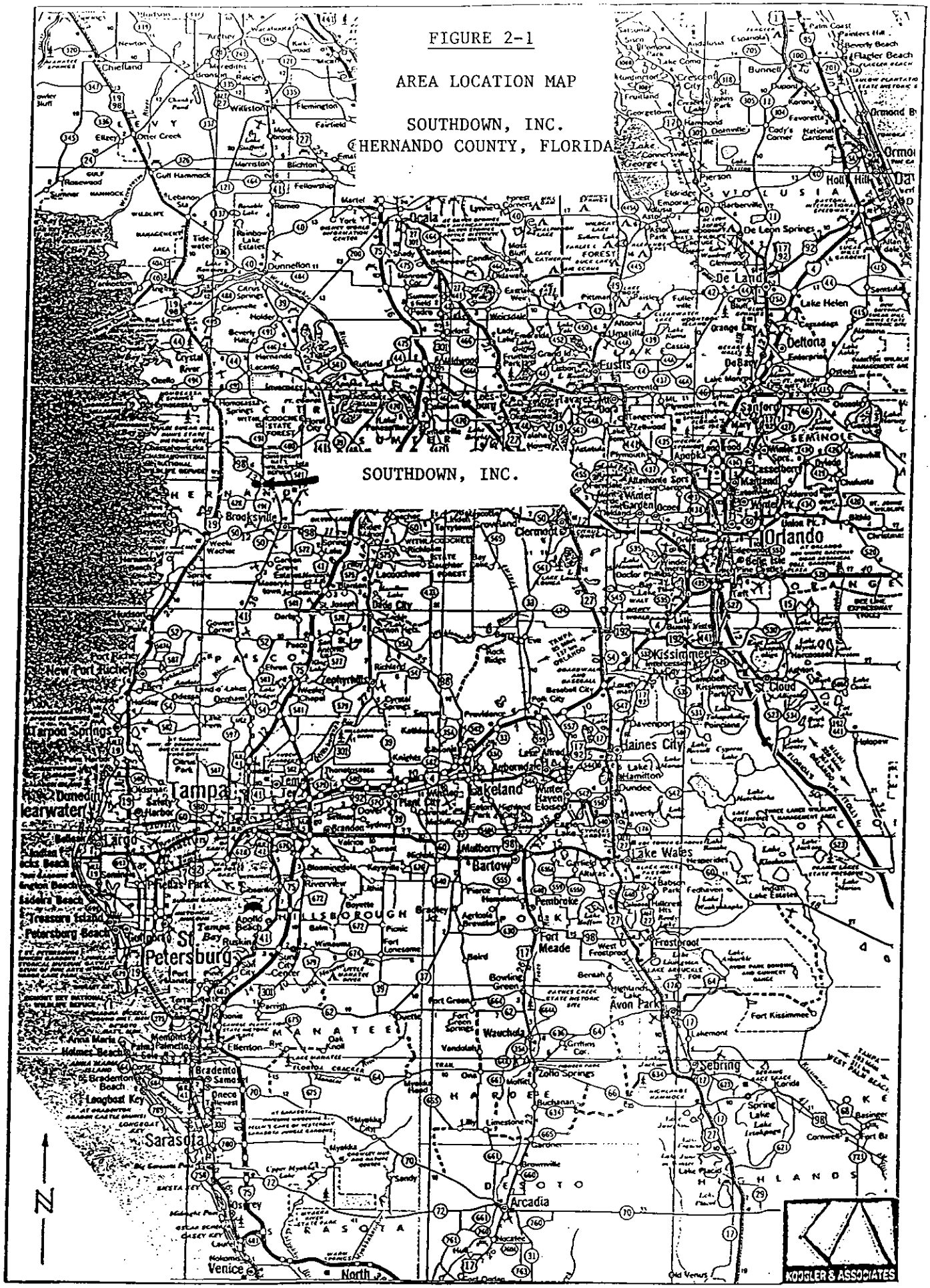


FIGURE 2-2

SITE LOCATION MAP

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

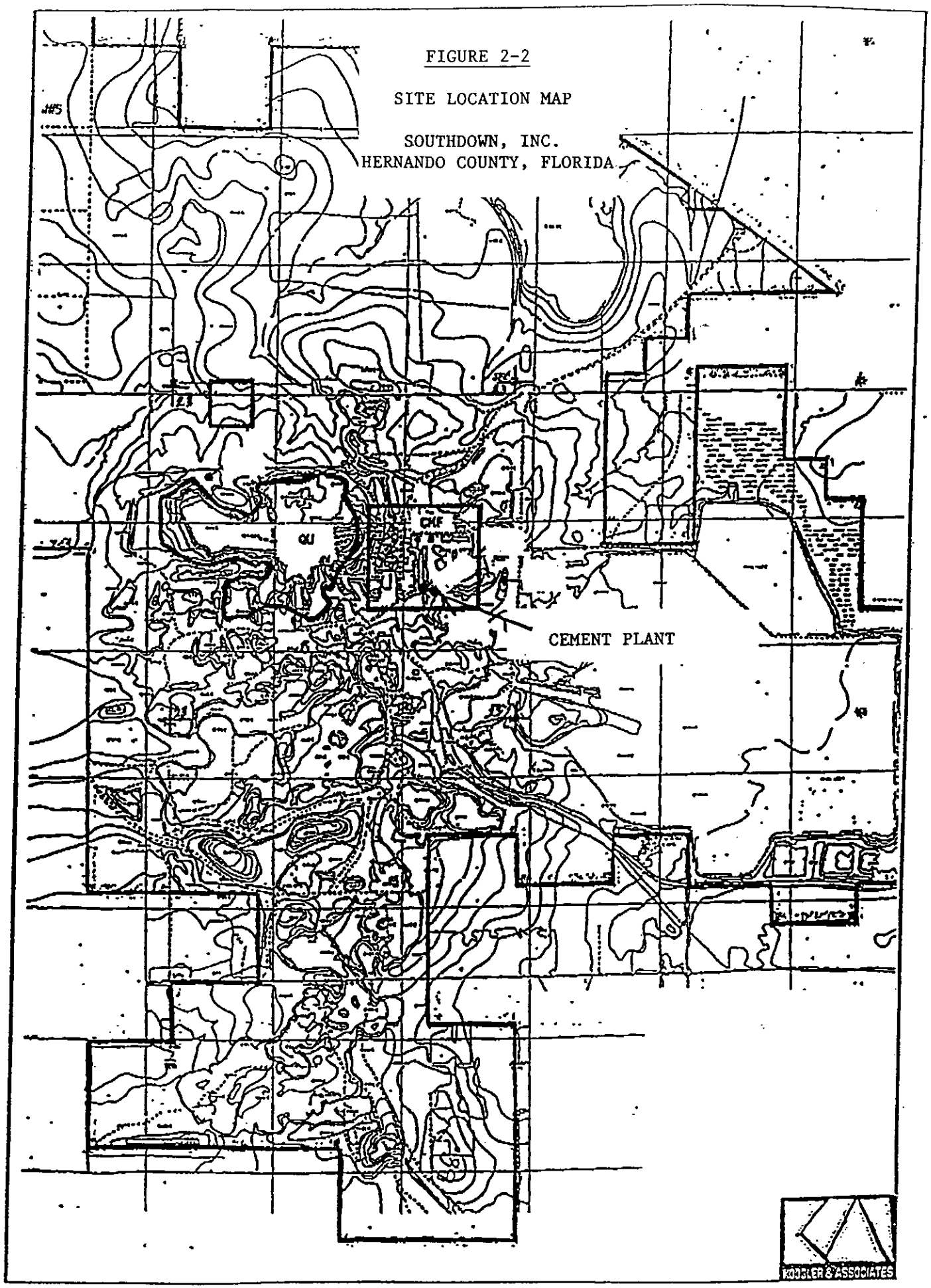
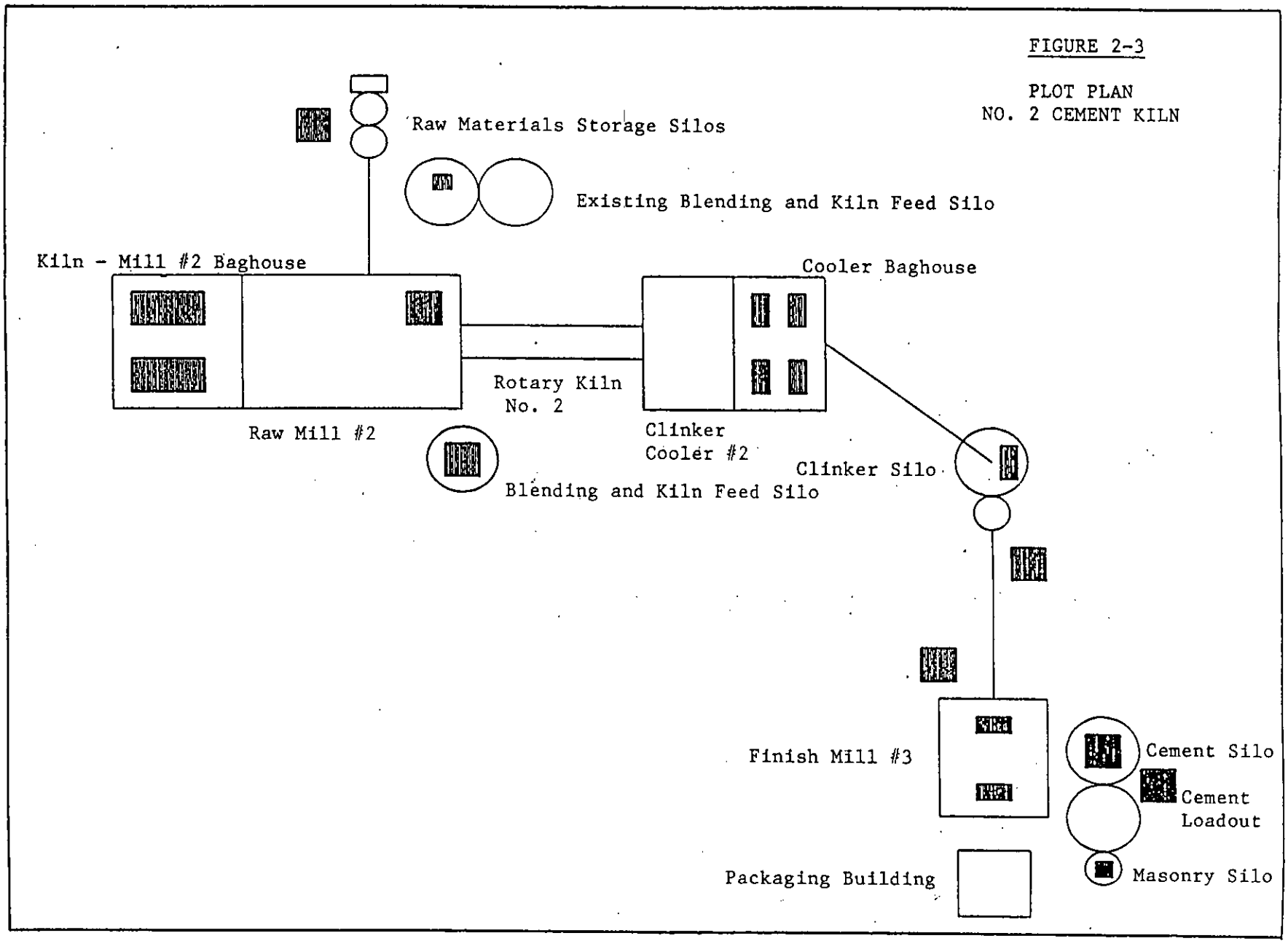


FIGURE 2-3

PLOT PLAN
NO. 2 CEMENT KILN



3.0 PROPOSED PROJECT

3.1 PROJECT DESCRIPTION

Southdown proposes to increase the allowable emission rate of nitrogen oxides of the No. 2 cement kiln from 162.3 to 250.0 pounds per hour, 30-day average. The No. 2 kiln had previously been permitted with a nitrogen oxides emission limit of 250 pounds per hour in 1988 (PSD-FL-124), based on FDER's determination of the Best Available Control Technology (BACT). The intent of this application submittal is to re-establish an emission limit for nitrogen oxides which reflects normal kiln operation. No change in the method of operation or in the annual operating hours is associated with the emission modification. An allowable emission rate of 250 pounds per hour for nitrogen oxides reflects not only a realistic emission limit for the No. 2 kiln based on stack sampling data, but also reflects FDER's previous BACT determination.

After the PSD permitting in 1988, Southdown had applied for an increase in the hours of operation and production rate of the No. 2 kiln. As a result of the FDER review of that permit application in 1990, an emission limit for nitrogen oxides of 162.3 pounds per hour was imposed on the No. 2 kiln based on compliance test history.

Unfortunately, the limited number of compliance tests considered in the permit review only showed what the kiln emissions were during a given test period (typically 3 hours per compliance test). In reality, the emission rate of nitrogen oxides fluctuate considerably over time.

In 1991, Southdown had installed a temporary continuous emission monitor (CEM) to determine the nitrogen oxides emitted from the No. 2 kiln. While the CEM was not certified, it had been calibrated periodically to maintain quality assurance. The CEM data were obtained over a period of about 30 days. The nitrogen oxides performance data indicated emissions of nitrogen oxides between 138 and 730 ppm, corrected to 7 percent oxygen. This corresponds to a mass emission rate between 84 and 445 pounds per hour.

In evaluating this CEM data as well as a number of past compliance tests, it was apparent that an emission limit of 162.3 pounds per hour could not be considered representative of kiln operation. In order to correct this permit inadequacy, Southdown decided to request a modification of the currently permitted emission limit of nitrogen oxides to reflect a more realistic emission limit. It should be noted that there will be no change in the operation of the No. 2 kiln. This request is intended to simply modify the permitted limit to reflect a realistic emission limit for nitrogen oxides.

However, correcting the permitted emission limit for nitrogen oxides will result in a significant increase (as defined by FAC Rule 17-2.500) in the annual emission rate of nitrogen oxides. The proposed modification of the permit limit will therefore be subject to a Prevention of Significant Deterioration (PSD) review.

3.2 RULE REVIEW

The following are the state and federal air regulatory requirements that apply to new or modified sources subject to a Prevention of Significant Deterioration (PSD) review.

In accordance with EPA and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) are subject to preconstruction review. Florida's State Implementation Plan (SIP), approved by the EPA, authorizes the Florida Department of Environmental Regulation (FDER) to manage the air pollution program in Florida.

The PSD review determines whether or not significant air quality deterioration will result from a new or modified facility. Federal PSD regulations are contained in 40CFR52.21, Prevention of Significant Deterioration of Air Quality. The state of Florida has adopted PSD regulations which are essentially identical to the federal regulations and are contained in Chapter 17-2 of the Florida Administration Code (FAC). All new major facilities and major modifications to existing facilities are subject to control technology review, source impact analysis, air quality analysis and additional impact analyses for each pollutant subject to a PSD review. A facility must also comply with the Good Engineering Practice (GEP) stack height rule.

A major facility is defined in the PSD rules as any one of the 28 specific source categories (see Table 3-3) which has the potential to emit 100 tons

per year (tpy) or more, or any other stationary facility which has the potential to emit 250 tpy or more, of any pollutant regulated under the CAA. A major modification is defined in the PSD rules as a change at an existing major facility which increases the actual emissions by greater than significant amounts (see Table 3-4).

3.2.1 Ambient Air Quality Standards

The EPA and the state of Florida have developed/adopted ambient air quality standards, AAQS (see Table 3-5). Primary AAQS protect the public health while the secondary AAQS protect the public welfare from adverse effects of air pollution. Areas of the country have been designated as attainment or nonattainment for specific pollutants. Areas not meeting the AAQS for a given pollutant are designated as nonattainment areas for that pollutant. Any new source or expansion of existing sources in or near these nonattainment areas are usually subject to more stringent air permitting requirements. Projects proposed in attainment areas are subject to air permit requirements which would ensure continued attainment status.

3.2.2 PSD Increments

In promulgating the 1977 CAA Amendments, Congress quantified concentration increases above an air quality baseline concentration level for sulfur dioxide and particulate matter which would constitute significant deterioration. The size of the allowable increment depends on the classification of the area in which the source would be located or have an impact. Class I areas include specific national parks, wilderness

areas and memorial parks. Class II areas are all areas not designated as Class I areas and Class III areas are industrial areas in which greater deterioration than Class II areas would be allowed. There are no designated Class III areas in Florida.

In 1988, EPA promulgated PSD regulations for nitrogen oxides and PSD increments for nitrogen dioxide concentrations. FDER adopted the nitrogen dioxide increments in July 1990 (see Table 3-6 for PSD increments).

3.2.3 Control Technology Evaluation

The PSD control technology review requires that all applicable federal and state emission limiting standards be met and that Best Available Control Technology (BACT) be applied to the source. The BACT requirements are applicable to all regulated pollutants subject to a PSD review.

BACT is defined in Chapter 17-2, FAC, as an emission limitation, including a visible emission standard, based on the maximum degree of reduction of each pollutant emitted which the Department, on a case-by-case basis, taking into account energy, environmental, and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques (including fuel cleaning or treatment or innovative fuel combustion techniques) for control of such pollutant. If the Department determines that technological or economic limitations on the application of measurement methodology to a particular part of a source or facility would make the imposition of an emission standard infeasible, a design, equipment, work

practice, operational standard or combination thereof, may be prescribed instead, to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reductions achievable by implementation of such design, equipment, work practice or operation. Each BACT determination shall include applicable test methods or shall provide for determining compliance with the standard(s) by means which achieve equivalent results.

The reason for evaluating the BACT is to minimize as much as possible the consumption of PSD increments and to allow future growth without significantly degrading air quality. The BACT review also analyzes if the most current control systems are incorporated in the design of a proposed facility. The BACT, as a minimum, has to comply with the applicable New Source Performance Standard for the source. The BACT analysis requires the evaluation of the available air pollution control methods including a cost-benefit analysis of the alternatives. The cost-benefit analysis includes consideration of materials, energy, and economic penalties associated with the control systems, as well as environmental benefits derived from the alternatives.

EPA recently determined that the bottom-up approach (starting at NSPS and working up to BACT) was not providing the level of BACT originally intended. As a result, in December 1987, EPA strongly suggested changes in the implementation of the PSD program including the "top-down" approach to BACT. The top-down approach requires a technology evaluation to start with the most stringent control alternative, often Lowest Achievable

Emission Rate (LAER), and justify its rejection or acceptance as BACT. Rejection of control alternatives may be based on technical or economical infeasibility, physical differences, locational differences, and environmental or energy impact differences when comparing a proposed project with a project previously subject to that BACT.

3.2.4 Air Quality Monitoring

An application for a PSD permit requires an analysis of ambient air quality in the area affected by the proposed facility or major modification. For a new major facility, the affected pollutants are those that the facility would potentially emit in significant amounts. For a major modification, the pollutants are those for which the net emissions increase exceeds the significant emission rate.

Ambient air monitoring for a period of up to one year, but no less than four months, is required. Existing ambient air data for a location in the vicinity of the proposed project is acceptable if the data meet FDER quality assurance requirements. If not, additional data would need to be gathered. There are guidelines available for designing a PSD air monitoring network in EPA's "Ambient Monitoring Guidelines for Prevention of Significant Deterioration."

FDER may exempt a proposed major stationary facility or major modification from the monitoring requirements with respect to a particular pollutant if the emissions increase of the pollutant from the facility or modification would cause air quality impacts less than the de minimis

levels (see Table 3-4).

3.2.5 Ambient Impact Analysis

A source impact analysis is required for a proposed major source subject to PSD for each pollutant for which the increase in emissions exceeds the significant emission rate. Specific atmospheric dispersion models are required in performing the impact analysis. The analysis should demonstrate the project's compliance with AAQS and allowable PSD increments. The impact analysis for criteria pollutants may be limited to only the new or modified source if the net increase in impacts due to the new or modified source is below significant impact levels.

Typically, a five-year period is used for the evaluation of the highest, second-highest short-term concentrations for comparison to AAQS or PSD increments. The term "highest, second-highest" refers to the highest of the second-highest concentrations at all receptors. The second-highest concentration is considered because short-term AAQS specify that the standard should not be exceeded at any location more than once a year. If less than five years of meteorological data are used in the modeling analysis, the highest concentration at each receptor is normally used.

3.2.6 Additional Impact Analysis

The PSD rules also require analyses of the impairment to visibility and the impact on soils and vegetation that would occur as a result of the project. A visibility impairment analysis must be conducted for PSD Class I areas. Impacts due to commercial, residential, industrial, and other

growth associated with the source must be addressed.

3.2.7 Good Engineering Practice Stack Height

In accordance with Chapter 17-2, FAC, the degree of emission limitation required for control of any pollutant is not to be affected by a stack height that exceeds GEP, or any other dispersion technique. GEP stack height is defined as the highest of:

1. 65 meters (m), or
2. A height established by applying the formula:

   $Hg = H + 1.5\ L$

   where:

   Hg - GEP stack height,

   H - Height of the structure or nearby structure, and

   L - Lesser dimension, height or projected width of nearby structure(s)
3. A height demonstrated by a model or field study.

The GEP stack height regulations require that the stack height used in modeling for determining compliance with AAQS and PSD increments not exceed the GEP stack height. The actual stack height may be higher or lower.

3.3 RULE APPLICABILITY

The increase in the allowable emissions of nitrogen oxides of the No. 2 kiln is classified as a major modification to a major facility subject to both state and federal regulations as set forth in Chapter 17-2, FAC. The

facility is located in an area classified as attainment for each of the regulated air pollutants. The proposed modification to the existing No. 2 cement kiln will result in significant increases in emissions of nitrogen oxides as defined by Rule 17-2.500(2)(e)2, FAC, and will therefore be subject to PSD review requirements in accordance with FAC Rule 17-2.500. This will include a determination of Best Available Control Technology, an air quality review, Good Engineering Practice stack height analysis and an evaluation of impacts on soils, vegetation and visibility.

FIGURE 3-1

PROCESS FLOW DIAGRAM
NO. 2 CEMENT KILN

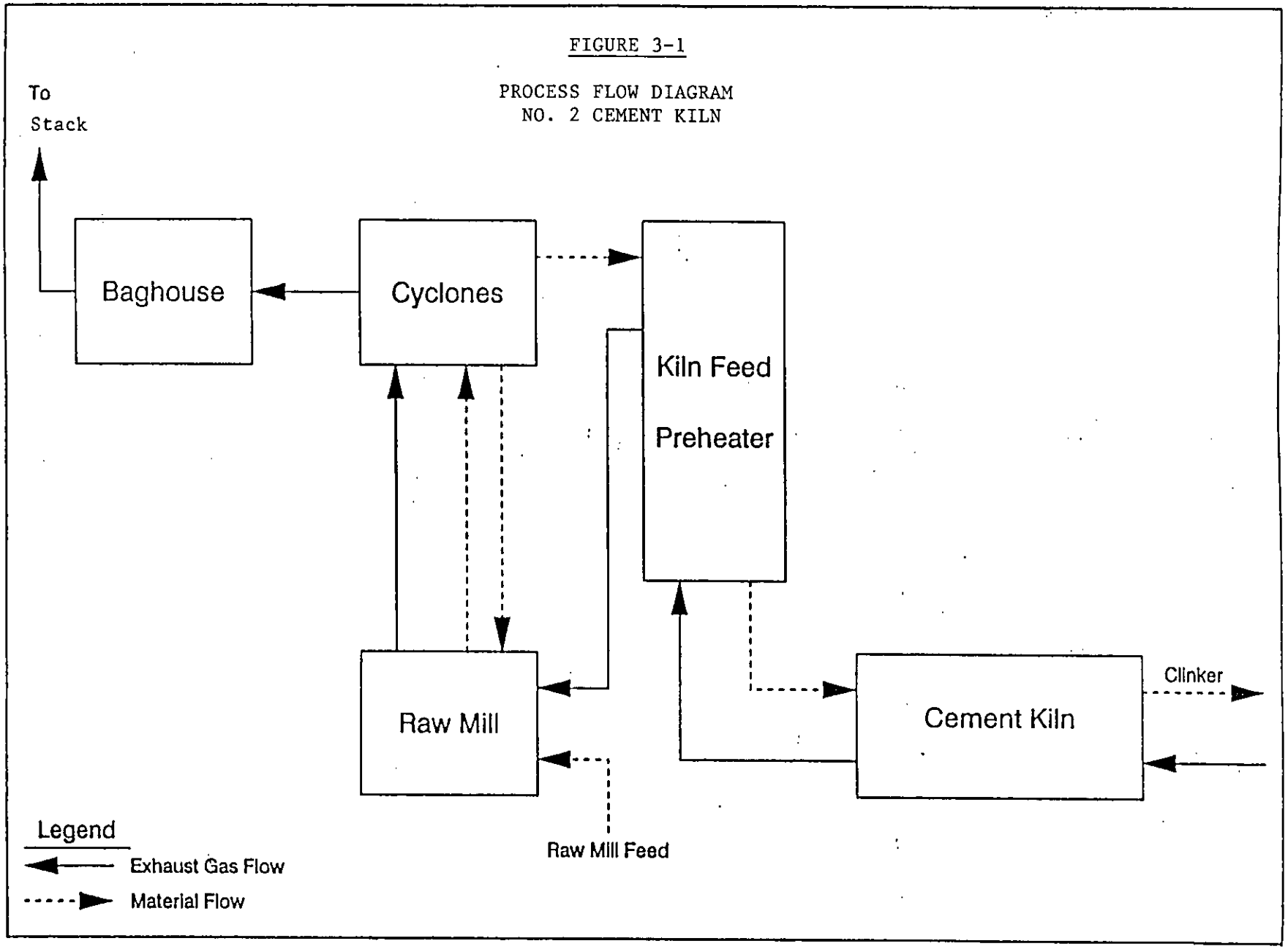


TABLE 3-1

NO. 2 KILN - CURRENT AND PROPOSED
AIR EMISSION RATES

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

POLLUTANT	EMISSIONS lbs/hr	EMISSIONS tpy
Current Permit Limits		
Particulate Matter	13.5	55.3
Sulfur Dioxide	11.5	47.0
Nitrogen Oxides	162.3	665.3
Volatile Organic Compounds	7.4	31.2
Carbon Monoxide	64.0	262.2
Proposed Allowable Limit (1)		
Nitrogen Oxides	250.0(2)	1025.0

(1) The emission limits for particulate matter, sulfur dioxide, volatile organic compounds and carbon monoxide remain unchanged from those currently permitted.

(2) Based on a 30-day average.

TABLE 3-2

NO. 2 KILN - NET EMISSION INCREASES(1)

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

POLLUTANT	NET EMISSIONS INCREASE lbs/hr	tpy
Particulate Matter	0	0
Sulfur Dioxide	0	0
Volatile Organic Compounds	0	0
Carbon Monoxide	0	0
Nitrogen Oxides (NOx)	87.7	359.6
Significant Increase For NOx (2)	--	40.0

(1) See Appendix for emission calculations.
(2) Presented in Table 500.2, Chapter 17-2, FAC.

TABLE 3-3

MAJOR FACILITY CATEGORIES

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

Fossil fuel fired steam electric plants of more than 250 MMBTU/hr heat input
Coal cleaning plants (with thermal dryers)
Kraft pulp mills
Portland cement plants
Primary zinc smelters
Iron and steel mill plants
Primary aluminum ore reduction plants
Primary copper smelters
Municipal incinerators capable of charging more than 250 tons of refuse per day
Hydrofluoric acid plants
Sulfuric acid plants
Nitric acid plants
Petroleum refineries
Lime plants
Phosphate rock processing plants
Coke oven batteries
Sulfur recovery plants
Carbon black plants (furnace process)
Primary lead smelters
Fuel conversion plants
Sintering plants
Secondary metal production plants
Chemical process plants
Fossil fuel boilers (or combinations thereof) totaling more than 250 million BTU/hr heat input
Petroleum storage and transfer units with total storage capacity exceeding 300,000 barrels
Taconite ore processing plants
Glass fiber processing plants
Charcoal production plants

TABLE 3-4

REGULATED AIR POLLUTANTS - SIGNIFICANT EMISSION RATES

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

Pollutant	Significant Emission Rate tons/yr	De minimis Ambient Impacts µg/m3
CO	100	575 (8-hour)
NOx	40	14 (NO2, Annual)
SO2	40	13 (24-hour)
Ozone	40 (VOC)	-
PM (TSP)	25	10 (24-hour)
PM10	15	10 (24-hour)
TRS (including H2S)	10	0.2 (1-hour)
H2SO4 mist	7	-
Fluorides	3	0.25 (24-hour)
Vinyl Chloride	1	15 (24-hour)
	pounds/yr	
Lead	1200	0.1 (Quarterly avg)
Mercury	200	0.25 (24-hour)
Asbestos	14	-
Beryllium	0.8	0.001 (24-hour)

TABLE 3-5

AMBIENT AIR QUALITY STANDARDS

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

Pollutant	FDER (State)		USEPA (National) Primary		USEPA (National) Secondary	
	µg/m3	PPM	µg/m3	PPM	µg/m3	PPM
SO_2, 3-hour	1,300	0.5	-	-	1300	0.5
24-hour	260	0.1	365	0.14	-	-
Annual	60	0.02	80	0.03	-	-
PM10, 24-hour	150	-	150	-	150	-
Annual	50	-	50	-	50	-
CO, 1-hour	40,000	35	40,000	35	-	-
8-hour	10,000	9	10,000	9	-	-
Ozone, 1-hour	235	0.12	235	0.12	235	0.12
NO_2, Annual	100	0.05	100	-	100	-
Lead, Quarterly	1.5	-	1.5	-	1.5	-

TABLE 3-6

PSD INCREMENTS

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

Pollutant	Allowable PSD Increments (State/National) Class I µg/m3	Class II µg/m3	Class III µg/m3
TSP, Annual	5	19	37
24-hour	10	37	75
SO2, Annual	2	20	40
24-hour	5	91	182
3-hour	25	512	700
NO2, Annual	2.5	25	50

4.0 BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology (BACT) is required to control air pollutants emitted from newly constructed major sources or from modification to the major emitting facilities if the modification results in significant increase in the emission rate of regulated pollutants (see Table 3-5 for significant emission levels). The emission rate increase of nitrogen dioxide proposed by Southdown represents a significant increase. A BACT analysis is therefore required for nitrogen oxides.

4.1 EMISSION STANDARDS FOR PORTLAND CEMENT PLANTS

Federal New Source Performance Standards (NSPS) have been promulgated for portland cement plants. These standards became effective on August 17, 1971, are codified in 40CFR60, Subpart F, and require particulate emissions from a cement kiln to be limited to no more than 0.30 pound per ton of feed. The visible emissions from the kiln are limited to no more than 20 percent opacity. Particulate emissions from a clinker cooler are limited to no more than 0.10 pound per ton feed. The visible emissions from the cooler are limited to less than 10 percent opacity. The NSPS do not address the emissions of other criteria pollutants from portland cement manufacturing.

EPA revised/amended the New Source Performance Standards for portland cement plants in 1989. At that time, no changes to the emission standard were deemed necessary or justified.

The emission standards in FAC Rule 17-2.600, applicable to new portland cement plants, are identical to those contained in 40CFR60, Subpart F and also address only particulate matter and visible emissions.

4.2 PREVIOUS BACT DETERMINATIONS

A review of the EPA BACT/LAER Clearinghouse identified a number of BACT determinations for portland cement plants. These BACT determinations addressed not only particulate matter, but also other criteria pollutants emitted from portland cement manufacturing facilities. The emission limits for nitrogen oxides from cement kilns have been evaluated by regulatory agencies in several states.

Most of the BACT determinations published in the Clearinghouse date back to the early 1980s. There are only three projects listed in the Clearinghouse which have been evaluated since 1984. A summary of the BACT determinations conducted over the last decade is presented in Tables 4-1 and 4-2. A copy of the various BACT determinations as presented in the BACT/LAER Clearinghouse is provided in the Appendix. For every project, the BACT determination for nitrogen oxides was established as proper operation practices.

A review of the nitrogen oxides emission limits listed in Table 4-2 indicates that the Southdown No. 2 kiln emission limit is the most stringent in the nation. Several other kilns which were initially permitted at lower emission rates have had the limits revised to reflect an emission level that is realistic. It is interesting to note that the

nitrogen oxides emission limit requested for the No. 2 kiln, if granted by FDER, would still be the lowest in the nation. Based on past BACT determinations for other cement kilns and also FDER's original BACT determination for the No. 2 kiln, it is apparent that the requested nitrogen oxides emission limit of 250 pounds per hour, 30-day average, is reasonable and does reflect BACT.

4.3 NITROGEN OXIDES CONTROL TECHNOLOGY

Nitrogen oxides emissions are formed in the combustion process by the oxidation of nitrogen in fuels (fuel NOx) and in combustion air (thermal NOx). Thermal NOx is formed from the reaction of oxygen and nitrogen in the combustion air at combustion temperatures. Formation of thermal NOx depends on the flame temperature, residence time, combustion pressure, and air-to-fuel ratio in the combustion zone. The design and operation of the combustion system dictates these conditions. Fuel bound NOx is created by the oxidation of the volatilized nitrogen in the fuel. Nitrogen content of the fuel is the primary factor in the formation of fuel NOx.

The emissions of nitrogen oxides can be lowered by lowering combustion temperatures and reducing combustion air. These measures, however, do increase the generation of carbon monoxide. Post combustion controls have been proposed for certain sources where reduction of nitrogen oxides have been demonstrated. The source categories for which the "add-on" controls have been proposed or recommended include municipal waste combustors, industrial and utility boilers, glass furnaces, and gas turbines. The add-on controls used in the above applications typically consist of

Selective Catalytic Reduction (SCR) technology or Selective Non-Catalytic Reduction (SNCR) technology.

4.3.1 Selective Catalytic Reduction

SCR uses ammonia to react with the nitrogen oxides present in the flue gas stream in the presence of a catalyst. Ammonia is typically diluted with air to an optimum concentration and introduced into the gas stream. A temperature range between 600 and 750°F is required for the reaction of ammonia and nitrogen oxides and results in the formation of nitrogen and water.

In the case of cement kilns, nitrogen oxides removal using SCR has not been demonstrated. The process design of a typical cement kiln system poses several difficulties in successfully implementing SCR technology.

The temperature zone required for SCR occurs in the kiln system between the preheater and the baghouse. At this location, there is a high concentration of calcium particles present in the gas stream. The calcium particles would render the catalyst ineffective within a very short period. The SCR system cannot be installed at a location downstream of the baghouse (after the majority of the calcium particles are removed from the air stream) because the gas temperature at that point would be around 250 to 300°F, far below the SCR operation range.

4.3.2 Selective Non-Catalytic Reduction

SNCR technology also uses ammonia or urea injection into the gas stream

to control nitrogen oxides. In some systems, the simultaneous injection of hydrogen has also been used to extend the process effectiveness. While no catalyst is required, the effective temperature range necessary for the reaction of the ammonia and nitrogen oxides is significantly higher than that required for SCR. The ammonia is typically diluted with air or steam and introduced at a location that provides optimum reaction temperature and residence time. At temperatures between 1500 and 2200°F, the ammonia reacts with the nitrogen oxides in the gas stream to produce nitrogen and water. However, at temperatures above 2200°F, the ammonia reacts with the oxygen in the gas stream to produce nitrogen oxides.

In the case of cement kilns, the removal of nitrogen oxides using SNCR has not been demonstrated. The process design of a typical cement kiln system poses several difficulties in implementing SNCR technology.

The optimum temperature range for a SNCR system is between 1600 and 2000°F. This temperature range is encountered in a typical cement kiln system only in the kiln itself. The temperature in the flame/combustion zone of a cement kiln are typically above 2700°F, while the temperature on the other end of the kiln are typically around 1500°F. Assuming a constant temperature gradient from one end of the kiln to the other, the period in which the temperature range falls within the SNCR operation range (1600-2000°F) would be about one-fourth of the period in which the temperature range in the kiln would be above 2000°F. Under these circumstances, ammonia injection into the kiln may actually increase the emissions of nitrogen oxides from the kiln.

The injection of ammonia at a location after the cement kiln would be outside the desired SNCR system optimum temperature range and therefore would not be beneficial in the removal of nitrogen oxides.

4.3.3 Proper Operation Practices

Proper operation practices are used by all the cement kilns in the country as the method of achieving low emissions of nitrogen oxides. It is widely recognized that the emissions of nitrogen oxides can be controlled by limiting the amount of excess combustion air supplied to the combustion process. However, it should be noted that there is a relationship between the emissions of nitrogen oxides and carbon monoxide. Figure 4-1 shows how the emissions of carbon monoxide increase dramatically as the emissions of nitrogen oxides are reduced. Actual emission data of nitrogen oxides and carbon monoxide are presented in Figures 4-2 and 4-3. At optimum operating conditions, the generation of both pollutants can be minimized.

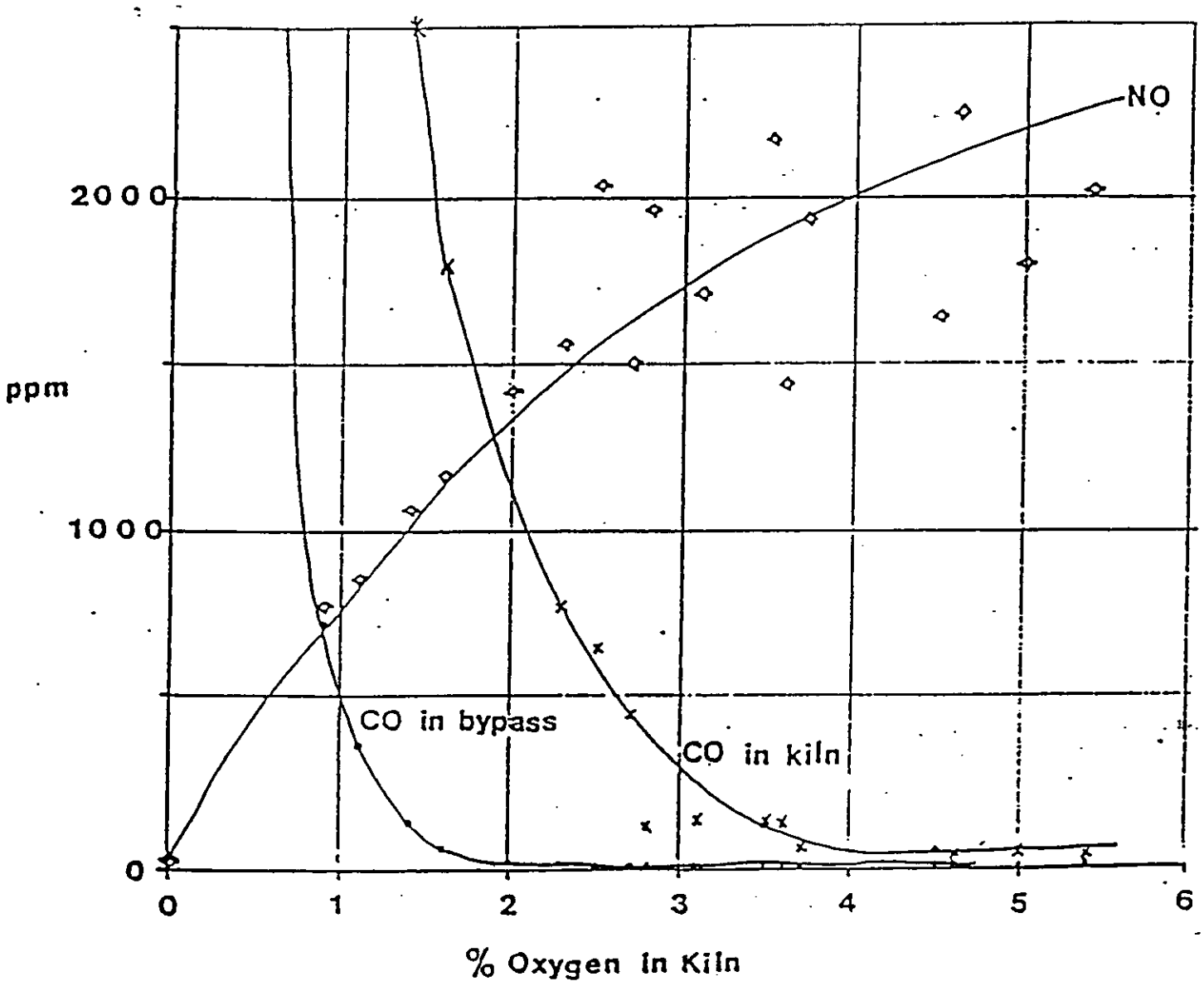
Southdown proposes to control the excess combustion air, and implement proper operation practices to control the emissions of nitrogen oxides from the No. 2 cement kiln.

4.4 CONCLUSION

Based upon the analysis presented in previous sections, the control of excess combustion air and the implementation of proper operation practices by Southdown, limiting the emissions of nitrogen oxides from the No. 2 cement kiln to 250 pounds per hour, 30-day average, represents BACT.

FIGURE 4-1

RELATIONSHIP OF CO AND NOx EMISSIONS



From "The Use of Carbon Monoxide and Other Gases for Process Control", by Eric R. Hansen. Submitted for the 1985 I.E.E.E. Conference.

NOTE: No. 2 Kiln does not have a bypass

FIGURE 4-2

NO. 2 KILN NOx EMISSION DATA

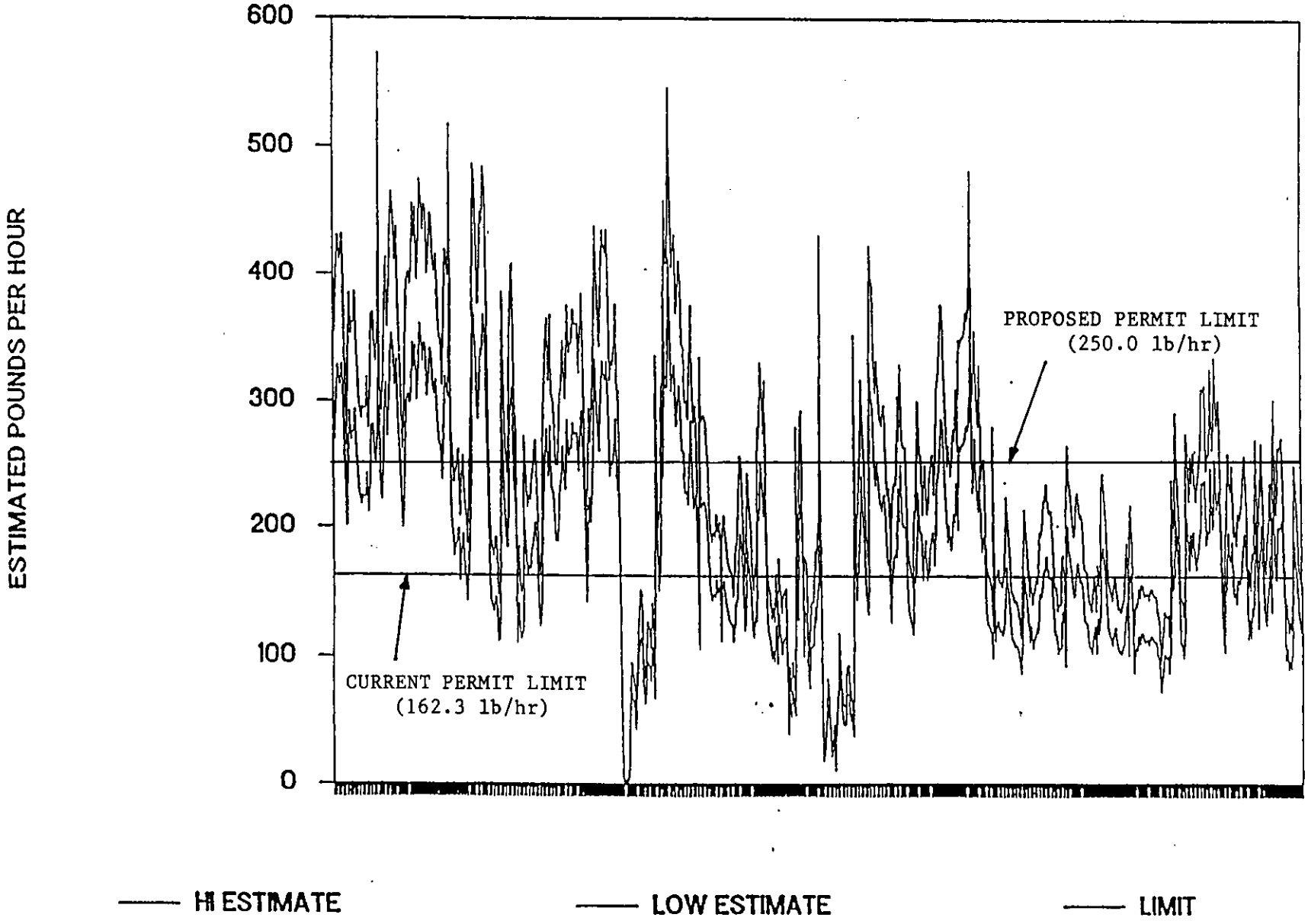


FIGURE 4-3

NO. 2 KILN CO EMISSION DATA

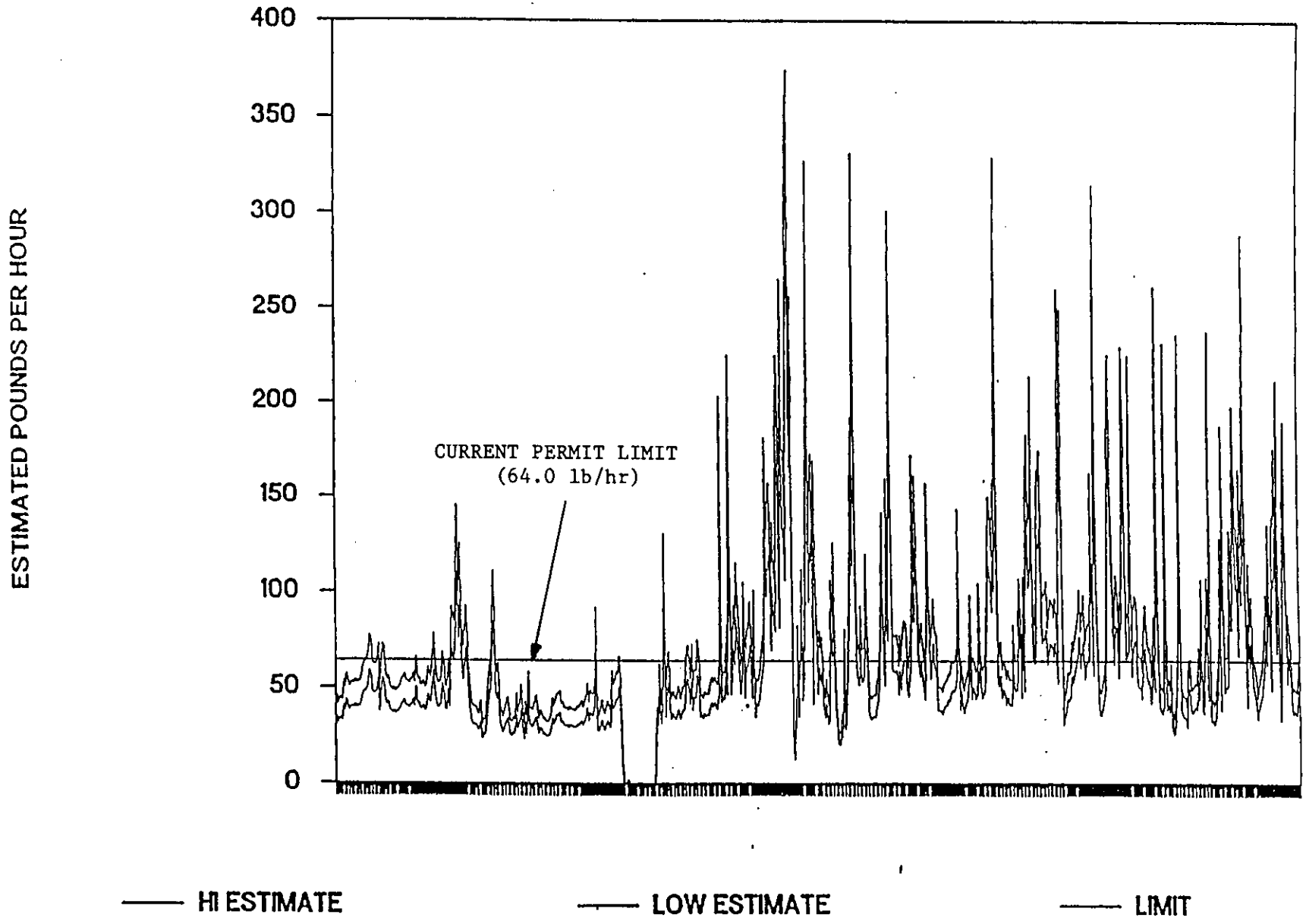


TABLE 4-1

SUMMARY OF NOx BACT DETERMINATIONS
FOR PORTLAND CEMENT KILNS

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

COMPANY	DATE	BACT NOx LIMIT	CONTROL TECHNOLOGY
Ash Grove Cement West, Inc. (WA)	06/20/90	478 ppmvd 590 lb/hr(1)	Process Design
Lone Star Ind. (CA)	07/29/86	250 lb/hr(2)	Process Design
Florida Crushed Stone (FL)	03/27/84	2.90 lb/T feed	Process Design
DAL-TEX Cement (TX)	09/03/82	None	
Las Vegas Port. Cement (NV)(3)	02/01/82	115.0 ppm 281.0 lb/hr	Process Design
Lonestar Ind., Inc. (WA)	01/25/82	300.0 lb/hr	Process Design
Monolith Port. Cement Co. (CA)	12/23/81	260.0 lb/hr	Process Design
Southwestern Port. Cement Co. (TX)(4)	11/05/81	0.32 lb/MMBtu	Kiln Design
Dixie Cement Co. (TN)(5)	09/10/81	110.0 lb/hr	Process Design
Lonestar Port. Cement (UT)(6)	01/16/81	1.6 lb/T feed 236.6 lb/hr	Process Design
Creole Corp. (CA)	05/20/80	175 ppm 213.0 lb/hr	Process Design
Texas Cement Co. (TX)(7)	05/16/80	240.0 lb/hr	Process Design

(continued)

TABLE 4-1 (CONTINUED)

COMPANY	DATE	BACT NOx LIMIT	CONTROL TECHNOLOGY
Lonestar Ind., Inc. (TX)(8)	02/19/80	360.0 lb/hr	Process Design
California Port. Cement Co. (CA)	01/12/79	None	
Kaiser Cement & Gypsum Corp. (CA)	12/26/78	1158.0 lb/hr	Process Design

(1) Revised 5/91 to 590 lb/hr 3-hr avg. and 422 lb/hr annual avg.
(2) Permit Engineer corrected data to 100 tph feed not clinker.
(3) This facility was never built.
(4) No annual testing required.
(5) Source shut down.
(6) Revised 5/90 to 400.0 lb/hr, 2.9 lb/T feed.
(7) Source out-of-compliance, negotiating revised limits.
(8) State files indicate source inactive since 1985.

TABLE 4-2

COMPARISON OF NOx BACT DETERMINATIONS

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

COMPANY	NOx EMISSION LIMIT (pound NOx/ton clinker)	CONTROL TECHNOLOGY
Ash Grove Cement	4.6 (6.4 peak)	Process Design
Lone Star Ind.	4.2 (5.8 peak)	Process Design
Florida Crushed	4.8	Process Design
DAL-TEX Cement	None	NA
Las Vegas Cement	NA(1)	NA
Lonestar Ind.	3.5	Process Design
Monolith Cement	4.6	Process Design
Southwestern Cement	NA(2)	Kiln Design
Dixie Cement	NA(3)	NA
Lonestar Cement	4.8	Process Design
Creole Corp.	3.7	Process Design
Texas Cement	NA(4)	Process Design
Lonestar Ind.	NA(5)	Process Design
California Cement	None	NA
Kaiser Cement	5.6	Process Design
Southdown	3.2(6)	Process Design

(1) This facility was never built.
(2) No annual testing required.
(3) Source shut down.
(4) Source out-of-compliance, negotiating revised limits.
(5) State files indicate source inactive since 1985.
(6) Southdown No. 2 Kiln proposed limit; lowest limit in above list.

5.0 AIR QUALITY REVIEW

The air quality review required of a PSD construction permit application potentially requires both air quality modeling and air quality monitoring. The air quality monitoring is required when the impact of air pollutant emission increases and decreases associated with a proposed project exceed the de minimis impact levels defined by Rule 17-2.500(3)(e)1, FAC or in cases where an applicant wishes to define existing ambient air quality by monitoring rather than by air quality modeling. The air quality modeling is required to provide assurance that the emissions from the proposed project, together with the emissions of all other air pollutants in the project area, will not cause or contribute to a violation of any ambient air quality standard.

5.1 AIR QUALITY MODELING FOR NITROGEN OXIDES

The ambient air quality impacts resulting from the requested increase in emissions of nitrogen oxides were evaluated using air dispersion modeling.

The impact analysis of the net increase in emissions of nitrogen oxides from the No. 2 kiln was conducted using the Industrial Source Complex-Short Term (ISC-ST) air quality model, Version 90346. The Area of Significant Impact (ASI) modeling was conducted in accordance with guidelines established by EPA and published in the document, *Guidelines for Air Quality Modeling*, (Revised), July 1986. The meteorological data used with the model were for Tampa, Florida and represent the period 1982 to 1986.

The nitrogen oxides emissions modeled to determine the ASI were the net increase in emissions requested. The ASI modeling include receptors established by the polar grid system extending to 5 kilometers from the plant. Ten sets of receptor rings were placed at distances ranging from 0.9 to 5 kilometers from the plant with the receptors placed at 10 degree intervals on each receptor ring. The receptor ring at 0.9 kilometer approximately corresponds to the nearest boundary to the northeast of the facility (see Figure 2-2). A single receptor was placed at a distance of 14 kilometers from the facility representing the nearest Class I area (Chassahowitzka National Wildlife Refuge) boundary.

5.2 MODELING RESULTS

The results of the ASI modeling, summarized in Table 5-2, demonstrate that the impact of nitrogen oxides emission increases associated with the proposed project were less than significant for the annual time period and also less than the de minimis impact level. The ASI modeling also demonstrated that the impact from the proposed project was not significant at the Class I area located at a distance of 14 kilometers from the Southdown facility (see Table 5-3).

The PSD increment and ambient air quality standard analyses were not required as the impacts from the proposed project were predicted to be less than de minimis.

TABLE 5-1

AIR QUALITY MODELING PARAMETERS

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

Source	NOx Emission Rate (g/s)	Stack Parameters Ht (m)	Dia (m)	Vel (mps)	Temp (°K)
No. 2 Kiln	11.06	32.01	4.27	9.90	394

NOTE:

1. The modeled emission rate is the net increase in nitrogen oxides from the No. 2 kiln.

2. The dimensions of the nearest building were included in the model input as 25.6 m height, 24.0 m length, and 24.0 m width.

TABLE 5-2

SUMMARY OF NITROGEN OXIDES IMPACT ANALYSIS

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

METEOROLOGICAL DATA	NITROGEN OXIDES IMPACT ($\mu g/m^3$) ANNUAL	8-HOUR	24-HOUR
1982	0.51 (2500m, 240°)	11.28 (1500m, 240°)	5.04 (1500m, 240°)
1983	0.34 (1500m, 90°)	10.04 (1500m, 90°)	5.92 (1250m, 100°)
1984	0.44 (3000m, 240°)	15.73 (900m, 130°)	5.14 (1500m, 120°)
1985	0.44 (1500m, 90°)	12.25 (1250m, 90°)	8.52 (1000m, 120°)
1986	0.47 (1500m, 90°)	10.96 (1250m, 90°)	4.92 (2500m, 230°)
De minimis Impact 17-2.500(3)(e)1,FAC	14	NA	NA
Ambient Standard 17-2.300(3)(e),FAC	100	NA	NA
PSD Increment, Class II 17-2.310,FAC	25	NA	NA
FDER No-Threat Levels (Permitting Guidelines)	NA	60.0	14.4

TABLE 5-3

SUMMARY OF NITROGEN OXIDES IMPACT ON CLASS I AREA

SOUTHDOWN, INC.
HERNANDO COUNTY, FLORIDA

METEOROLOGICAL DATA	NITROGEN OXIDES IMPACT ($\mu g/m^3$) ANNUAL
1982	0.04
1983	0.05
1984	0.06
1985	0.06
1986	0.06
Class I PSD Increment 17-2.310,FAC	2.5

6.0 GOOD ENGINEERING PRACTICE STACK HEIGHT

The criteria for good engineering practice stack height in Rule 17-2.270 states that the height of a stack should not exceed the greater of 65 meters (213) feet or the height of nearby structures plus the lesser of 1.5 times the height or cross-wind width of the nearby structure. This stack height policy is designed to prevent achieving ambient air quality goals solely through the use of excessive stack heights and air dispersion.

The Southdown No. 2 kiln stack is less than 213 feet in height above-grade. This satisfies the Good Engineering Practice (GEP) stack height criteria.

It should be noted that building wake effects were considered in the modeling using the worst-case dimensions of the nearest structure (baghouse).

7.0 IMPACTS ON SOILS, VEGETATION AND VISIBILITY

7.1 IMPACT ON SOILS AND VEGETATION

The U. S. Environmental Protection Agency was directed by Congress to develop primary and secondary ambient air quality standards. The primary standards were to protect human health and the secondary standards were to:

> "... protect the public welfare from any known or anticipated adverse effects of a pollutant."

The public welfare was to include soils, vegetation and visibility.

As a basis for promulgating the air quality standards, EPA undertook studies related to the effects of all major air pollutants and published criteria documents summarizing the results of the studies. The studies included in the criteria documents were related to both acute and chronic effects of air pollutants. Based on the results of these studies, the criteria documents recommended air pollutant concentration limits for various periods of time that would protect against both chronic and acute effects of air pollutants with a reasonable margin of safety.

The air quality modeling that has been conducted as a requirement for the PSD application demonstrates that the levels of nitrogen oxides expected as a result of the proposed project will be below the de minimis impact level as well as the FDER NTLs. As a result, it is reasonable to conclude that there will be no adverse effect to the soils or vegetation of the area.

7.2 GROWTH RELATED IMPACTS

The proposed modification will require no increase in personnel to operate the No. 2 kiln. Therefore, no additional growth impacts are expected as a result of the proposed project.

7.3 VISIBILITY IMPACTS

The proposed project will result in an increase in nitrogen oxides emissions. However, since the predicted impact from the proposed project is below the de minimis level, no adverse impacts on visibility are expected.

8.0 CONCLUSION

It can be concluded from the information in this report that the proposed increase in the allowable emission rate of nitrogen oxides from the Southdown No. 2 cement kiln as described in this report will not cause or contribute to a violation of any air quality standard, PSD increment, or any other provision of Chapter 17-2, FAC.

APPENDIX

NOx EMISSION CALCULATIONS

Present Permitted NOx	=	162.3 lbs/hr
		x 8200 hrs/yr x ton/2000 lbs
	=	665.4 tpy
CEM Measured NOx (March-April 1991)	=	250 lbs/hr
		x 8200 hrs/yr x ton/2000 lbs
	=	1025.0 tpy
Proposed NOx	=	250 lbs/hr (30-day avg.)
		x 8200 hrs/yr x ton/2000 lbs
	=	1025.0 tpy
Net Change in Allowable NOx	=	250 lbs/hr - 162.3 lbs/hr
	=	87.7 lbs/hr
		x 8200 hrs/yr x ton/2000 lb
	=	359.6 tpy
Net Change in NOx Based on CEM Data	=	250 lbs/hr - 250 lbs/hr
	=	0 lb/hr, 0 tpy
Modeled Emissions of NOx	=	(250 - 162.3) lbs/hr
	=	87.7 lbs/hr
		x 454 g/lb x hr/3500 s
	=	11.06 g/s

CURRENT NO. 2 KILN PERMIT

Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347

Lawton Chiles, Governor 813-623-5561 Carol M. Browner, Secretary

PERMITTEE:
Southdown, Inc. dba
Florida Mining & Materials
P.O. Box 6
Brooksville, Florida 34605-0006

PERMIT/CERTIFICATION:
Permit No: AO27-194660
County: Hernando
Expiration Date: 4/30/96
Project: No. 2 Kiln

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of Kiln No. 2, a rotary kiln used to produce portland cement clinker. Maximum kiln feed rate is 130 tons/hr yielding a maximum clinker production rate of 79.6 tons/hr. The kiln uses coal with a sulfur content not to exceed 1% as the primary fuel at a maximum heat input rate of 300 MMBtu/hr. Flolite re-refined oil blend is also used as a startup fuel and an alternate fuel during periods when raw material feed is stopped or when coal moisture content exceeds the normal range. Particulate emissions are controlled by the following baghouse:

Baghouse Description	Baghouse ID
Fuller Model 10744 Modular (18 Unit Reverse Air Dust Collector rated at 300,000 ACFM)	E-19

Location: U.S. Highway 98 North, NW of Brooksville

UTM: 17-356.9 E 3169.0 N **NEDS No:** 0010 **Point ID No:** 15

Replaces Permit No.: AC27-173474

PERMITTEE
Southdown, Inc. dba
Florida Mining & Materials
P.O. Box 6
Brooksville, FL 34605-0006

PERMIT/EXPIRATION
Permit No.: AO27-194660
County: Hernando
Expiration Date: 4/30/96
Project: No. 2 Kiln

Specific Conditions:

1. A part of this permit is the attached 15 General Conditions.

2. The No. 2 Kiln feed rate shall not exceed 130 tons per hour, yielding a maximum clinker production rate of 79.6 tons per hour, averaged on a rolling 30-day production period. [Permit No. AC27-173474].

3. The operation of the No. 2 Kiln shall not exceed 8,200 hours per year. [Permit No. AC27-173474].

4. Emissions from the No. 2 Kiln shall not exceed the following:

	Maximum Allowable Emissions	
Pollutant	pounds/hour	tons/year
Particulates (PM)	13.5	55.3
Sulfur Dioxide (SO2)	11.5	47.0
Nitrogen Oxides (NOx)	162.3	665.3
Volatile Organic Compounds (VOC)	7.4	31.2
Carbon Monoxide (CO)	64.0	262.2

[Permit No. AC27-173474].

5. Visible emissions shall not exceed 10% opacity. [Permit No. AC27-173474].

6. The No. 2 Kiln fuel input rate shall not exceed 300 MMBtu/hr. [Permit No. AC27-173474].

7. Except as allowed for in Specific Condition No. 8 below, the fuel used in No. 2 kiln shall be coal with a sulfur content of less than 1.0% by weight and sulfur content to heat content ratio not to exceed 0.83 pounds of sulfur per MMBtu of heat input.

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PERMIT/EXPIRATION
Permit No.: AO27-194660
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Expiration Date: 4/30/96
Project: No. 2 Kiln

Specific Conditions:

8. Flolite re-refined oil blend (or equivalent re-refined oil blend product), not to exceed 1.0% sulfur by weight, may be used as an alternate fuel in No. 2 Kiln under the following circumstances:

a. during periods of startup, not to exceed a total of 250 hours per year;

b. during periods when kiln material feed is stopped;

c. during periods when the coal moisture content exceeds the normal range.

The rate of Flolite (or equivalent) re-refined oil blend usage shall not exceed 2,069 gallons per hour. At all times, the Flolite (or equivalent) re-refined oil blend shall not contain metal/toxic concentrations that exceed the following:

Metal/Toxic	Maximum Allowed Concentration
Cadmium	0.3 ppm
Lead	5.0 ppm
Arsenic	1.0 ppm

[Permit No. AC27-173474].

9. Test the emissions from the No. 2 Kiln baghouse for the following pollutant(s) at intervals of 12 months ± 1 month from the date January 29, 1991 and submit a copy of the test data to the Air Section of the Southwest District Office within 45 days of such testing: [Rules 17-2.700(2) and 17-2.700(7), F.A.C.].

(X) Opacity (VE - Visible Emissions)
(X) Particulates (PM)
(X) Sulfur Dioxide (SO2)
(X) Carbon Monoxide (CO)
(X) Nitrogen Oxides (NOx)
(X) Volatile Organic Compounds (VOC)

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PERMIT/EXPIRATION
Permit No.: AO27-194660
County: Hernando
Expiration Date: 4/30/96
Project: No. 2 Kiln

Specific Conditions:

10. Compliance with the emission limitations of Specific Condition Nos. 4 and 5 shall be determined using the following EPA Methods contained in 40 CFR 60, Appendix A and adopted by reference in Rule 17-2.700, F.A.C.:

EPA Method 5 for PM
EPA Method 6 for SO2
EPA Method 7 for NOx
EPA Method 9 for VE
EPA Method 10 for CO
EPA Method 25A for VOC

The minimum requirements for stationary point source emissions test procedures and reporting shall be in accordance with Rule 17-2.700, F.A.C. and 40 CFR 60, Appendix A.

11. The visible emissions test shall be conducted by a certified observer and be a minimum of sixty (60) minutes in duration. The test observation period shall include the period during which the highest opacity emissions can reasonably be expected to occur. [Rule 17-2.700(1)(d)1.b., F.A.C.].

12. Testing of emissions must be conducted within 10% of the maximum permitted kiln feed rate of 130 tons/hour and heat input rate of 300 MMBtu/hr. A compliance test submitted at an operating rate less than 90% of maximum permitted rate will automatically constitute an amended permit at the lesser rate until another test showing compliance at a higher rate is submitted. Failure to submit the operating rate and actual operating conditions may invalidate the test. [Rule 17-4.070(3), F.A.C.].

13. The permittee shall notify the Southwest District Office of the Department at least 15 days prior to the date on which each formal compliance test is to begin of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted.
[Rule 17-2.700(2)(a)9., F.A.C.].

14. Emissions of NOx shall be minimized through use of low excess air firing. In order to document that this is being done, a continuous kiln exhaust gas oxygen monitor and data recorder shall be operated, calibrated and maintained. Data from the recorder shall be kept for the most recent 2 year period and made available upon request.

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PERMIT/EXPIRATION
Permit No.: AO27-194660
County: Hernando
Expiration Date: 4/30/96
Project: No. 2 Kiln

Specific Conditions:

15. The daily No. 2 Kiln feed rates and clinker production rates shall be monitored and recorded in accordance with 40 CFR 60.33. [Permit No. AC27-173474].

16. The following Kiln No. 2 fuel records shall be maintained and made available upon request:

a. Coal
(1) the daily coal usage rate in tons/day;
(2) the average coal sulfur content (using ASTM-D-3177-84) and heating value (Btu/lb) of each coal shipment based upon analysis of a sample representative of the shipment (trainload);
(3) calculation of average sulfur to heat content ratio (in lbs sulfur/MMBtu) for each shipment based upon the above analysis.

b. Flolite (or equivalent) Re-refined Oil Blend

(1) Log of all periods when Flolite (or equivalent) re-refined oil blend is used including the following:

(a) the conditions that required its use (i.e. startup, raw material feed stopped, etc.);
(b) the length of time the re-refined blend oil was fired (hrs);
(c) the quantity of re-refined oil blend used (gallons).

(2) Records of the following representative of each daily shipment of Flolite (or equivalent) re-refined oil blend received based upon vendor supplied data or upon the results of analysis of representative as-received samples taken from each daily shipment:

(a) sulfur content in %S by weight;
(b) concentration of cadmium in ppm;
(c) concentration of lead in ppm;
(d) concentration of arsenic in ppm.

[Permit No. AC27-173474].

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PERMIT/EXPIRATION
Permit No.: AO27-194660
County: Hernando
Expiration Date: 4/30/96
Project: No. 2 Kiln

Specific Conditions:

14. All reasonable precautions shall be taken to prevent and control generation of unconfined emissions of particulate matter in accordance with the provisions in Rule 17-2.610(3), F.A.C. These provisions are applicable to any source, including but not limited to, vehicular movement, transportation of materials, construction, alteration, demolition or wrecking, or industrial related activities such as loading, unloading, storing and handling. Specific work practices to minimize fugitive PM emissions shall include:

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

[Permit No, AC27-173474].

14. The applicant shall comply with all of the applicable provisions and requirements of 40 CFR 60 Subpart F (New Source Performance Standards - Portland Cement Plants) and F.A.C. Chapters 17-2 and 17-4. [AC27-173474].

15. Submit to the Southwest District Office of the Department each calendar year, on or before March 1, an emission report for this source for the preceding calendar year containing the following information pursuant to Subsection 403.061(13), F.S.:

(A) Annual amount of materials and/or fuels utilized;
(B) Annual emissions (note calculation basis);
(C) Any changes in the information contained in the permit.

PERMITTEE
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Florida Mining & Materials
P.O. Box 6
Brooksville, FL 34605-0006

PERMIT/EXPIRATION
Permit No.: AO27-194660
County: Hernando
Expiration Date: 4/30/96
Project: No. 2 Kiln

Specific Conditions:

16. Four applications to renew this operating permit shall be submitted to the Southwest District Office of the Department at least 60 days prior to the expiration date of this permit pursuant to Rule 17-4.090(1), F.A.C.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Richard D. Garrity, Ph.D.
Deputy Assistant Secretary
Southwest District

PAST BACT DETERMINATIONS

NO_x Emission Limits For Cement Kilns,
Portland Cement Manufacturing Facilities

Company Name	Date of Permit Issuance	Determination Made By	NO_x Emission Limit	Control Technology Or Process on
Ashgrove Cement West, Inc.	6/20/90	Washington DOE	478 ppmdv 590 lb/h	Temperature and fuel use reduction
Lone Star Industries	7/29/86	Monterey Bay Unified Agency, California	250 lb/hr	O_2 control on combust air to precalciner
Florida Crushed Stone	3/27/84	Florida DER	2.9 lb/T dry feed	Design
Dal-Tex Cement	9/3/82	Texas ACB	None	None
Las Vegas Portland Cement	2/1/82	EPA Region IX	281 lb/hr 115 ppm	None
Lonestar Industries Inc.	1/25/82	EPA Region X	300 lb/hr 1314 T/yr	Minimized by process design
Monolith Portland Cement Co.	12/23/81	EPA Region IX	260 lb/hr	Coal fired, wet process
Southwestern Portland Cement Co.	11/5/81	EPA Region VI	Unknown for 2 kilns, .32 lb/mmbtu for third kiln	Kiln design
Dixie Cement Co.	9/10/81	Tennessee APCD	110 lb/hr	Dry process/coal fired
Lonestar Portland Cement	1/16/81	EPA Region VIII	1.6 lb/T feed 236.6 lb/hr	Kiln
Creole Corp.	5/20/80	EPA Region IX	213 lb/hr 175 ppm at 10% O_2	Reduced temperature in precalcining furnace, and high fuel efficiency
Texas Cement Co.	5/16/80	EPA Region VI	240 lb/hr	Flash calciner, LEA
Lonestar Industries Inc.	2/19/80	EPA Region VI	360 lb/hr	Precalciner process design
California Portland Cement Co.	1/12/79	EPA Region IX	None	Reduced fuel usage, low furnace temperature
Kaiser Cement & Gypsum Corp.	12/26/78	EPA Region IX	1158 lb/hr	Reduced fuel usage and low temperature

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 750000.00 T/YR

COMPANY NAME/SITE LOCATION: ASH GROVE CEMENT WEST, INC. — SEATTLE, WA

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO. PSD-90-03
DETERMINATION MADE BY WASHINGTON DEPARTMENT OF ECOLOGY (AGENCY)
ALAN T. BUTLER, P.E. (AGENCY CONTACT PERSON)
DATE OF PERMIT ISSUANCE-- 06/20/90
ESTIMATED START-UP DATE--
(206)-867-7103 (PHONE)

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT NAME	EMISSION LIMITS/ CONTROL EQUIPMENT OR PROCESS MODIFICATION/ TOP DOWN BACT INFORMATION	... & BASIS ... PCT EFF
SYSTEM MAIN EXHAUST STACK				
		CO	1000.0000 PPMDV CORR. TO 10% O2	BACT
			538.0000 LB/H, 8 H AVG	
			PROCESS DESIGN	
		NOX	478.0000 PPMDV CORR TO 10% O2	BACT
			590.0000 LB/H, AVG	
			PROCESS DESIGN, BURN TEMP & FUEL USE REDUCTION	
		PM10	0.0100 GR/DSCF CORR. TO 10% O2	BACT
			43.0000 T/YR	
			BAGHOUSE	
		SO2	33.0000 PPMDV CORR TO 10% O2	BACT
			40.0000 LB/H, AVG	
			SO2 PREHEAT REMOVAL, PROCESS DESIGN	

NOTES --------
CEMENT KILN W/ SINGLE, COUNTER-CURRENT AIR STREAM FOR CLINKER COOLING, COMBUSTION AIR, AND RAW MATERIALS DRYING.
CEMS MUST CONFORM W/ 40 CF60 APP.B, PS 2,3,4. CERMS, TO DETERMINE LB/H EMISSIONS, MUST CONFORM WITH PS 6. SOURCE MUST HAVE QC PLAN CONFORMING WITH APP. F.

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

DATE ENTERED/UPDATED: 05/21/1991

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING

COMPANY NAME/SITE LOCATION: LONE STAR INDUSTRIES , CA

DETERMINATION IS: FOR A MODIFIED SOURCE.
PERMIT NO. 723-1
DETERMINATION MADE BY: MONTEREY BAY UNIFIED (AGENCY); FRED THOITS (AGENCY CONTACT PERSON); (408)-443-1135 (PHONE)

DATE OF PERMIT ISSUANCE-- 07/29/86
ESTIMATED DATE OF START-UP-- 1986

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
PLANT, PORTLAND CEMENT	100.00 T/H CLINKER				
		NOX	250.0000 LB/H	O2 CONTROL ON COMBUST AIR TO PRECALCINER	
PREHEATER, SUSPENSION, SEE NOTE					
		SO2	250.0000 LB/H	ALKALINE SLURRY INJ. SYSTEM	

NOTES --------
SUSPENSION PREHEATER WITH PRECALCINER & ROTARY KILN. P/O NO. P-2113 ISSUED 7-31-86. OPERATION PERMITTED FOR 330 DAYS/YEAR. FOR SO2 CONTROL ERIUP. 40-50% CONTROL EXPECTED.

(*) INDICATES DATUM HAS TRUNCATED FOR THIS TABLE.

REVIEW STATUS: INITIAL REVIEW POST STARTUP

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 600000.00 T/YR

COMPANY NAME/SITE LOCATION: FLORIDA CRUSHED STONE — BROOKSVILLE, FL

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO. FL-091
DETERMINATION MADE BY: FLORIDA DER (AGENCY); BOB KING (AGENCY CONTACT PERSON); (904)-488-1344 (PHONE)

DATE OF PERMIT ISSUANCE-- 03/27/84
ESTIMATED DATE OF START-UP-- 1985

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
KILN	124.00 T/H				
		PM	0.3000 LB/T DRY FEED	BAGHOUSE, SEE NOTE	99.00
		SO2	0.6000 LB/T DRY FEED	0.8% S COAL	
		NOX	2.9000 LB/T DRY FEED	DESIGN	
COOLER, CLINKER	75.00 T/H				
		PM	0.1000 LB/T KILN FEED	BAGHOUSE, SEE NOTE	99.00
KILN, COOLER					
		VE	10.0000 % OPACITY, MAX	BAGHOUSE, SEE NOTE	99.00
DRYER, RAWMILL					
		VE	10.0000 % OPACITY, MAX	BAGHOUSE, SEE NOTE	99.00
PLANT, ALL OTHER EMISSION POINTS					
		VE	5.0000 % OPACITY, MAX	BAGHOUSE	99.00

NOTES --------
NSPS SUBPART F APPLICABLE. SO2 EMISSIONS LIMITED TO PROTECT CHASSAHOWITZKA NATIONAL WILDERNESS CLASS I AREA AND TO ALLOW FUTUR
E INDUSTRIAL GROWTH. NOTE -- ONE LARGE BAGHOUSE THROUGH WHICH A 362 MW BOILER ALSO EXHAUSTS.
PROJECT DELAYED TO LATE 1985 DUE TO LITIGATION.

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 12/28/1984

APPENDIX -- DETAILED SOURCE LISTING

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 2900.00 T/D

COMPANY NAME/SITE LOCATION: DAL-TEX CEMENT — MIDLOTHIAN, TX — ELLIS COUNTY

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO. C-8996 — DATE OF PERMIT ISSUANCE-- 09/03/82
DETERMINATION MADE BY: TEXAS ACB (AGENCY) — GARY MCARTHUR (AGENCY CONTACT PERSON) — ESTIMATED DATE OF START-UP-- 1983
(512)-451-5711 (PHONE)

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS / CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
CEMENT KILN	2900.00 T/D	PM	0.3000 LB/T FEED BAGHOUSE	NSPS 99.00
		SO2		
		NOX		
COAL HANDLING	21.00 T/H	FUG*	SEE VE LIMIT	NSPS
		VE	20.0000 % OPACITY BAGHOUSE-UNLOAD,GRINDING,FEED BIN	99.00
FINISH MILLS	2900.00 T/D	PM	78.0000 T/YR BAGHOUSE	99.00

NOTES --------
NO EMISSION POINT FOR CLINKER COOLER. PART OF EXHAUST IS RECIRCULATED TO THE CLINKER COOLER THROUGH A HEAT EXCHANGER AND THE R
EMAINDER IS USED AS COMBUSTION AIR FOR THE KILN /PREHEATER/PRECALCINER.

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/01/1983
SOURCE TYPE CODE 9.4

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 6000.00 T/D

COMPANY NAME/SITE LOCATION: LAS VEGAS PORTLAND CEMENT — JEAN, NV

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO. NSR-4-7-1 NV-81-01
DETERMINATION MADE BY: EPA REGION IX (AGENCY) — BOB BAKER (AGENCY CONTACT PERSON) — (415)-974-8215 (PHONE)
DATE OF PERMIT ISSUANCE-- 02/01/82
ESTIMATED DATE OF START-UP--

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
KILN, 2	125.00 T/H EA				
		SO2	260.0000 LB/H 2H AV		BACT
			72.0000 PPM 2H AV		
				COAL LIMITED TO 0.9% S	80.00
		SO2	150.0000 LB/H 30D AV		BACT
			44.0000 PPM 30D AV		
				COAL LIMITED TO 0.9% S	80.00
		NOX	281.0000 LB/H		BACT
			115.0000 PPM		
		CO	30.0000 LB/H		BACT
		PM	98.0000 LB/H		BACT
			0.0125 GR/DSCF		
				ESP	99.90
		VE	10.0000 % OPACITY		BACT
				ESP	99.90
		BE	0.0290 LB/D		BACT
CLINKER COOLER, 2	125.00 T/H EA				
		PM	40.0000 LB/H		BACT
			0.0065 GR/DSCF		
				BAGHOUSE & MULTICYCLONE	99.90
		VE	10.0000 % OPACITY		BACT
				BAGHOUSE & MULTICYCLONE	99.90

NOTES --------
THIS FACILITY WAS NEVER BUILT.

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

REVIEW STATUS: INITIAL REVIEW 04/01/1983 POST STARTUP 02/13/1984

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 750000.00 T/YR

COMPANY NAME/SITE LOCATION: LONESTAR INDUSTRIES INC. — CONCRETE, WA

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO. (REGION FILE NO.) PSD-X82-03
DETERMINATION MADE BY: EPA REGION X (AGENCY); PAUL BOYS (AGENCY CONTACT PERSON); (206)-442-1105 (PHONE)

DATE OF PERMIT ISSUANCE-- 01/25/82
ESTIMATED DATE OF START-UP-- 1983

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
CEMENT KILN AND MILL	2.91 MMBTU/T CLI*				
		PM	0.0100 GR/ACF		
			20.8000 LB/H		
				BAGHOUSE, FIBERGLASS BAGS	99.90
		SO2	275.0000 LB/H		
			1205.0000 T/YR		
				MINIMIZED BY PROCESS DESIGN	
		NOX	300.0000 LB/H		
			1314.0000 T/YR		
				MINIMIZED BY PROCESS DESIGN	
CLINKER COOLER					
		PM	0.0100 GR/ACF		
			16.1000 LB/H		
				BAGHOUSE, NOMEX BAGS	
MATERIALS HANDLING EQUIP., 37 U*					
		PM	0.0100 GR/ACF		
			5.0000 % OPACITY		
				BAGHOUSE	
QUARRY, STACKER-RECLAIMER, COAL*					
		PM	10.0000 % OPACITY		
				WET SUPPRESION	

NOTES --------
BACT FOR PARTICULATE WAS BASED ON EXPECTED PERFORMANCE OF BAGHOUSES. IF THE KILN EMISSION LIMITATION IS EXPRESSED IN THE UNITS OF THE NSPS IT IS CONSIDERABLY SMALLER DUE TO PROCESS DESIGN AND BAGHOUSE PERFORMANCE.
THE PRECALCINER DESIGN IS EXPECTED TO RESULT IN LOWER SO2 AND NOX EMISSIONS THAN THE CONVENTIONAL WET OR DRY PROCESS CEMENT PLANT.

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/21/1983

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 5.00 MT/YR

COMPANY NAME/SITE LOCATION: MONOLITH PORTLAND CEMENT CO. — MONOLITH, CA

DETERMINATION IS BACT FOR A MODIFIED SOURCE.
PERMIT NO. (REGION FILE NO.) SE 78-11
DETERMINATION MADE BY: EPA REGION IX (AGENCY); DON HARVEY (AGENCY CONTACT PERSON); (415)-974-8223 (PHONE)

DATE OF PERMIT ISSUANCE-- 12/23/81
ESTIMATED DATE OF START-UP--

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
ROTARY KILN	500000.00 T/YR				
		NOX	260.0000 LB/H	COAL FIRED, WET PROCESS	BACT
		SO2	300.0000 LB/H	BAGHOUSE ALKALINE CEMENT DUST	BACT 90.00
		PM	21.4000 LB/H 0.0250 GR/DSCF	BAGHOUSE	NSPS 99.80
		BE	21.4000 LB/H 0.0200 GR/DSCF	BAGHOUSE	NSPS 99.00
KILN DUST RECYCLE		PM		NONE	
CLINKER COOLER	500000.00 T/YR	PM	12.9000 LB/H 0.0120 GR/DSCF	BAGHOUSE REINJECTION INTO KILN	NSPS

NOTES --------
CONSTRUCTION OF A ROT. CEMENT KILN, CLINKER COOLER, AND COAL MILL. ONLY LOW SULFUR FUEL (1.5% BY WT.) MAY BE USED IN KILN. QUARTERLY BERYLLIUM MONITORING IS REQUIRED. BACT DETERMINATION: 1) TECHNOLOGY & ECONOMICS, 2) TECHNOLOGY, 3) TECH. AND NSPS.

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

REVIEW STATUS:	INITIAL REVIEW	POST STARTUP
	04/01/1983	04/04/1984

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 4000.00 T/D

COMPANY NAME/SITE LOCATION: SOUTHWESTERN PORTLAND CEMENT CO. — LEA ODESSA, TX — ECTOR COUNTY

DETERMINATION IS BACT FOR A MODIFIED SOURCE.
PERMIT NO. (REGION FILE NO.) P3D-TX-352M-1
DETERMINATION MADE BY: EPA REGION VI (AGENCY) — JOHN BENHAM (AGENCY CONTACT PERSON) — (214)-767-1594 (PHONE)
DATE OF PERMIT ISSUANCE-- 11/05/81
ESTIMATED DATE OF START-UP--

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
KILN 1, COAL FIRED	187.50 MMBTU/H				
		SO2	1.1180 LB/MMBTU	NONE	BACT
		PM		UNKNOWN	
		NOX		UNKNOWN	
KILN 2, COAL FIRED	165.00 MMBTU/H				
		SO2	0.5240 LB/MMBTU	MODERAT. S COAL/PARTIAL SCRUB.	BACT
		PM		UNKNOWN	
		NOX		UNKNOWN	
KILN 3, COAL FIRED	275.00 MMBTU/H				
		PM	0.3000 LB/T D FEED	2 BAGHOUSES	NSPS 99.00
		SO2	0.4880 LB/MMBTU	LOW S COAL/PARTIAL SCRUBBING	BACT
		NOX	0.3200 LB/MMBTU	KILN DESIGN	BACT
BLEND SILO					
		PM	1.2300 LB/H	BAGHOUSE	BACT 99.00
COAL MILL					
		PM	4.2500 LB/H	BAGHOUSE	BACT 99.00
COAL TRANSFER					

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

REVIEW STATUS: INITIAL REVIEW POST STARTUP 04/01/1983

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING

COMPANY NAME/SITE LOCATION: DIXIE CEMENT CO. — RICHARD CITY, TN — MARION COUNTY

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO.
DETERMINATION MADE BY: TENNESSEE APCD (AGENCY) — ANN NIELSON (AGENCY CONTACT PERSON) — (615)-741-3651 (PHONE)

DATE OF PERMIT ISSUANCE-- 09/10/81
ESTIMATED DATE OF START-UP--

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
KILN	330000.00 LB/H				
		PM	0.3000 LB/T KILN FEED		
			33.0900 LB/H		
				FABRIC FILTER	99.90
		SO2	4.1600 LB/H		
				LIMESTONE INJECTION	85.00
		NOX	110.0000 LB/H		BACT
				DRY PROCESS/COAL FIRED	
CLINKER COOLER	198413.00 LB/H				
		PM	15.8700 LB/H		BACT
				FABRIC FILTER	99.90

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/01/1983

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 1.70 MT/D

COMPANY NAME/SITE LOCATION: LONESTAR PORTLAND CEMENT, NEAR GRANTSVILLE — , UT, TOOLE COUNTY

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO.
DETERMINATION MADE BY: EPA REGION VIII (AGENCY); JOHN DALE (AGENCY CONTACT PERSON)

DATE OF PERMIT ISSUANCE-- 01/16/81
ESTIMATED DATE OF START-UP--
(303)-837-3763 (PHONE)

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
ADD. RECLAIM		PM	0.5100 LB/H	FF	BACT 99.90
AIR SEPARATOR		PM	3.8600 LB/H	FF	BACT 99.90
ALKALI BYPASS		PM	3.0000 LB/H	FF	BACT 99.90
		VE	20.0000 % OPACITY		
CEM SILO BUCKET		PM	0.6900 LB/H	FF	BACT 99.90
CEM SILO LDOUT		PM	2.1400 LB/H	FF	BACT 99.90
CLK COOL ELEV		PM	0.3300 LB/H	FF	BACT 99.90
CLK COOLER		PM	11.1000 LB/H	FF	BACT 99.90
		VE	20.0000 % OPACITY		
CLK RECL					

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/01/1933

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
SAME PROCESS (CONTINUED)					
		PM	0.5800 LB/H	FF	BACT 99.90
COAL CRUSHER	61.90 MT/YR				
		PM	0.5900 LB/H	FF	BACT 99.90
		VE	10.0000 % OPACITY		
COAL MILL	61.90 MT/YR				
		PM	1.7100 LB/H	FF	BACT 99.90
		VE	10.0000 % OPACITY		
COAL MILL SURGE					
		PM	0.3400 LB/H	FF	BACT 99.90
FINISH MILL					
		PM	2.5700 LB/H	FF	BACT 99.90
FRINGE BIN					
		PM	0.2600 LB/H	FF	BACT 99.90
GYP BIN LDOUT					
		PM	0.4300 LB/H	FF	BACT 99.90
HI-LIME LDOUT					
		PM	0.2100 LB/H	FF	BACT 99.90
KILN GASES	1.70 MT/D				
		NOX	1.6000 LB/T FEED		BACT
			236.6000 LB/H	KILN	
		SO2	0.6000 LB/T FEED		BACT
			64.5000 LB/H	KILN	85.00
LIMESTONE RECL					
		PM	0.5100 LB/H	FF	BACT 99.90
RAW MILL					
		PM	12.0000 LB/H	FF	BACT 99.90
		VE	20.0000 % OPACITY		

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/01/1983

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 1.10 MMT/YR

COMPANY NAME/SITE LOCATION: CREOLE CORP., NEAR PLASTER CITY, CA, IMPERIAL COUNTY

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO. (REGION FILE NO.) SE-78-09
DETERMINATION MADE BY: EPA REGION IX (AGENCY); DON HARVEY (AGENCY CONTACT PERSON); (415)-974-8223 (PHONE)
DATE OF PERMIT ISSUANCE-- 05/20/80
ESTIMATED DATE OF START-UP--

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
PREHEATER/KILN MILL (2)	500000.00 T/YR CEMENT*				
		PM	23.7000 LB/H		
			0.0180 GR/DSCF EA		
				BAGHOUSE	99.90
		SO2	78.3000 LB/H		
			46.0000 PPM AT 10% O2		
				ABSORPTION OF SULFUR OXIDES BY ALKALI	85.00
				LOW SULFUR COAL	
		SO2	266.0000 LB/H		
			156.0000 PPM AT 10%O2		
				INCREASED CONTACT BETWEEN ALKALI AND SULFUR BE*	
		NOX	213.0000 LB/H		
			175.0000 PPM AT 10%O2		
				REDUCED TEMPERATURE IN PRECALCINING FURNACE	
				HIGH FUEL EFFICIENCY	
CLINKER COOLER					
		PM	10.2000 LB/H		
			0.0130 GR/DSCF EA		
OTHER PM POINT SOURCES					
		PM	0.0150 GR/ACFM		
				BAGHOUSES	
INPLANT ROADS					
		PM			
				PAVING AND SWEEPING	

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/01/1983 04/04/1984

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 2750.00 T/D

COMPANY NAME/SITE LOCATION: TEXAS CEMENT CO., P.O. BOX 610 — BUDA, TX 78610

DETERMINATION IS BACT FOR A MODIFIED SOURCE.
PERMIT NO. TX-194
DETERMINATION MADE BY: EPA REGION VI (AGENCY) — JOHN BUNYAK (AGENCY CONTACT PERSON) — (214)-767-1539 (PHONE)

DATE OF PERMIT ISSUANCE-- 05/16/80
ESTIMATED DATE OF START-UP--

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
KILN & RAW MILL	2750.00 T/D				
		PM	33.7000 LB/H	BAGHOUSE	BACT 99.90
		NOX	240.0000 LB/H	FLASH CALCINER, LEA	BACT
		SO2	416.0000 LB/H	MATERIAL ALKALINITY	BACT 75.00
MATERIAL CRUSHING		PM	5.9000 LB/H	BAGHOUSE	BACT 99.80
BLENDING SILOS		PM	3.1000 LB/H	BAGHOUSE	BACT 99.80
CLINKER COOLER		PM	6.6000 LB/H	BAGHOUSE	BACT 99.00
FINISH SILO		PM	2.1000 LB/H	BAGHOUSE	BACT 99.80
COAL & GYPSUM HANDLING		PM	3.2000 LB/H	BAGHOUSE	BACT 99.80
CEMENT BAG PACKING		PM	1.8000 LB/H	BAGHOUSE	BACT 99.00

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/01/1983

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 1.00 MMT/YR

COMPANY NAME/SITE LOCATION: LONESTAR INDUSTRIES INC. — GEORGETOWN, TX — WILLIAMSON COUNTY

DETERMINATION IS BACT FOR A NEW SOURCE.
PERMIT NO. PSD-TX-174
DETERMINATION MADE BY: EPA REGION VI (AGENCY) — BILL TAYLOR (AGENCY CONTACT PERSON) — (214)-767-1594 (PHONE)

DATE OF PERMIT ISSUANCE-- 02/19/80
ESTIMATED DATE OF START-UP-- 1981

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
KILN MILL & ALKALI BYPASS	1.00 MMT/YR				
		PM	30.6000 LB/H	BAGHOUSE	99.90
		SO2	960.0000 LB/H	PRECALCINER PROCESS DESIGN	80.00
		NOX	360.0000 LB/H	PRECALCINER PROCESS DESIGN.	
TRUCK AND RAIL UNLOAD					
		PM	0.5000 LB/H	BAGHOUSE	99.90
COAL RECLAIM TRANSFER					
		PM	0.3000 LB/H	BAGHOUSE	99.90
LIMESTONE STORAGE					
		PM	0.6000 LB/H	BAGHOUSE	99.00
LIMESTONE RECEIVING					
		PM	0.2000 LB/H	BAGHOUSE	99.90
LIMESTONE RECLAIM TRANSFER					
		PM	0.3000 LB/H	BAGHOUSE	99.90
ROLLER MILL SURGE BIN					
		PM	0.3000 LB/H	BAGHOUSE	99.90

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/01/1983

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING

COMPANY NAME/SITE LOCATION: CALIF. PORTLAND CEMENT CO — MOJAVE, CA

DETERMINATION IS BACT FOR A MODIFIED SOURCE.
PERMIT NO. (REGION FILE NO.) SJ-78-73
DETERMINATION MADE BY: EPA REGION IX (AGENCY) — DON HARVEY (AGENCY CONTACT PERSON)

DATE OF PERMIT ISSUANCE-- 01/12/79
ESTIMATED DATE OF START-UP--
(415)-974-8223 (PHONE)

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
PRECALCINER - KILN	1.00 MMT/YR CEME*				
		PM	36.0000 LB/H	BACT	
				BAGHOUSE	99.90
		SO2	616.0000 LB/H	BACT	
				ABSORPTION BY ALKALI	70.00
		NOX		NONE	
				REDUCED FUEL USAGE, LOW FURNACE TEMP.	
CLINKER COOLER					
		PM	21.0000 LB/H	BACT	
				BAGHOUSE	99.60
PRIMARY CRUSHER					
		PM	5.0000 LB/H	BACT	
				BAGHOUSE	99.50
SAMPLE SYS, SURGE SILO					
		PM			
				BAGHOUSE	99.50
SAMPLE SYS, SURGE SILO RECLAIM					
		PM			
				BAGHOUSE	99.50
CONVEYORS & TRANSFER					
		PM			
				BAGHOUSE	99.50
MILLS & SCREENS					
		PM			
				BAGHOUSE	99.50

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

INITIAL REVIEW POST STARTUP
REVIEW STATUS: 04/01/1983 04/04/1984

SOURCE TYPE/SIZE: PORTLAND CEMENT MANUFACTURING — 1.60 MMT/YR

COMPANY NAME/SITE LOCATION: KAISER CEMENT & GYPSUM CORP. — PERMANENTE, CA

DETERMINATION IS BACT FOR A MODIFIED SOURCE.
PERMIT NO. SFB-78-03
DETERMINATION MADE BY: EPA REGION IX (AGENCY); DON HARVEY (AGENCY CONTACT PERSON); (415)-974-8223 (PHONE)

DATE OF PERMIT ISSUANCE-- 12/26/78
ESTIMATED DATE OF START-UP--

PROCESSES SUBJECT TO THIS PERMIT	THROUGHPUT CAPACITY	POLLUTANT EMITTED	EMISSION LIMITS	CONTROL EQUIPMENT OR PROCESS MODIFICATION	... & BASIS ... PCT EFF
KILN-MILL, #1 & 2	5000.00 T/D				
		PM	18.0000 LB/H		
			0.0200 GR/DSCF		
				BAGHOUSE	99.00
		SO2	481.0000 LB/H		BACT
			165.0000 PPM		
				ALKALI ABSORPTION, PREHEATER, AND BAGHOUSES	
				1.0% S COAL (ANNUAL AVERAGE) 2.0% S (TRAINLOAD)	
		NOX	1158.0000 LB/H		BACT
				REDUCED FUEL USAGE & LOW TEMPERATURE	
CLINKER COOLER					
		PM	5.3000 LB/H		
			0.0100 GR/DSCF		
				BAGHOUSE	
PRECALCINER COAL SYS					
		PM	3.5000 LB/H		
			0.0200 GR/DSCF		
				BAGHOUSE	
KILN COAL SYS					
		PM	3.5000 LB/H		
			0.0200 GR/DSCF		

NOTES --------
MODIFY EXISTING WET PROCESS FACILITY TO DRY USING SUSPENSION PREHEATERS & PRECALCINERS. SO2 AND NOX LIMITS SUBJECT TO REVISION UPON COMPLETION OF EMISSION TESTING -- LACK OF EMISSIONS DATA FROM PROCESS.
FUGITIVE DUST SOURCES TO BE CONTOLLED BY APPROPRIATE MEANS (COVERING, SUPPRESSION AND STABILIZATION SYSTEMS) SUCH THAT THERE ARE NO VISIBLE EMISSIONS.

(*) INDICATES DATUM WAS TRUNCATED FOR THIS TABLE.

	INITIAL REVIEW	POST STARTUP
REVIEW STATUS:	04/01/1983	04/04/1984